

**ANALYSIS OF THE PERFORMANCE OF THE RENNIES
PROVIDENT FUND'S INVESTMENT MANAGEMENT
STRATEGY**

**A case study on whether the Investment Fund
Management Strategy employed by the Rennies
Provident Fund has created or destroyed shareholder
value**

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By

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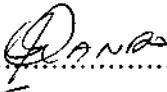
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DECLARATION

I, THANDO QAMARANA, declare that this research report is my own unaided work except as indicated in the acknowledgements, the text and references. It is being submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Graduate School of Business, University of KwaZulu Natal. This report has not been submitted before, neither in whole or in part, for any degree or examination at any other university.

THANDO QAMARANA

Signature 

Date 18 JANUARY 2008

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DEDICATION

This dissertation is dedicated to my mother, Mrs. E.N. Qamarana.

ABSTRACT

In this study, the performance of the Rennies Provident Fund's management strategy is reviewed. The study aims to determine whether the Fund's management strategy created or destroyed shareholder value over the past 17-year period of its existence up to and including the 2004 financial year.

First, the Rennies Provident Fund's performance is reviewed against its internally set performance objective of returning CPI (consumer price index) + 3% to its members. Secondly, the Fund's performance is compared to that of similar pension funds. Thirdly, the performance objective that the Fund has set itself is critiqued against the performance objectives of other pension funds. Finally, the value-based performance measurement approach is applied to the fund to determine whether shareholder value has been created or destroyed in absolute money terms during the 2003 financial year.

This study finds that the Rennies Provident Fund has on average achieved the required internally set benchmark of returning CPI + 3% over the 17-year period of its existence. However, when the performance of the Fund is compared to available data for similar funds over a 12-year period, this study finds that the Rennies Provident Fund performed poorly. Further, this study also finds that in absolute monetary terms, the Rennies Provident Fund destroyed shareholder value over the 17-year review period.

DEFINITION OF CONCEPTS

Shareholders	For the purposes of this study, these are the members of the Rennies Provident Fund who make monthly contributions to the fund.
Value creation¹	This occurs when the Fund's returns are above the CPI + 3% as set in the Fund's draft policy document and also exceed returns from a passive benchmark. ²
Value destruction	This occurs when the Fund's returns are below the set minimum performance standards of CPI + 3%, or when they are above it but below the returns from a passive benchmark.
Fund management strategy	The long-term distribution of investors' assets among various asset classes, taking into consideration, e.g., the goals of the trustees, attitude to risk, time frame, etc.

¹ In this study a comparison will be made with returns offered by other actively managed funds with similar characteristics to those of the Rennies Provident Fund. Such a comparison could reveal that although internally focused reviews might conclude that shareholder value has been created, value has in actual fact been destroyed to the extent to which the Rennies Provident Fund has underperformed among its industry peers.

² Bodie et al 2002, advance that even if an actively managed fund gives back to its members returns above the set performance standards, but such returns are below those offered by a passively managed fund/benchmark, then the actively managed fund has by definition destroyed shareholder value to the extent to which its returns fall below those of the market index.

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CHAPTER 1: ORIENTATION

1.1 INTRODUCTION

This study evaluates the performance of the Rennies Provident Fund with the aim of expressing an opinion on whether the investment fund management strategy employed by the Fund has created or destroyed shareholder value.

The Rennies Provident Fund ("the Fund") is a defined-contribution provident fund that was established in terms of the Pension Funds Act of 1956. The Fund was established on 1 May 1986.

The stated principal long-term goal of the Fund is to provide a generous lump sum to members on retirement which will be the sum total of the individual policy holders' build-up of contributions and the real growth of the fund. More specifically, the Fund has set itself a long-term performance target of returning no less than (CPI + 3%) per annum. The Fund strives to find and maintain a balance between minimising the members' risk and maximising their benefits. To achieve this, the Fund requires superior investment returns, having due regard to the term and nature of the Fund's obligations and the associated investment risk.

As it is a defined-contribution fund, the members bear all the investment risks and consequently take a keen interest in the performance of the Fund, as the Fund's cumulative performance will ultimately determine the final benefit due to them as members. In order to determine whether the Rennies Provident Fund's investment management strategy has destroyed or created shareholder value, three approaches can be employed:

- ⇒ The performance of the Fund can be reviewed against the performance objectives it has set for itself. To ascertain the true level of under-performance or over-performance of the Fund it is imperative that the results obtained be compared to a suitable passive benchmark as well. This will enable the trustees of the Fund to make a sound decision either by electing to follow a passive investment strategy or by continuing to make use of the services of active fund managers.
- ⇒ The performance of the fund can be compared to what other funds - which follow active management and are of similar characteristics as the Rennies Provident Fund - have returned to their members over the period under review, and
- ⇒ One can use the value-based method as advanced by Bagot and Armitage (2003), which measures the managers' contribution by the difference between the final market value of the investors' holding in the fund, with its associated cash flows over time, and the final value of the equivalent holding in the fund's benchmark.³

For this study, the answer to whether the fund is creating or destroying shareholder value will be ascertained using all three approaches.

First, the Fund's returns will be compared to its set investment target of returning +3 percentage points above the applicable inflation rate.

³ The value-based method is a form of money weighting, in that the impact of the manager's interval-specific decisions on the final value of the holding is positively related to the preceding cash flows made by the investor. Performance evaluation in terms of value is advantageous if there is more than one interval. It enables attribution analysis to be conducted precisely and transparently, and it enables the investor to be presented with a customised report of the manager's contributions to his or her holding. This information can not be provided satisfactorily using other performance evaluation approaches.

Secondly, the target that the Rennies Provident Fund has set itself will be reviewed in the light of what the Fund's industry peers have offered to their members as returns. To this end, comparison will be made to returns from retirement fund's exhibiting similar characteristics to the Rennies Provident Fund in respect of their members' risk profile, size and investment objectives. By comparing the actual performance of the Fund against the performance objectives it has set for itself and also against the returns from other similarly managed funds (or an applicable benchmark) with similar characteristics, this study will be able to determine whether there is additional shareholder value that the Fund might have destroyed.

To illustrate this point, suppose that the Fund has returned on average 15% per annum over a 17-year period and that inflation has averaged 9% per annum over the same period while the market has returned 12% per annum for the same period⁴. If the Fund has set itself a return of +3% then one would conclude that shareholder value has been created, namely, to the degree to which the real returns of the Fund exceed those returned by the market. In this case that would be:

Value created = (Realised real returns – Management costs) – Market portfolio real returns

Where:

- ⇒ Realised real returns are the Fund's returns, net after inflation as measured by the CPI;
- ⇒ Market portfolio returns are the returns from a corresponding passively

⁴ The 15% is net, after deduction of management fees and all other applicable costs.

managed zero-load fund; and

⇒ Management costs equal the fees that are levied on members of the Fund by the investment fund managers managing the fund.

Thus,

$$\begin{aligned}\text{Value created} &= (15\% - 9\%) - (12\% - 9\%) \\ &= 3\%\end{aligned}$$

However, if similarly managed funds exhibiting the same characteristics as the Rennies Provident Fund have on average returned 17% over the same period, then the conclusion will be different⁵:

$$\begin{aligned}\text{Average Peer group real returns} &= (17\% - 9\%) \\ &= 8\%\end{aligned}$$

Thus, comparatively the fund has underperformed among its peers by

$$\begin{aligned}&= 8\% - 6\% \\ &= 2\%\end{aligned}$$

Added value amounting to 2% would in fact have been destroyed by the Fund. The added benefit of this approach would be that it gives an indication of whether the set performance target is aggressive enough in view of what members of the Fund can get elsewhere.

Thirdly, the value-based method will be used to identify the impact of the Fund's investment management strategy on the member's investments in monetary

⁵ The 17% is net after deduction of management fees and all other applicable costs.

terms as at the end of the 2003 financial year. In order to determine this impact, one-on-one interviews with a sample of the Fund's members will be carried out to gather the necessary data.

1.2 BACKGROUND

This study was conducted against a backdrop of an increasing level of dissatisfaction from members of the Rennies Provident Fund employed at South African Container Depots (SACD) with the negative returns declared by the fund for the financial year ending 30 April 2003. The Fund declared returns of -5,7% for the year ending 30 April 2003 as a result of poor performance, which the administrators of the Fund ascribed to unfavourable equity market conditions. The majority of policyholders employed by SACD were strongly of the view that the investment management houses that were contracted to manage the assets of the Fund did not add value to the fund, because of their failure to make the necessary asset switches and minimise losses during the year 2003.

In this study *added value* is defined by means of an adapted formula from Blake and Board (2000) as follows:

Added value = (Realised real returns - Management costs) - Base fund value

Where:

- Realised real returns are the Fund's returns, after inflation as measured by the CPI;
- Base fund value is the returns from a corresponding passively managed zero-load fund; and

- Management costs equal the fees that are levied on the members of the Fund by the investment fund managers appointed to manage the fund.

Some policyholders held that the asset managers employed by the fund destroyed shareholder value as a result of incompetence which was more evident during the 2003 financial year.

The negative returns posted for the 2003 financial year and the average bonus declaration of 13,0% per annum are advanced as the basis for the expressed lack of confidence on the performance of the Rennies Provident Fund in general.

1.3 PROBLEM STATEMENT

In any business undertaking, those who pay for a service typically want to evaluate those who perform the service; in this regard the society of professional money managers is not immune.⁶

As pointed out in the introductory section of this study, members of the Rennies Provident Fund were very dissatisfied with the negative 5,7% returns declared by the Fund for the 2003 financial year. This poor performance for the 2003 financial year was heavily felt by the policyholders who had been with the Fund for a long time; for some, the –5,7% returns translated to fund value reductions in excess of R17 000 to R20 000 for the 2003 financial year. Because of this poor performance, these members became extremely sceptical of the abilities of the fund managers in charge of the assets of the Fund and in fact suggested that there should be a management change.

⁶ Investment Analysis and Portfolio Selection, (1983:772), 2nd Edition, South Western Publishing Company.

When confronted with market dynamics, funds that are actively managed should in principle deliver above-average returns and outperform indexed funds, precisely because of the market timing ability and stock selection prowess of the investment professionals managing these funds.

This study seeks to determine whether the fund management strategy of the Rennies Provident Fund created or destroyed shareholder value since its inception. In view of the Fund's performance thus far, the trustees were also faced with the challenge of deciding whether the fund will not be better served following a passive investment strategy as opposed to making use of the different asset management houses that the fund has contracted.

1.4 RESEARCH OBJECTIVES

The findings of this study can be used to elicit discussion amongst the trustees of the Rennies Provident Fund whether the Fund would not be better served by following a passive investment management approach, as opposed to the current active investment management approach.

1.5 RESEARCH QUESTIONS

The current study seeks to answer the following research questions:

- ⇒ What were the posted returns of the Rennies Provident Fund to date, since its inception?
- ⇒ Did these posted returns meet the Fund's set investment objectives?

- ⇒ Did the Fund have reasonable and competitive investment objectives over the observation period?
- ⇒ What was the adopted fund management strategy of the Rennies Provident Fund over the observation period?
- ⇒ What was the impact of this adopted fund management strategy on the investment holdings of the fund's individual members as at the end of the financial year 2003?
- ⇒ With hindsight, was the asset allocation of the Rennies Provident Fund in 2003 an optimal allocation, given the market outlook at the time?
- ⇒ What alternative fund management strategies were available to the Rennies Provident Fund over the same observation period?
- ⇒ How did these alternative fund management strategies perform, compared to the Rennies Provident Fund?
- ⇒ Did the fund managers of the Rennies Provident Fund change their strategies in times of poor performance, and did these changes result in improved performance?
- ⇒ Did the multi-manager approach used by the Rennies Provident Fund create the required cushion during the observation period?

1.6 RESEARCH METHODOLOGY

This section will look at the research methodology to be followed and the reasoning behind it. The chosen research design will be discussed, and the discussion will include defining the appropriate population for the study, the sampling method to be used and the various types of data collection tools or measurement instruments.

1.6.1 Methodology Paradigm

According to Neuman (1997), a research paradigm is a basic orientation to theory and research. Dietrich and Shafer (1984) argue that a methodology is an observation or measurement of a phenomenon of interest and can generally be classified as one of the following three types:

- ⇒ Qualitative paradigm;
- ⇒ Quantitative paradigm; and
- ⇒ Triangulation.

Since the aim of this study is to determine whether the Rennies Provident Fund created or destroyed shareholder value, i.e. to find a yes or no type of answer, a qualitative approach is more appropriate. The research methodology to be followed in this study is the qualitative single case study method. According to Tellis (1997), the case-study methodology is best suited to instances where the researcher wishes to investigate a specific case and does not intend to generalise the findings of the study. Further, in view of the fact that this study was initiated as an internal study by a member of the Rennies Provident Fund, the single case-study approach was found to be the most appropriate (Yin 1994 cited by Tellis, 1997) and (Stake 1995 cited by Tellis, 1997).

1.6.2 Research Design

A research design is a plan of how the research will be conducted. Thus, it covers the identification of research participants, the collection of information and its analysis. According to Stake (1995), with experimental studies and quasi-experimental studies, the data collection and analysis methods are known to hide some detail. The case-study design, on the other hand, is holistic and allows for

in-depth investigation of phenomena.

Case studies permit a multi-perspective analysis of phenomena which enables the researcher to consider the input of various actors and their interaction (Feagin *et al* 1991 cited by Tellis, 1997). Snow and Anderson (cited by Tellis, 1997) asserted that a case study is known as a triangulated research strategy and that triangulation can occur with data, investigators, theories and even methodologies. According to Stake (1995), the protocols that are used to ensure accuracy and alternative explanations are called triangulation, and the need for triangulation arises from the ethical need to confirm the validity of the processes.

It is for the above-mentioned reasons that the researcher will apply a case study designed to bring out the details from the viewpoint of the various stakeholders by using multiple sources of data (both primary and secondary sources).

The identified data sources for this study are:

- ⇒ Documentation from the Rennies Provident Fund, annualised returns from other funds, performance reports from various asset management firms, study reports or any other relevant documentation that could add to the database.
- ⇒ Archival records, which include survey data (completed questionnaires). Confidentiality of the survey respondents is ensured by assigning codenames to the respondents.
- ⇒ Interviews of trustees to fill in gaps in the policy documents.

The population and sampling method will be discussed in the next section.

1.6.3 Population

According to Donald and Schlinder (2003 cited Tellis, 1997), research projects have a unit of study which is generally referred to as the population element. While this population element can be a person, it can easily be something else.

For the purposes of this study, the population element is specified as all the members of the Rennies Provident Fund employed by South African Container Depots in Cape Town during the fourth quarter of 2003.

1.6.4 Sampling

With many research projects there are generally financial and time constraints that researchers must grapple with. In order to manage these constraints, researchers take a sample of the target population and use the findings from the sample to generalise their findings (Donald and Schlinder, 2003 cited Tellis 1997).

For the purposes of this study, all the members of the Rennies Provident Fund were to be surveyed who were employed by South African Container Depots in Cape Town during the fourth quarter of 2003. Thus, no sample was to be drawn but a census was to be taken.

The reason for choosing a census was that the target population was not more than 100 members and they were located in one depot in Cape Town. Thus it would not be expensive to survey all the members, and a census in turn would limit the error margins that are inherent in most research studies using samples.

1.6.5 Data Collection Methods

A case study is known as a triangulated research strategy (see 1.6.2). Stake (1995 cited by Tellis, 1997) stated that the protocols used to ensure accuracy and alternative explanations are called triangulation. The need to triangulation

arises from the ethical need to confirm the validity of the process. In case studies this could be done using multiple sources of data (Yin 1984 cited by Tellis, 1997). Tellis (1997) argues that the problem in case studies is to establish meaning rather than location.

Stake (1995 cited by Tellis, 1997) and Yin (1994 cited by Tellis, 1997) identified six sources of evidence in case studies, and these were:

- ⇒ Documents
- ⇒ Archival records
- ⇒ Interviews
- ⇒ Direct observation
- ⇒ Participant-observation
- ⇒ Physical artefacts

According to Tellis (1997), when the researcher wants to triangulate evidence, documents can be used to corroborate evidence from other sources. For this study, only the first three sources of data listed above will be used, as discussed in section 1.6.2 above. Denzin (1984 cited by Tellis, 1997) identified four types of triangulation: data source triangulation, when the researcher looks for the data to remain the same in different contexts; investigator triangulation, when several investigators examine the same phenomenon; theory triangulation, when investigators with different viewpoints interpret the same results; and methodological triangulation, when one approach is followed by another, to increase confidence in the interpretation.

According to Yin (1994 cited by Tellis, 1997), there are three tasks that must be

carried out as part of the actual case study. These three tasks are: preparation for data collection, distribution of the questionnaire and conducting interviews. Data collection should be treated as a design issue that will enhance the internal validity of the study, as well as the external validity and reliability.

In order to increase the reliability of the study, the survey questionnaire was to be hand-delivered to the participants through shift supervisors. Reminders would be sent to participants one week after the original contact to encourage participation.

1.6.6 Analysis

According to Tellis (1997), analysing case study evidence is the least developed aspect of the case study methodology and hence the most difficult. Tellis (1997) further states that some researchers have suggested that if the study were made conducive to statistical analysis, the process would be easier and more acceptable. Miles and Huberman (1984 cited by Tellis, 1997) suggested analytic techniques such as rearranging the arrays, placing the evidence in a matrix of categories, creating flowcharts or data displays, tabulating the frequency of different events, using means, variances and cross-tabulations to examine the relationships between variables, and other such techniques to facilitate analysis.

Tellis (1997) argues that there must first be an analytic strategy that will lead to conclusions. Yin (1994 cited by Tellis, 1997) presented two strategies for general use: one is to rely on theoretical propositions of the study, and then analyse the evidence based on those propositions. The other technique is to develop a case description, which would be a framework for organising the case study. According to Tellis (1997), Lynd conducted a widely cited Middletown study in 1929, and used a formal chapter construct to guide the development of the

analysis. Tellis (1997) further argues that in other situations, the original objective of the case study may help to identify some causal links that could be analysed.

1.6.7 Validity and reliability

Validity is a term used in research methodology which indicates the extent to which a test complies with the aim it was designed for. Reliability, on the other hand, deals with how certain a researcher is that an inference he/she has made is correct. Since all inferences are based on partial information about a population, there is always a chance that the inference made could be incorrect. The science of statistics however recognises this fact and requires that every inference be accompanied by a measure of reliability. Dietrich and Schafer (1984 cited by Tellis, 1997).

According to Tellis (1997), reliability and validity are the most critical elements of all research projects.

1.7 IMPORTANCE OF THE STUDY

This case study is important to the Trustees of the Rennies Provident Fund as it will provide them with empirical evidence of how the members of the Fund perceive the performance of the Fund, while also providing important information on their risk profile and preference.

This case study can also assist in eliciting discussion amongst the trustees on the desirability of continuing with the current investment fund strategy in view of the Fund's historical performance compared to similar pension funds, as well as the demographic profile of the Fund's membership.

1.8 LIMITATION OF THE STUDY

According to Tellis (1997), early criticism of the case study as a research methodology was that it was unscientific in nature because replication was not possible. Notwithstanding this limitation, Tellis (1997) pointed out that early literature contained major refutations by Yin, Stake, Feagin and others whose work resulted in a suggested outline for what a case study protocol could include.

Yin (1994 cited by Tellis, 1997) stated that the case study protocol should include the sections that are outlined in table 1.1:

Table 1.1 – Case Study Protocol

Section	Description
Overview of the case study project	This will include project objectives, case study issues, and presentations about the topic under study.
Field procedures	Reminders about procedures, credentials for access to data sources and location of those sources.
Case study questions	The questions that the investigator must keep in mind during data collection.
Report guide	The outline and format of the report.

Source: Adapted (2005).

Yin (1994 cited by Tellis, 1997) argues that the inclusion of the sections outlined above results in a rigorous research exercise that can be replicated. Notwithstanding the theoretical arguments for and against the case study methodology, all methodologies have their inherent limitations.

The rationale for using multiple sources of data in case studies is the triangulation of evidence, as advanced by Yin (1994 cited by Tellis, 1997). However, the cost of using multiple sources of data and the researcher's ability to access the required data and carry out the analysis should be taken into account.

The limitations or weaknesses of the relevant data sources for this study are as follows:

- ⇒ Documentation maybe difficult to retrieve and at times might be biased;
- ⇒ Interviews may be biased or difficult to secure;
- ⇒ Direct observation will be time-consuming and costly;
- ⇒ Archival data may be selective and/ or unavailable.

Quality of data: in studies such as this one, it is not generally possible to state with 100 % confidence that fund performance is solely a function of the fund management's investment strategy or approach.

The researcher will attempt to minimise the effects of the above-mentioned risks by using the triangulation methodology. Triangulation will give rise to data with a high level of validity to determine whether the fund's investment management strategy has created or destroyed shareholder value for the period under investigation.

1.9 STRUCTURE OF THE REMAINING CHAPTERS

The remaining chapters of this study are structured as follows: chapter 2 introduces and discusses the theoretical framework of the qualitative single case study research methodology; chapter 3 discusses the relevant literature; in chapter 4 an in-depth analysis of the Rennies Provident Fund is undertaken; in chapter 5 tentative observations and findings are presented and discussed; and finally in chapter 6 conclusions are drawn.

CHAPTER 2: LITERATURE REVIEW

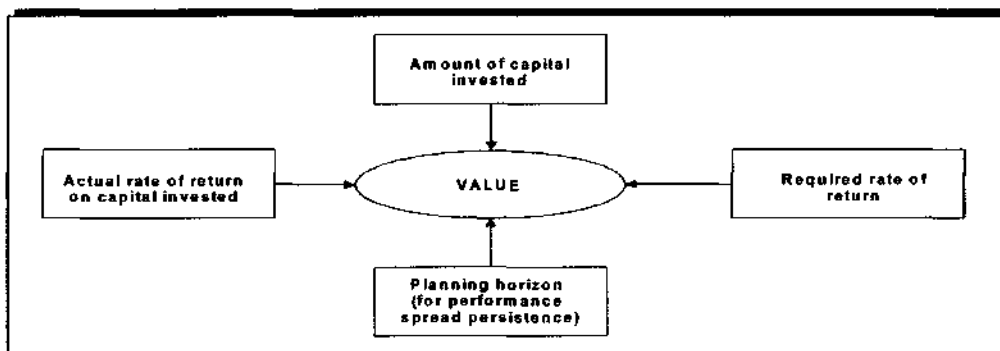
2.1 INTRODUCTION

In this chapter relevant literature is discussed and reviewed in relation to the current study.

2.2 VALUE CREATION AND VALUE DESTRUCTION

According to Arnold (2002), management is often judged to have destroyed shareholder value when they have put resources into activities that do not produce a high enough return that covers the cost of using the money. Stern and Chew (2001) agree with Arnold (2002) when they state that in order for a company to increase shareholder value, it must stop investing in, and find ways to release capital from activities that earn substandard returns. Arnold (2002) points out that value is created when an investment produces a rate of return greater than that required for the risk class of the investment. Arnold (2002) states that shareholder value is driven by the four factors shown in Figure 2.1.

Figure 2.1 – The four key elements of value creation



Source: Arnold (2002).

The difference between the actual rate of return on capital invested and the required rate of return creates the performance spread. Value is destroyed if the required rate of return is greater than the actual rate of return. The performance spread is measured as a percentage spread above or below the required rate of return, given the finance provider's opportunity cost. The "amount of capital invested" element determines the absolute amount of value generated by the performance spread. If, for example, pension fund XYZ has a required rate of return of 13% per annum and the actual rate of return equals 18%, on an investment base of R1 000 000,00, the fund will create R50 000,00 of value for that given year:

$$\begin{aligned}
 \text{Annual value created} &= \text{Investment} \times (\text{actual returns} - \text{required returns}) \\
 &= I \times (r - k) \\
 &= R1000\,000,00 \times (0,18 - 0,13) \\
 &= R50\,000,00
 \end{aligned}$$

Given the widely accepted notion of market efficiency and the random walk theory, it is considered unreasonable to assume that negative or positive performance spreads can/will be maintained in perpetuity. If a given fund had taken advantage of a temporary stock mispricing and profited from the mispricing, the market will, in response, self-adjust and erode the positive spread over time. Also if a manager has achieved negative performance spreads, that manager will reasonably take corrective actions to reverse the poor performance. Thus in *shareholder value analysis* it is assumed that returns will over time be driven towards the required rate of return hence the need to look into the performance spread persistence. See Table 2.1 below for an illustrative example of this point:

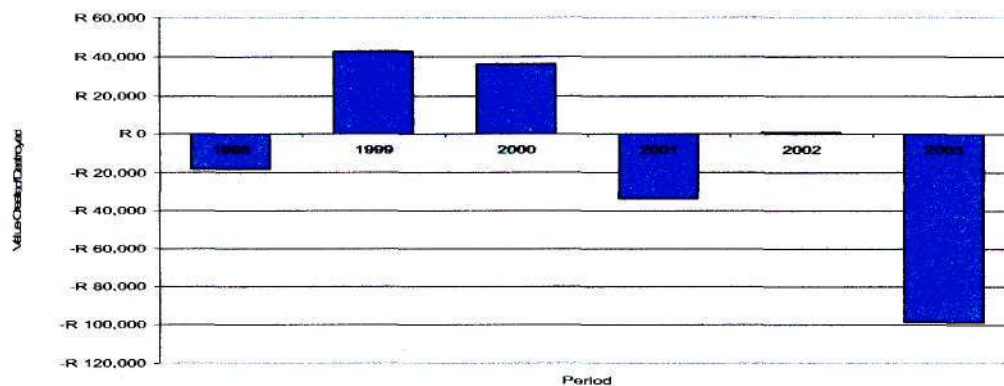
Table 2.1 – Performance of Pension Fund XYZ

Period	*Value Created/Destroyed	Required Returns*	Actual Returns	*Rand Value Investment
1998	-R 18,000	19.0%	15.0%	R 450,000
1999	R 42,750	17.5%	27.0%	R 450,000
2000	R 36,000	16.0%	24.0%	R 450,000
2001	-R 33,750	14.0%	6.5%	R 450,000
2002	R 900	14.8%	15.0%	R 450,000
2003	-R 98,603	16.2%	-5.7%	R 450,000
Average	-R 23,863	15%	10%	R 2,700,000

Source: Adapted (2005).

As stated above, in order to translate the value that has been created or destroyed, into absolute monetary terms, this study will first determine the performance spread for the respective observation periods. This performance spread is defined as the excess actual returns above the required returns. Then this performance spread is multiplied by the actual amount invested for the period under review. In the case of the 1998 period for instance, the performance spread is -4% and the actual investment for the period is R450 000, hence the value destroyed is R18 000. Figure 2.2 gives a graphical representation of the data in Table 2.1.

Figure 2.2 – Value Created/Destroyed for Pension Fund XYZ



Source: Adapted (2005).

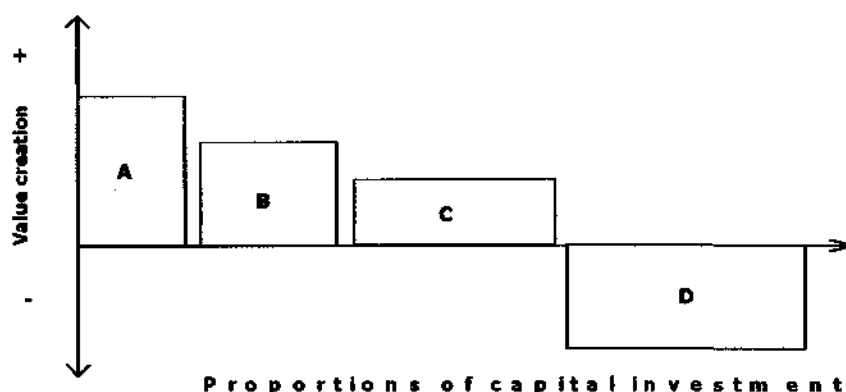
Note that for the years 1998, 2001 and 2003 shareholder value was destroyed to the extent that the required percentage returns exceeded the actual returns for that year multiplied by the amount then committed to the investment portfolio. Arnold (2002) identifies five actions that are available for increasing shareholder value, these are listed below:

- Increase the returns on existing capital investments;
- Raise investment in positive spread units;
- Divest assets from negative spread units to release capital for more productive use;
- Extend the planning horizon; and
- Lower the required rate of return.⁷

According to Stern and Chew (2001), shareholder value can also be created by adopting strategies that minimise the tax liability of a fund. The following adapted matrix (Figure 2.3) can be used to analyse the value creation profile of a pension fund scheme by its portfolio holding weights vs. performance spread.

⁷ It should be noted that the last action does not increase shareholder value but rather creates a false impression that value has been created by lowering the performance benchmark.

Figure 2.3 – Value creation profile – Capital investment proportion vs. value created



Source: Adapted (2005).

By not using high-level overviews such as the one above, firms tend to fail to identify and root out value-destructive activities. According to Hagstrom (2001), many corporations that consistently show good returns both on equity and incremental capital have employed a large portion of their retained earnings on an economically unattractive, even disastrous basis. But these value-destructive capital allocations are camouflaged by some high performing units.⁸

2.3 THE SOUTH AFRICAN PENSION FUNDS LEGISLATIVE FRAMEWORK

According to Downie (2003), the recognition by the South African government of the importance of the retirement fund industry can be traced back to as early as the 1920s. As advanced by Downie (2003), the major reason behind the attempts by government to formalise the pension fund industry in South Africa

⁸ Berkshire Hathaway 1984 Annual Report.

was to secure a certain level of protection of the fund members who had paid contributions to their employers in the expectation of receiving benefit pay-outs upon retirement. Equally important also, argues Downie (2003), was the desire by the South African government to ensure that retirement fund's adhered to certain standards, which prevented the funds from easily going insolvent. These early attempts by the South African government to enact appropriate legislation to govern the retirement fund industry positioned the country as a pioneer in this respect. Other countries regulated the industry through a number of laws and legal principles at the time.

The South African Pension Funds Act No. 24 of 1956 formally defines a retirement fund as:

- "(a) any association of pensions established with the object of providing annuities or lump sum payments for members or former members of such association upon reaching the retirement dates or for the dependants of such members or former members upon the death of such members or former members; or
- (b) any business carried on under a scheme or arrangement established with the object of providing annuities or lump sum payments for persons who belong or belonged to the class of persons for whose benefit that scheme or arrangement has been established, when they reach their retirement dates or for dependants of such persons upon the death of those persons."

As can be discerned from the formal definition of the Act, the primary purpose of

a retirement fund is to provide a form of benefit to its members upon retirement or to their dependants in cases where the principal members have passed away. The importance of maintaining a balance between the fund's assets and its liabilities going forward into the future can never be overemphasised, given that the fund's main investment objective is to enable the fund to meet its current and future liabilities by securing for its members the best overall returns on investment at acceptable risk levels.

2.4 LEGISLATIVE CONSTRAINTS – PRUDENT INVESTMENT REQUIREMENTS

In South Africa the Registrar of Pension Funds has laid down prudent investment requirements in an attempt to deter funds from having an inappropriate balance between risk and returns or assets and liabilities. The most prominent of these requirements are contained in Regulation 28, in the circulars from the Financial Services Board, and in section 19 of the Pension Funds Act. Section 19 regulates issues such as the conditions under which a fund may invest in the employer's business, as well as the conditions under which a fund may grant loans to its members such as deposits for a house.

Regulation 28, on the other hand, primarily forces retirement funds to adopt a prudent approach when choosing which asset classes to invest the fund's assets in. Through these directives, the Registrar attempts to keep down the comparative risk exposure faced by the retirement fund industry *vis-à-vis* other industries like the mutual fund industry. These directives have a direct impact on the comparative overall performance of retirement funds when looked at against the performance of, for example, mutual funds over the same period. The directives laid down by the Registrar represent a management constraint in

relation to the investment choices that fund managers can make in pursuit of superior returns. Thus when analysing the performance of fund managers managing retirement funds *vis-à-vis* those managing mutual funds, allowance should be made for these constraints, as the posted results will not be a true reflection of the manager's potential.

Through Regulation 28, the Registrar determines the level of exposure that retirement funds can enjoy by stating clearly the maximum positions that certain asset classes can take as a percentage of the fund's total assets.

Regulation 28 prescribes the following limitations on various asset holdings:

- For shares and property combined, the maximum is 90 %, with the following provisos: that no more than 5 % of the fund's assets can be invested in any unlisted or Development Capital Market stock; no more than 10 % in any unlisted company with a capitalisation of less than R2bn; no more than 15% in any listed company with a market capitalisation of more than R2bn, and, for the percentage invested in property, no more than 5 % of the property portfolio in any one property;
- For claims secured by mortgage bonds on immovable property the maximum is 25% of the fund's assets, of which no more than 0,25 % should be for any one individual;
- For Kruger rands, the maximum is 10 %; and
- As for cash, fixed deposits, gilts and semi-gilts, no limitation exists except for the requirement that no more than 20 % of the fund's assets should be invested with any one institution.

The requirements of Regulation 28 apply to all registered pension and provident

funds, even those that invest part of their assets in insurance policies. The responsibility of ensuring that the regulated distribution is kept rests with the funds themselves. However, there are certain cases where the Registrar can grant conditional as well as unconditional exemption from the requirements of Regulation 28.⁹

It is important to note that there are other legislative constraints that impact on asset-type holdings and that override Regulation 28. A typical case concerns offshore investing: Regulation 28 permits much more than 15 % to be invested in assets outside South Africa, but because of the overall limit of 15% set by the Exchange Control, the maximum then effectively becomes 15%.

2.5 OTHER CONSTRAINTS

Accompanying the constraints placed on fund managers by legislation is the investment mandate that they get from the trustees of the pension fund. These constraints can either be direct or indirect. Directly, trustees can influence asset selection by setting limits over and above those specified by law, depending on their risk appetite.

Indirectly they can influence selection even within the same asset classes. For example, if the investment mandate advocates a socially responsible investment approach, managers might steer away from stock belonging to Company X which trades in alcoholic beverages even though the stock might be the best performing at the time in favour of stock from a company that trades within the same sector but in non-alcoholic beverages.

⁹ A discussion of these cases is beyond the scope of this study and will be omitted.

2.6 TYPES OF RETIREMENT FUNDS IN SOUTH AFRICA

There are a variety of retirement funds in operation in South Africa. They all conform to the above legal definition and are all subject to the dictates of the above-mentioned Regulation 28.

Retirement Funds can either be defined-contribution funds or defined-benefit funds. Further, funds can either be classified as provident funds or pension Funds; still within these classifications, a fund can either elect to be a passive fund or an actively managed fund. These different classifications are discussed below and their implications for members are also highlighted.

2.6.1 Defined benefit-plans and defined-contribution plans

According to Downie (2003), a defined-contribution plan specifies the amount to be contributed to the fund by both the members and their employers, but it does not specify the amount to be paid to the members as their final benefit on retirement. Bodie, Kane and Marcus (2002) state that with this type of plan the investment risk is borne by the members of the fund. With defined-contribution plans the future payout amount is the member's accumulated contribution as well as the employer's portion, plus a proportional sum total of the real investment returns that have over time accrued to the fund. Bodie *et al* (2002) advance that with defined-contribution plans the retirement account is by definition fully funded by the contributions, and the employer has no legal obligation beyond making its periodic contributions, which is not the case with defined-benefit plans. With a defined-contribution plan, therefore, the task of setting and achieving the income replacement goals falls squarely on the employee who normally delegates this responsibility to the trustees. Downie (2003) argues that with defined-contribution schemes the final payout to members is a function of a variety of variables such

as:

- the value of the contributions paid into the fund by both employer and member until the member's retirement;
- the annuity rate at the time of retirement in the case of a pension fund; and
- the investment performance of the fund.

Bodie *et al* (2002) state that with the defined-benefit plan the fund specifies exactly how much the member will get on retirement. Thus with this type of plan the employer bears the investment risk and not the members, as their benefit payouts are guaranteed by the employer. According to Asthana and Lipka (2002), higher returns imply lower employer contributions to the defined-benefit pension fund in the future. With defined contribution plans, however, higher returns mean more value is created directly for the members of the pension fund, but not for the employer as is the case with defined-benefit plans.

In explaining the difference between these two types of plan, Bodie *et al* (2002) advance that one of the defining factors for these two types of plan is that the defined-contribution plan is in effect a tax-deferred retirement savings account established by an organisation in trust for its employees. They further point out that the fundamental difference consists in the fact that members of defined-contribution funds bear all the investment risks with regard to the performance of the fund and reciprocally receive all the returns from the plan's assets. In a defined-contribution scheme, monthly contributions are usually specified as a fraction of the member's salary. The same does not hold true for benefit payments as is normally the case with final benefit computation in defined-benefit plans.

Bodie *et al* (2002) argue that with a defined-benefit plan, a formula specifies the benefits, but not the manner, including contributions, in which these benefits are funded. The principal characteristic of this formula is that it takes into account the years of service for the employer and the level of wages or salary earned by the employee. With this type of plan the plan sponsor (employer) guarantees the benefits and thus absorbs the investment risk. To the employer the obligation to pay the promised benefits is more like a long-term debt. Bodie *et al* (2002) argue that if one were to go by both the number of plan participants and the value of the total pension liabilities, the defined-benefit plan dominates in most countries around the world.

According to Bodie *et al* (2002), the fund is a separate pool of assets set aside to provide collateral for the promised benefits, while the plan is merely a contractual arrangement setting out the rights and obligations of all parties to the arrangement. This serves as a critical distinguishing factor between the pension plan and the pension fund. Bodie *et al* (2002) further advance that, with defined-contributions plans, by definition, the value of the benefits equals that of the assets, so the plan is always fully funded. Defined-benefit plans, on the other hand, can be either under-funded or over-funded, depending on whether the present value of the fund's liabilities exceeds the market value of the plan's assets or *vice-versa*.¹⁰

Downie (2003) cautions about a major disadvantage to the employer with the latter type: the employer might be required to pay in more to the fund in order to meet the benefit promises made during times of galloping inflation. To the member, on the other hand, the advantage is that there is no uncertainty regarding the exact amount of the benefit to be received upon retirement, as this

¹⁰ Under-funding occurs when the pension fund's liabilities exceed its assets, while over-funding occurs when assets exceed liabilities.

is pre-confirmed.

2.6.2 Difference between pension funds and provident funds

Beside the above variances between defined-contribution and defined-benefit plans there exists another distinction, viz. between pension funds and provident funds.

According to Downie (2003) the fundamental difference between pension funds and provident funds centres on how the final payout to the members upon retirement is structured under the fund. On retirement, a provident fund's members can withdraw the full amount of their benefits as a lump sum cash payment. However, in the case of a pension fund a minimum of two thirds of the final benefit must be paid in as a pension for the rest of the pensioner's life, while a maximum of one-third of the final benefit may be taken as a lump-sum cash payment. Even though in this study the two terms (pension fund and provident fund) are used interchangeably, it is imperative that the distinction between the two is kept in mind. One can, for the purposes of this study, safely use the two terms interchangeably as the difference concerns the method of benefit payout and not the method of accumulation, which is the core subject matter of this study.

Granted the nature of the difference between the two types of retirement fund, one can conclude that the method of accumulation or, put more academically, the investment approach to both provident funds and pension funds should be the same. Consequently, the available literature on the performance of either fund should be applicable to the other.

2.7 INVESTMENT MANAGEMENT STRATEGY

Sharpe (2004) positions investment strategy as the key element of any plan designed to take into account the needs and circumstances of a particular investor, as opposed to just being an approach for short-term trading. This positioning is based on the understanding, he argues, that investment is about risk and expected returns. Broadly speaking, Sharpe (2004) further argues that textbook descriptions of investment strategy have divided investment strategy into two types: inefficient strategies and efficient strategies.

Efficient strategies, Sharpe (2004) argues, are those strategies that provide the highest possible expected returns for a higher level of risk. Inefficient strategies, on the other hand, are those that incur risk that is not rewarded sufficiently with higher expected returns. The job of the financial advisor or investment manager is to avoid inefficient strategies and ensure a match between the investor's needs and the chosen strategy with its inherent risks. Investment strategy for a retirement fund is informed by critically analysing the profile of the members of the fund, unmasking their risk profile, and looking at their average age distribution as well as their desired returns.

2.8 INVESTMENT FUND MANAGEMENT APPROACHES

A major factor in defining whether to follow active management or an indexing approach, argues Downie (2003), consists in the investor's underlying assumptions regarding the efficiency of the market. Investors who believe that markets are efficient, adopt passive or index investing strategies that have a low portfolio turnover and tend to track the market. Investors who believe they can

make better predictions than those reflected in market prices adopt active strategies which involve more turnover as predictions change. Highly active managers incur high costs in their search for securities that may or may not be mispriced.

The type of management approach that a given retirement fund elects to adopt largely depends on the fund's investment strategy. Sharpe (2004) advances that a fund that has an aggressive strategy desiring high returns will follow an active fund management approach as this approach promises above-average returns. On the other hand, if the profile of the members indicates risk aversion, then following a passive approach might be the appropriate approach.

Consequently, the result of the analysis of membership profile plays an important part in determining the risk appetite that the fund should have. If a fund largely has older members nearing retirement, then that fund would logically adopt a more risk-averse approach to investing and take large positions in capital preservation products or some other forms of guaranteed products. However if the average age is still far from retirement, then the fund would adopt a more aggressive approach and take large positions in equities, as the members still have some time before retirement. It is important to point out, though, that membership risk profiling often reveals a fair distribution between the two extreme ends of risk appetite, thus necessitating a more balanced approach.

Sharpe (2004) states that in cases where funds have on average a membership base that has a high risk appetite, an active management approach is often chosen. Funds choosing to follow the active management approach are by implication of the view that there are opportunities in the market to make abnormal profits out of market inefficiencies (that might be identified from time to time). For managers of these funds the option of replicating the market index

when constructing a portfolio is not an option, granted that they have promised the members of their funds returns that exceed the market index. With active management the risk of either choosing inefficient strategies or efficient ones is more prevalent. In an attempt to maximise returns, fund managers can expose the fund to high risk with no corresponding expected returns.

Fortin and Michelson (2002) reason that the large number of investment professionals involved in active fund management seems to suggest that there are benefits accruing to supposedly rational investors involved in these funds. According to Fortin and Michelson (2002), over the years there has been a longstanding discussion over the relative benefits of active versus passive management. Elton and Gruber (1996) show that their portfolio of high-alpha¹¹ actively managed funds outperformed the Vanguard S&P Index fund from 1981 to 1993. Wermers (2000 cited by Fortin and Michelson, 2002) finds that equity mutual funds outperform the market by 1,3 % per year, although expenses and transaction costs reduce this benefit to essentially zero. His conclusion is that actively managed funds pick stock well enough to cover their costs.

Fortin and Michelson (2002) argue that there is a large body of research which points to the advantages of indexing over active management. Bogle (2000) illustrates that an index fund has a 350 basis point advantage over the average equity mutual fund due to management expenses, brokerage costs, sales charges and tax advantages. Arnold (2002) notes that the Vanguard 500 Index fund outperforms the average equity fund and the effect is amplified when taxes are considered. Elton and Gruber (1996) ask the relevant question in their study, given that there are sufficient index funds to accommodate most investors' risk choices, whether the index funds are available at lower cost (compared to active funds), and whether the lower cost of index funds means that a combination of

¹¹ See 2.14.1 for the definition of the term α

index funds is likely to outperform an active fund of similar risk. Why select an actively managed fund? The studies of Malkiel (1996) and Kuhle and Pope (2000) provide the answer to this question.

Malkiel (1996) notes that over the past 25 years, about 70 % of active equity managers have been outperformed by the S&P 500 Stock Index. Gruber (1996) and Bogle (2000) also find similar results. This view is also supported by Hagstrom (2001). Bogle (2000) advances that the case for selecting an index fund as opposed to an actively managed one is so compelling due to the index fund's inherent cost advantage. This advantage is also noted by Kuhle and Pope (2000). Malkiel (1996) concludes by stating that most investors will be considerably better off by purchasing a low expense index fund than by trying to select an active fund manager who appears to possess a hot hand. Fortin and Michelson (2002) also found that comparison index funds in their study had a lower expense ratio compared to their counterparts. Their study concluded that on average index funds outperform actively managed funds for most equity and all bond fund categories on both a before-tax and after-tax basis.

Downie (2003) observes in his book that passive management is a relatively new concept in the South African asset management industry although it is a tried and tested method in the European and the North American markets. This approach is favoured for its low level of exposure to downside risk, which more often than not haunts risky structures. According to Fortin and Michelson (2002) the low level of exposure enjoyed by index funds is achieved at a cost because asset managers following this approach aim for average performance. Downie (2003) argues that studies have proved that managers who follow this strategy religiously and consistently achieve average results, which in the long run end up well above average.

Sharpe (2004) points out that in order to consistently achieve these average

results managers must always structure their portfolios accurately so that they always track or replicate the index. The upside of passive fund management, argue Fortin and Michelson (2002), is that it results in lower management fees being levied against the fund as well as lower transaction costs because of lower asset turnover. Blake and Board (2000) note that the passive approach is favoured by proponents of the efficient market hypothesis, as they believe that no one can beat the market consistently and thus conclude that active management is an exercise in futility which merely generates unhealthy transaction and management costs.

2.8.1 Benefits and disadvantages of the active fund management approach

Active fund management has a number of inherent benefits and disadvantages. These benefits and disadvantages are listed below:

2.8.1.1 Benefits of the active fund management approach

- *Diversification* – Funds invest in an array of securities, from just a handful to hundreds of separate issues, depending on the fund's investment objective. This broad exposure helps in reducing (although it does not eliminate) the risk of loss from an investment in a single security.
- *Professional Management* – an experienced manager ensures the fund's investments remain consistent with its investment objectives, whether that means tracking the market index or using research and market forecasts to actively select securities.
- *Liquidity* – one can withdraw one's investment from an actively managed fund whenever one wishes to do so, although there could be waiting periods with some funds.
- *Convenience* – with most actively managed funds, one can obtain

information by telephone, by mail or online.

2.8.1.2 Disadvantages of the active fund management approach

Notwithstanding the advantages listed above, actively managed funds have disadvantages as well. These are listed below:

- *No guarantees* – the actively managed fund investment, unlike a bank deposit, can fall in value. Some funds, however, invest in capital preservation funds that guard the capital amount, however their yield fluctuates.
- *The diversification penalty* – diversification may reduce the risk of loss from holding a single security, but it also limits the potential for a big score if a single security increases dramatically in value. Equally important is the fact that diversification does not protect an investor from an overall decline in the market if no assets are held offshore.
- *Potentially high costs* – actively managed funds can be a cost-effective way to buy a variety of securities. But in some cases, the efficiencies of fund ownership are offset by a combination of steep sales commissions, exit and or entry fees, and high operating expenses (management expense ratios).¹²

¹² Management expense ratios are fees charged by nearly all fund's and generally include operating expenses such as legal costs, accounting and audit fees, custodian fees, the cost of preparing the prospectus document and other administrative expenses.

2.8.2 Benefits and disadvantages of the index fund management approach

An index fund as explained earlier seeks to match the investment performance of a specific target index. The index manager does not actively buy and sell securities in an effort to beat the market. Rather, the manager simply holds all or a representative sample of the securities in the index.

2.8.2.1 Benefits of index fund management

- *Competitive performance* – the vast majority of actively managed funds have often failed to outperform comparable market indexes, after costs. An index fund manager simply aims to capture market returns of the assets making up the targeted index. As a result, fund returns should closely track the market returns, less fees. With the added advantages of reduced transaction costs and low management fees, index funds can be expected to provide very competitive performance over the long term.
- *Broad diversification* – Index funds tend to invest in a wide range of securities in order to match a market index. As a result, an index fund is less exposed to the performance – good or bad – of any one security.
- *Simplicity* – index funds take the guesswork out of investing. Fund managers do not need to analyse the strategies of competing fund managers in an attempt to get to one that can outperform the market.
- *Lower costs* – with its lower management fees, and with trading costs kept to a minimum, the average index-managed fund costs far less to operate than the average actively managed fund. Lower costs mean that more of the investor's money is invested.
- *Tax-efficiency* – an index fund tends to buy and hold securities for the long term. The fund does not buy and sell in an attempt to outperform the

market. As a result the fund tends to realise and distribute a (more) modest capital gains tax. That means a lower tax liability for the index fund's unit holder than one would expect to realise from an actively managed fund.

2.8.2.2 Disadvantages of index fund management

- *Market returns only* – indexing is generally a long-term strategy and is not about timing markets or picking hot stocks. An index fund does not attempt to beat the index it tracks and is expected to provide market returns only. If a unit holder is seeking returns that outperform a market index, then he or she might be able to achieve this through an actively managed fund as opposed to the index fund.
- *Rigid portfolio requirements* – a fund that remains fully invested in the securities of a selected market index can be expected to follow the market index during market downswings (while benefiting fully when markets rise). An actively managed fund can buy or sell specific securities during times of market volatility, although there is no guarantee that the active manager will pick the right securities to buy and sell, in order to achieve above market returns. Market timing is very difficult, even for professional fund managers.

2.9 FUND SPLITTING

Trustees may decide for a number of reasons to split the assets of the fund by appointing a number of investment management teams. This practice of fund splitting is also practised in the South African retirement fund market. An example of a fund using this approach is the Rennies Provident Fund, which for the 2003

period had contracted 5 different fund management houses.

2.9.1 Reasons for fund splitting

According to Downie (2003) there are a variety of reasons why trustees follow the fund-splitting approach, the most prominent being the pursuit of diversification.

Trustees use fund splitting to spread the risk of poor investment management. In actively managed retirement funds where asset managers are in pursuit of superior returns, it inevitably happens at times that they temporarily incorrectly guess the market resulting in adverse performance. Employing more than one manager can, it is argued by proponents of this approach, minimise the short-term effects of one manager being temporarily incorrect in his forecasts of market movements.

This argument is anchored on the assumption that the forecasts of the managers employed will be temporarily negatively correlated in such times of incorrect forecasting, thus for this advantage to hold the absence of herding in the behaviour of the managers employed is critical.

The second reason is that splitting enables funds to benefit from specialist skills inherent in the diverse pool of managers contracted by the fund (Downie, 2003). The argument goes that if the fund's overall objective is the attainment of superior returns, then splitting the fund among specialists will ensure better results than just employing one management house that specialises in only one area and is average in others. The overriding assumption here is that no one-asset management team can have specialist skills in diverse investment types.

A third argument, which is deeply grounded in the theory of free-marketteering, is

that splitting the fund introduces healthy competition between the different asset management teams managing the assets. This competition results in the different teams striving to outperform each other and thus creates value for the fund.

Lastly, it is argued that the interaction of trustees with the different management teams also exposes the trustees to different technical approaches and theories, thus resulting in an improvement of the trustee's skills levels and the way in which they appraise the services of the different management teams.

2.9.2 Advantages and Disadvantages of fund splitting

Downie (2003) argues that there are disadvantages with fund splitting, the most prominent one being the high management fees associated with fund splitting. Granted the rise in management fees, trustees then have an added incentive to rigorously appraise the performance of the different asset managers contracted by the fund.

Secondly, the performance of some particular manager may be so poor that it drops the average returns of the fund to levels even lower than the index fund. Another disadvantage arises from the added time that trustees must take to evaluate the performance of more than one asset manager.

Funds that follow the fund-splitting approach end up exposed to a compounded double-agency problem, because policyholders have entrusted trustees with the task of running the fund and the trustees have in turn delegated this task to different management teams. Downie (2003) cautions that even though trustees have delegated the accountability for management, the responsibility for management still rests with them. In this sense they have a fiduciary duty to examine their decisions in relation to the performance of the fund. Thus trustees must from time to time appraise the performance of the delegated fund managers

to ensure that they are the best for the job at hand.

The major advantage, however, is grounded in the theory of diversifying, the rationale behind fund-splitting being that superior performing fund managers will make up for poorly performing ones within the fund, thereby, it is hoped, averaging out the poor performance. Fund splitting is favoured because it creates an atmosphere of healthy competition between the different fund managers tasked with managing the various portions of the assets of the fund.

2.10 THE EFFICIENT MARKET HYPOTHESIS, THE RANDOM WALK THEORY AND THEIR IMPACT ON ACTIVE FUND MANAGEMENT

Fama (1965 cited by Bodie *et al*, 2002) defines an *efficient market* as a market where there are large numbers of rational profit-maximisers actively competing, with each trying to predict future market values of individual securities, and where important current information is almost freely available to all participants. In an efficient market, Fama (1965 cited by Bodie *et al*, 2002) argued, competition will, on an average, cause the full effects of new information on intrinsic values to be reflected instantly in actual prices. Arnold (2002) further notes that the efficient market hypothesis presupposes that the prices of securities already reflect all the available information and thus offer no opportunities for abnormal profiting through asset selection abilities.

Bodie *et al* (2002) noted that the efficient market hypothesis concludes that active management is just an exercise in futility. This view was championed by Fama (1965 cited by Bodie *et al*, 2002), who advanced that markets quickly self-adjust to inefficiencies, consequently eroding any chances of consistently profiting out of asset mispricing.

The random walk theory deals a further blow to the case for active asset management, as it asserts that stock price changes are random and unpredictable, thus making it virtually impossible to consistently profit from timing security price movements. An unconditional acceptance of the efficient market hypothesis and the random walk theory equals a negation of the claim by active fund management houses that they can consistently generate superior investment returns that far exceed what the market index offers. As pointed out by Bodie *et al* (2002), it is important to note that even the most fanatic proponents of the efficient market hypothesis do acknowledge the dependence of this hypothesis on the existence of continuous aggressive attempts by active fund management houses to profit from asset mispricing. This will result in the market quickly adjusting itself, thereby eroding the window of opportunity to significantly profit from the asset mispricing, as the knowledge of the mispricing becomes common knowledge.

Ball (1994) notes that there is now a large body of anomalous evidence that at least appears to contradict market efficiency. The list of these anomalies includes price overreactions which De Bondt and Thaler (1985) argue undergo corrections, so that the resulting negative correlations in prices appear to create profit opportunities for contrarian trading strategies. Shiller (1981 cited by De Bondt and Thaler, 1985) marshal evidence that proves some anomalies inherent in the unconditional acceptance of the efficient market hypothesis. These studies, however, do not negate totally the efficiency of the market.

Bodie *et al* (2002) argue that to maintain efficiency the market depends on the attempts of active fund managers to mine and try to use profitably information that is not already reflected in the prices quoted by the market for a given security or stock. Bodie *et al* (2002) note that the research costs involved in mining for information that is not already incorporated in security prices are often huge and

require a large enough profit margin to justify them. In return for this anticipated large enough profit margin active, fund management houses charge investors fees with the promise that the profits would be passed on to them in the form of superior returns.

2.11 ACTIVE FUND MANAGEMENT AND TRANSACTION COSTS

Within actively managed funds, the managed portfolios normally exhibit high asset turnover due to market timing attempts, which in turn translate into high transaction costs. In her study, Kugi (2002 cited by Blake, 2003) notes the importance of knowing whether portfolio managers add value to the portfolios they manage or whether they merely generate wasteful transaction costs and thereby destroy shareholder value. This study emphasises the fact that performance evaluation seeks to establish whether superior returns can be generated by active managers who are alleged to be better able to collect and interpret information that helps forecast securities returns. Again it is worth emphasizing here that the resolution of this subject has serious consequences for the efficient market hypothesis. If it can be empirically established that active portfolio management can generate superior returns through superior use of new information and that such a strategy can be replicated, then the efficient market hypothesis can be rejected.

According to Kugi (2002 cited by Blake, 2003), active fund management creates transaction costs as managers constantly try and take positions in promising stocks or assets. This taking of positions also takes place within index funds during portfolio rebalancing interventions; however, the volume of these movements is much lower compared to that found in actively managed funds.

2.12 ASSET/ LIABILITY MANAGEMENT FOR PENSION FUNDS

Buehler and Pritsch (2003) affirm that taking and managing risk is part of what companies must do to create profits and shareholder value. In their paper they advance that McKinsey Consulting analysed the performance of about 200 leading financial services companies from 1997 to 2002 and found some 150 cases of significant financial distress for 90 of them¹³. Put differently, their report found that on average every second company was struck at least once, and some were more frequently, by a severe risk event. Buehler and Pritsch (2003) argue that such events are a reality that management must deal with rather than an unlikely tail event. Instead of adopting more value-adding asset management processes through effective risk management, most companies have been tempted to adopt more risk-averse business models in an attempt to protect themselves and their share prices. This trend was acknowledged by William H. Donaldson, the chairman of the US Securities and Exchange Commission (SEC), when he told an interviewer that he was concerned about a loss of risk-taking zeal.¹⁴ It is the taking of risks that ultimately creates shareholder value.

The right response, therefore, is to strike a balance that protects the company from the costs of financial distress while allowing space for entrepreneurship. Failure to do so will in certain instances result in shareholder value not being maximised due to fear of taking high risks.

Buehler and Pritsch (2003) conclude their argument by stressing that management should have the freedom to work in an environment where the

¹³ In their analysis they defined financial distress as a bankruptcy filing, a ratings-agency downgrade of two or more notches, a sharp decline in earnings (50 % or more below analysts consensus estimates six months earlier), or a sharp decline in total returns to shareholders (at least 20 % worse than the overall market in any one month).

¹⁴ Financial Times, July 24, 2003.

potential rewards of any business decision are consciously weighed against the risks and where the company is happy with the level of risk-adjusted returns resulting from that decision. Gomes and Michaelides (2003) affirmed that, with pension funds just like with companies, the management of risk has to be balanced with the desire to maximise shareholder value. Pension funds are not immune to the need to manage this business risk in their quest to create shareholder value, as Buehler and Pritsch (2003) have pointed out. In the South African retirement pension fund industry the importance of the point made by Buehler and Pritsch (2003) is immediately evidenced by the existence of Regulation 28.

Downie (2003) points out that pension funds at times supplement the prudent investment requirements imposed by Regulation 28 with further management constraints aimed at managing the fund's risk exposure. This level of caution is informed mainly by the respective fund's average membership age profile or benefit payout considerations. If the average age profile of the members of the fund is nearing retirement, the fund would want to maintain a high level of liquidity and lower its liabilities, given that it anticipates paying out benefits in the near future.

Conversely, if the average age is far from retirement, the fund might want to compromise liquidity and hold as much of its assets as permissible under Regulation 28 in illiquid assets which offer higher returns than their liquid counterparts. Depending on whether the fund is a defined-benefit plan (DB plan) or a defined-contribution plans (DC plan), the responsibility of ensuring a balance between assets and liability rests with either the employer (in the case of DB plans) or with the employees (in the case of DC plans). Further, depending on the balance, the DB plan can be either under-funded or over-funded.

Using the Conditional Value at Risk (CVaR) risk management methodology,

Bogentoft, Romeijn and Uryasev (2001) concluded in their study that risk management has a tremendous impact on asset/liability management in the pension fund industry. Downie (2003) reasoned that, since pension funds have a deferred liability to their members, their need to meet their obligations has a direct impact on their asset management decisions. In this regard, liquidity conditions as stipulated under Regulation 28 come to mind. Sharpe (2004) advances that when choosing an appropriate investment strategy, understanding the representative investor's risk appetite and liquidity requirements should be the first considerations. This assertion is grounded on the belief that asset/liability management is influenced by the respective fund's risk profile and liquidity requirements.

According to Bogentoft *et al* (2001), the need to manage the pension fund's assets/liabilities is informed by the desire to minimise the need to increase premiums from plan sponsors or from the active employees who are members of the fund, in order to ensure that the fund is not terminally under-funded. Bogentoft *et al* (2001) further argue that the challenge facing fund managers consists in setting, at each decision moment, a suitable contribution rate and a suitable investment strategy for the funds available to the pension fund.

The management of the balance between assets and liabilities is a much more critical management element with defined-benefit plans more than it is for defined-contribution plans. Since sponsors of a defined-benefit plan have made a commitment to the plan's members, they have to ensure that the plan is always fully funded. Blake (2003) notes in his paper that the hunt for correlation between assets and liabilities will, given the Myners Report (2001), become an important defining factor in terms of how pension fund assets are invested in the UK.¹⁵ The

¹⁵ See: The Myners Report (Institutional Investment in the United Kingdom: A Review), March 2001.

report notes that asset allocation and performance objectives of pension funds in the UK in general bear little or no resemblance to the pension fund's long-term obligations. The performance targets set by pension funds, Myners (2001) notes, have more to do with beating benchmarks with no direct or clarified link to the long term obligations of the fund. Myners (2001) recommends that defined-benefit funds should adopt a strategic asset allocation approach that minimises a loss function surplus and contribution risks.^{16,17}

2.13 PORTFOLIO CONSTRUCTION

Sharpe (2004) prefaces his paper with the assertion that investment is about risk and expected returns. Sodeyama and Yano (2004) demonstrate in their study that the successful management of this risk and of expected returns is a function of efficient portfolio construction. Portfolio construction in turn is largely influenced by the prevailing portfolio constraints facing the fund, as well as by the given fund's investment strategy.

As quoted earlier, Sharpe (2004) noted that textbook descriptions of the investment process divide investment strategies into two types: Inefficient strategies that incur risk that is not rewarded sufficiently with higher expected returns, and efficient strategies that provide the highest possible expected returns for a given level of risk.

Using stochastic modelling Blake (2003) demonstrated that an efficient strategy

¹⁶ Surplus risk is minimised by ensuring full funding on a continuous basis and matching as closely as possible the volatility of the assets and liabilities. The volatility of the liabilities depends on the volatilities of real earnings growth, mortality, inflation, and interest rates.

¹⁷ Contribution risk deals with the volatility of contributions into the pension scheme. It can be lowered by investing in lower volatility assets, but at a cost of raising average contributions.

for the accumulation phase in a defined-contribution plan is one that limits the range of returns that are credited to the plan members' account. This gives members smoothed returns while they are young. Like Sharpe (2004), Blake (2003) further argued against what he termed reckless conservatism. To ascertain the true level of underperformance or overperformance of the fund it is imperative that the results obtained be compared to a suitable passive benchmark. According to Blake (2003) this will enable the trustees of the fund to make a sound decision of electing either to follow a passive investment strategy or to continue making use of the services of active fund managers during the accumulation phase.¹⁸

According to Sharpe (2004) a key job of the fund manager is to avoid inefficient strategies. This job requires the estimates of risks and expected returns for individual securities, asset classes, industries, countries and currencies amongst other considerations. Sharpe (2004) further pointed out that this job of avoiding inefficient strategies also requires the estimates of correlations that indicate the extent to which such investments are likely to move together or separately. According to Sharpe (2004), methods of finding efficient strategies and projecting their results come from the field of financial economics known as portfolio theory.

Sharpe (2004) argued that in an efficient market the best portfolio for a representative investor will include all the marketable securities available in the world, in proportion to their market values.¹⁹ According to Sharpe (2004), proponents of the efficient market hypothesis (those who assume that the market is efficient) adopt passive or index investing strategies. The afore-mentioned

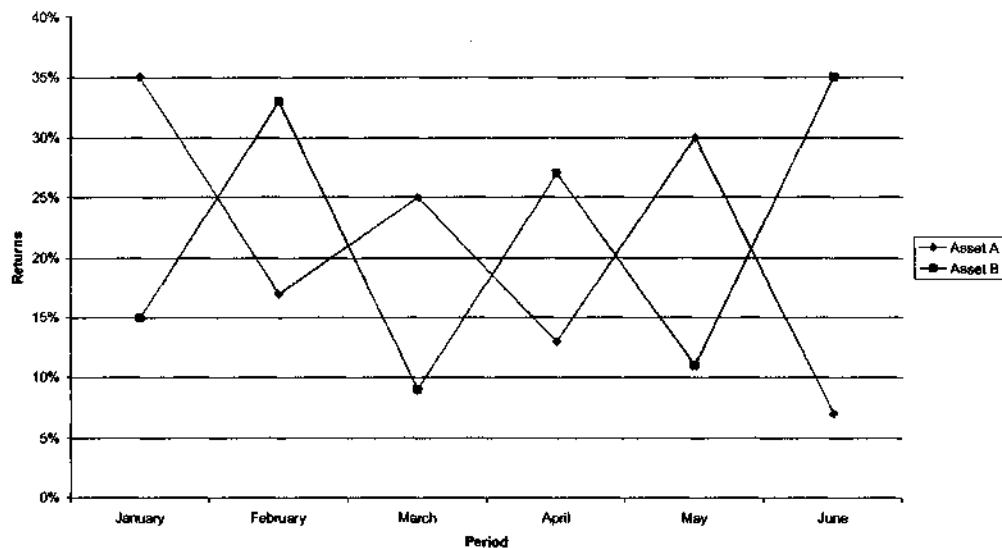
¹⁸ See appendix A for a description of the stochastic model.

¹⁹ The prototypical representative investor is a conglomerate of all investors, rich and poor from every country; with those having more influence on security prices (such as the richer) counted more heavily than those with less influence. A world market portfolio would for example have 1% of all the shares of Microsoft, 1% of each type of bond issued by the South African government, and so on.

strategies involve low portfolio turnover and tend to track the market. According to Kahn (2000), portfolio construction for funds following the passive management approach consists in the main of replicating the market index. Once a portfolio mirroring the market index has been constructed, all that is left for managers of these funds is constant rebalancing of the fund to track the movements of the market index. According to Sharpe (2004), the investment profile of members of these funds is that of risk aversion. Since the indexing strategy tracks the market, it can hardly be classified as an inefficient strategy as it achieves an acceptable balance between risk and return.

According to Blake, Lehmann and Timmermann (1998), the remarkable work of Markowitz provided a technique commonly known as the mean-variance analysis. This technique defines how, for a given set of assets, portfolio weights could be calculated to produce a portfolio that could maximise expected returns for a given level of risk. The set of portfolios produced using this technique defines what is known as the "efficient frontier". The implications of this technique are that if one had a portfolio that plotted below the efficient frontier, optimally rebalancing the portfolio could either increase the portfolio's expected returns without increasing its risk or decrease the portfolio's risk without compromising the expected returns. Blake *et al* (1998) point out that the shape of the frontier depends on the level of correlation between the assets held. Asset allocation using the Markowitz mean-variance methodology is not only a return-maximising discipline but rather a return-optimising discipline. Thus it is designed to maximise returns in the context of acceptable risk. The primary purpose of asset allocation in general is to reduce risk through efficient diversification through allocating assets amongst different asset classes and management styles that do not move in tandem. See figure 2.4 for a graphical illustration of assets that do not move in tandem (negatively correlated assets).

Figure 2.4: Negatively correlated assets

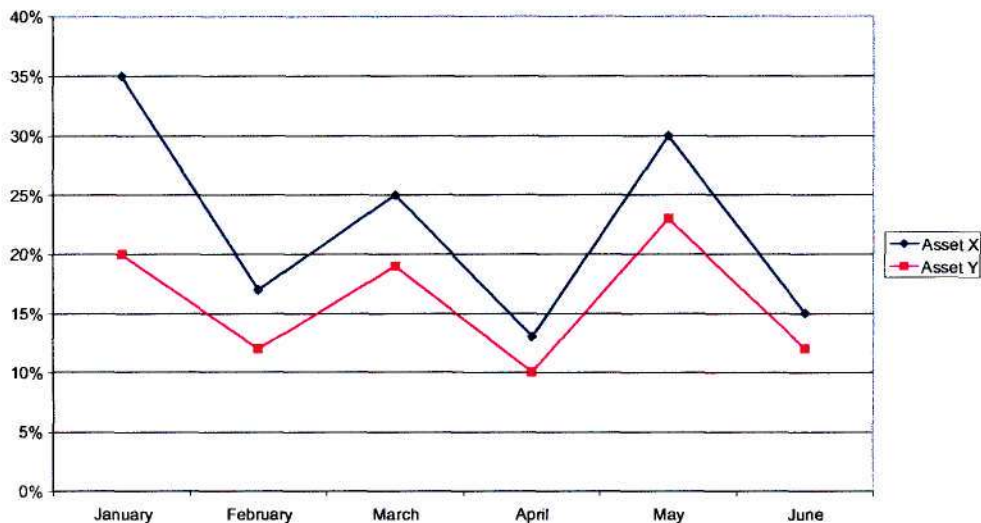


Source: Adapted (2005).

The figure shows two stocks, A and B, which are negatively correlated with each other. For these types of assets a loss to the one is a gain to the other. A typical example is that of assets underlined by operations in the Tropical Island market *vis-à-vis* stocks underlined by operations in skiing resorts. When Asset A performs well, Asset B performs badly. To optimise the theory of diversification, fund managers have to find negatively correlated stocks in order to spread risk.

There are also stocks that are positively correlated; these are exemplified by figure 2.5 on the next page.

Figure 2.5: Positively correlated assets



Source: Adapted (2005).

Positively correlated stocks move in tandem; a decline in asset X presupposes a decline in asset Y as well. These types of assets are to be avoided when seeking to optimise diversification and reduce portfolio risk.

Apart from risk and return considerations, portfolio construction is also influenced by the investment mandate given by trustees to fund managers. For instance, if a given pension fund has an inclination toward responsible investing, this inclination will be reflected in the chosen investment strategy. In turn, the strategy would dictate the type of assets that the fund can have in its portfolio make-up.

According to Sodeyama and Yano (2004), there are various constraints that fund managers following the active portfolio management approach have to face when constructing their portfolios. These constraints are either limitations on the number of issues held in a portfolio, restrictions on short sales, or upper/lower limits of holding weights. These constraints to some extent limit their choices and

ability to construct what they deem to be optimal portfolios. Sodeyama and Yano (2004) found in their study that these constraints on portfolio construction sometimes have a negative effect on performance which compromises the value of active portfolio management.

2.14 PERFORMANCE EVALUATION

Following the research paper by Jensen (1968 cited by Oldfield and Page, 2002), a number of researchers have advocated the use of sophisticated statistical procedures in an effort to refine performance analysis. These researchers analysed the market timing and stock selection ability of professional fund managers. Oldfield and Page (2002) gave a summary of findings from the more frequently quoted research into this area (see table 2.2).

Table 2.2: Prior research into the timing and selectivity ability of professional fund managers

Author	Research method	Data analysed	Results
Jensen (1968)	Capital Asset Pricing Model	115 United States mutual funds from 1955 to 1964	No funds significantly outperformed a buy-and-hold strategy
McDonald (1974)	Sharpe, Treynor & Jensen measures	123 United States mutual funds from 1960 to 1969	Majority of funds did not perform as well as NYSE
Kon & Jen (1979)	Varying market risk over time & CAPM	49 United States mutual fund's from 1960 to 1971	Results indicated a large number of funds engage in market timing activities due to multiple levels of beta risk
Kon (1983)	Extension of the 1979 analysis to examine selectivity & timing issues	37 United States funds from 1960 to 1976	14 funds had overall timing performance but none were statistically significant. 23 had overall selectivity performance

Author	Research method	Data analysed	Results
			but only 5 were significant
Henriksson (1984)	CAPM, selectivity & timing analysis	116 United States funds from 1968 to 1980	11 significantly positive and 8 significantly negative measures of selectivity ability. 3 significantly positive and 9 significantly negative measures of timing ability
Chang & Lewellen (1984)	CAPM, selectivity & timing analysis	Monthly returns of 67 United States funds from 1971 to 1979	4 funds exhibited statistically significant timing skills while 5 funds exhibited statistically significant selection skills and of these 3 were negative
Chen & Stockum (1986)	CAPM using generalised varying parameter regression procedure to examine selectivity timing & beta instability	Quarterly returns of 43 United States funds	Approximately 30% of the funds exhibited selectivity, 19% were found to have random betas, 14% had significantly negative timing performance
Grinblatt & Titman (1989)	CAPM, selectivity & timing using a Jensen type measure	Quarterly holding period returns on 274 US mutual funds using actual portfolio holdings from 1974 to 1984	Evidence of superior performance especially among the aggressive growth portfolios
Lee & Rahman (1990)	CAPM, selectivity & timing analysis	Monthly returns on 93 US mutual funds from 1977 to 1984	Some evidence of superior selection and timing ability
Black, Fraser & Power (1992)	CAPM, selectivity & timing analysis using random walk betas	Monthly returns on 30 United Kingdom mutual funds from 1977 to 1984	Majority of funds offered investors significantly higher risk adjusted returns
Grinblatt & Titman (1993)	Portfolio change measure	Quarterly proportional holdings of 155 US funds from 1974 to 1984	Funds achieved abnormal returns on average

Author	Research method	Data analysed	Results
Biger & Page (1994)	Extension of the methodology by Elton and Gruber (1991)	Monthly proportional holdings of 16 Israeli unit trusts	No evidence of timing or selection ability found

Source: Oldfield and Page (2002).

As can be discerned from table 2.2 above, there seems to be a trend in the empirical evidence for professional fund managers to exhibit either positive or negative abilities when more sophisticated methodologies are applied. A closer analysis of table 2.2 reveals surprising results from the studies by Grinblatt and Titman (1993 cited by Oldfield and Page, 2002) and Black, Fraser and Power (1992 cited by Oldfield and Page, 2002) which established that the majority of the funds they analysed managed to earn above-average returns.

Notwithstanding the results of the studies shown in table 2.2, active fund managers pride themselves on their ability to consistently secure above-average returns for the funds they manage. This is in line with the findings of the Grinblatt & Titman (1993 cited by Oldfield and Page, 2002) and Black *et al* (1992 cited by Oldfield and Page, 2002) studies. The Grinblatt and Titman (1993 cited by Oldfield and Page, 2002) study noted that this sense of self-aggrandisement is evidenced by the sometimes hefty charges that investment management houses levy on members of the funds they manage. Taking that into account, it is only fair for members of actively managed investment funds to expect above-average returns from their held positions in those funds (Blake and Board, 2000).

Oldfield and Page (2002) argue that any superior performance by a professional fund manager can result from two aspects of investment strategy. Firstly, the manager may have superior ability in forecasting when to move in or out of a particular segment of the market. Elton and Gruber (1991 cited by Oldfield and

Page, 2002) define this forecasting ability as being the decision to move funds between high-risk assets and low-risk assets. According to Oldfield and Page (2002) this definition is consistent with security market line analysis and the perception of a single systematic risk factor influencing high risk asset returns. Secondly, Oldfield and Page (2002) argue that a fund manager may have superior ability in selecting securities within a particular segment of the market. In this context they are referring to the manager's forecasting ability with respect to firm-specific risk factors as opposed to industry-specific risk factors.

Prior to judging performance, it is important to identify clearly what the objectives of a given pension fund are in view of its responsibilities to its policyholders (Downie, 2003). There must be a clear investment mandate against which a given fund manager can be judged upon on a periodical basis. Ritchie (1983 cited by Blake *et al*, 1998) cautions that ex-post returns achieved by a fund manager cannot be judged to have been good or bad without considering the stated ex-ante objectives as well as other dynamics or random factors that influenced performance. This point is critical in ensuring meaningful performance evaluation (Downie, 2003). Discounting for constraints imposed on feasible solutions to a problem that fund managers face is another important consideration when evaluating performance. Normally these constraints are influenced by the differing investment policies embraced by different funds, by trustee intervention and by other random factors.

Investment fund managers have to make investment decisions in line with their investment mandates and can miss out on opportunities if these opportunities are deemed to be in conflict with the mandate given. Trustees can, for example, mandate the fund manager to invest a certain portion of funds in stocks that are deemed to be from socially responsible organisations. If his choice had been unrestrained by such a mandate, the manager could possibly have selected a far better performing stock to invest that specified portion in. Engstrom (2004)

argues that when these constraints exist, they could have a restraining effect on the fund manager's stock selection abilities, thus compromising his overall performance. Therefore, the constraints imposed by Regulation 28 of the Pension Fund's Act of South Africa, as well as the restrictions that trustees sometimes place on fund managers, should be systematically factored-in when measuring or rating pension fund performance. In cases where there are restrictions placed on fund managers beyond those stipulated by the Act, it becomes difficult to take the given fund's performance results and use them as a genuine reflector of the managers ability to produce outstanding results (Sharpe, 1991).

The current literature that is available in South Africa on the performance of different investment vehicles that use pooled funds, provides investors with periodic performance rankings but fails to provide them with any indication to what degree the results achieved were due to a given manager's abilities (Oldfield and Page, 2002). In their study of the performance of South African unit trusts, Oldfield and Page (2002) suggested that an assessment of the timing and selection skills of the managers of unit trusts could prove extremely useful to investors attempting to maximise their wealth using that type of investment medium. Earlier, Fama (1972 cited by Brinson *et al*, 1986) and Jensen (1972 cited by Brinson *et al*, 1986) also argued for a finer breakdown of performance in which one attempts to isolate the stock-selection as well as the market-timing abilities of portfolio managers.

Bagot and Armitage (2003) value-based performance analysis stresses the importance of the manager's contribution to an investor's holding in a multi-interval context. Their study establishes striking and important differences between the value-based approach to performance analysis *vis-à-vis* the traditional industry standard method, which uses a time-weighted rate of returns (TWR). The value-based approach enables one to correctly do an attribution

analysis and correctly measure the value added to shareholders, and consequently provides a better understanding of the manager's contribution. Ferson and Warther (1996 cited by Oldfield and Page, 2002) introduced the concept of conditional performance measurement, which incorporated lagged market indicators into the analysis of investment performance. This dynamic approach factored-in the variance of the economic conditions and the risks by which fund managers are faced. This concept also addresses the major practical problems that have marred performance evaluation for years (Oldfield and Page, 2002).

2.14.1 Traditional performance measures

According to Brinson, Hood and Beebower (1986), performance evaluation of pooled assets can be traced back to the 1960s. Pioneers of varying evaluation techniques were Treynor (1965 cited by Engstrom, 2004), Sharpe (1966 cited by Engstrom, 2004), and Jensen (1968 cited by Engstrom, 2004). According to Engstrom (2004), Jensen's alpha has become the most widely used measure in academic literature. Jensen's alpha is measured as the intercept from a regression on the returns, in excess of the risk-free rate of the managed portfolio, on the excess returns of a benchmark portfolio. Engstrom (2004) argues that this measure is known to suffer from a statistical bias when fund managers successfully time the market. The implication is that successful timers can be assigned a negative performance. In response to this statistical bias problem, Grinblatt and Titman (1989) proposed the positive period weighting measure which is an alternative measure that does not suffer from this statistical bias. Further developments in the literature have concerned the choice of benchmark to use when evaluating performance. Lehmann and Modest (1987 cited by Grinblatt and Titman, 1989) demonstrated that performance evaluation is

significantly affected by the choice of benchmark model.²⁰ Elton *et al* (1993 cited Grinblatt and Titman, 1989) also demonstrated the importance of choosing the correct factor in the Jensen single-factor model by extending the model used in Ippolito (1989 cited by Grinblatt and Titman, 1989) into a multifactor model and showing that results are reversed. Engstrom (2004) notes that the Jensen measure fails to account for time-varying expected risk and returns, due to its use of historical returns when estimating expected performance. Engstrom (2004) demonstrated that Ferson and Schadt (1996 cited by Engstrom, 2004) extend the traditional measure of performance by using predetermined information variables. According to Engstrom (2004) the conditional performance measurement allows for time-varying expected returns and risk. According to Engstrom (2004) the Ferson-Schadt measure is obtained by the regression:

$$R_{it} - R_{it} = \alpha_i + \beta_{i0} (R_{bt} - R_{it}) + \beta'_{i1} q_{t-1} (R_{bt} - R_{it}) + \varepsilon_{it}$$

The deviation α_i from the benchmark model, if it is positive, can be interpreted as superior performance. The beta coefficient measures the exposure to the benchmark and is a measure of the fund's systematic risk. Each information variable q_{t-1} has zero mean.

2.14.2 New Performance Measures

According to Engstrom (2004), previous performance evaluation measures have focused mainly on aggregate portfolio performance. Based on the methods developed by Treynor and Mazuy (1966) and Henriksson and Merton (1981 cited by Engstrom, 2004), performance has been decomposed into selectivity and market timing. Engstrom (2004) further extended the literature by decomposing

²⁰ This was achieved by adapting the Asset Pricing Theory to performance evaluation.

performance into terms corresponding to the fund manager's strategic and tactical decisions using replicating portfolios.²¹ Grinblatt and Titman (1989) constructed a similar hypothetical portfolio based on observed portfolio weights. According to Engstrom (2004), the first measure that can be computed using the replicating portfolio is the difference between the fund's returns and the returns on the replicating portfolio. This difference can be interpreted as the value (in terms of returns) created by the fund manager's active decisions. Engstrom (2004) argues that the implication of a positive returns value (RV) of active portfolio management is that the manager has sold inferior assets in comparison with the assets bought.

According to Engstrom (2004), the fund's replicating portfolio allows for an evaluation of the fund manager's strategic and tactical decisions on a risk-adjusted basis. The performance measure of strategic decisions is obtained by evaluating the replicating portfolio using Jensen's alpha measure. The unconditional strategic performance is estimated by the intercept in the regression:

$$R_{Rit} - R_{ft} = \alpha_{Si} + \beta_{Si} (R_{bt} - R_{ft}) + \varepsilon_{Sit}$$

where R_{Rit} is the return on the replicating portfolio of fund i at time t . In addition, the subscript S refers to strategic decisions; thus α_{Si} refers to the performance of the strategic decision and β_{Si} refers to the risk in the strategic portfolio. Moreover, $R_{bt} - R_{ft}$ refers to the returns on the benchmark in excess of the risk free asset at time t . - Similarly, the performance of the manager's tactical decision is computed by evaluating the fund's returns in excess of the replicating portfolio. Tactical

²¹ The performance of strategic decisions captures a manager's ability to make long-term investment decisions that last for at least one year. *Strategic* decisions are measured by taking a snapshot of the portfolio and evaluate a passive strategy of this portfolio (replicating portfolio). *Tactical* performance, on the other hand, captures a manager's ability to make short-term investment decisions during the year. Tactical performance is measured through evaluating how the mid-year decisions affect risk and returns in the portfolio.

performance is estimated by the intercept in the regression:

$$R_{it} - R_{Rit} = \alpha_{Ti} + \beta_{Ti} (R_{bt} - R_{Rt}) + \varepsilon_{Tit}$$

where $R_{it} - R_{Rit}$ is the return on the zero investment portfolio, or the returns on fund i in excess of its replicating portfolio. In addition, the subscript T refers to tactical decisions; thus α_{Ti} refers to the performance of the tactical decision and β_{Ti} refers to the risk in the tactical portfolio. According to Engstrom (2004), the evaluation of both the fund managers' strategic decisions and of their tactical decisions can be computed in a conditional setting, following Ferson and Schadt (1996 cited by Engstrom, 2004). This allows for time-varying expected returns and risk.

2.14.3 Performance evaluation – from traditional measurements to new measures

Having established the case for performance evaluation, it is critical to note that there are intrinsic questions regarding performance evaluation such as:

- What benchmark should one use when measuring performance?
- How should one account for the risk relating to the different asset classes held in the given portfolio held by the fund? and
- How does one attribute performance to either value-creative or value-destructive managers?

These questions have been the driving force behind the development of performance evaluation theory. In the following sections these questions are considered in turn.

2.14.3.1 What benchmark should be used when measuring performance?

According to Bagot and Armitage (2003), the use of a performance benchmark is omnipresent in portfolio performance appraisal. The benchmark enables the rate of return achieved by a fund over a particular period to be broken down into several components, consisting of the rate of return on the benchmark and of incremental rates which capture the effects of active management. Fama (1972 cited by Bodie *et al*, 2002) was first in presenting this method of analysis in the context of the Capital Asset Pricing Model (CAPM). Usage of a correct performance benchmark is critical in performance appraisal.

Oldfield and Page (2002) stress the importance of using a suitable benchmark when assessing performance since the benchmark serves as a yardstick for expressing a view on performance. Using an incorrect benchmark might lead to incorrect conclusions in terms of whether the returns posted are acceptable or not. If for example an aggressive portfolio is compared to a moderate benchmark in terms of risk, one might conclude that the aggressive portfolio has outperformed the benchmark thereby incorrectly overlooking the difference in the risk profile of the two portfolios.

Roll (1978 cited by Bagot and Armitage, 2003) notes that benchmark inefficiency is a central theme for both the theoretical and the empirical literature on performance evaluation, because of the difficulty in distinguishing benchmark inefficiency from abnormal performance. Lehman and Modest (1987 cited by Grinblatt and Titman, 1989) and Elton *et al* (1993 cited Grinblatt and Titman, 1989) found that the measured performance of US equity mutual funds can depend critically on the benchmark used in the analysis. Elton *et al* (1993 cited Grinblatt and Titman, 1989) and Ferson and Schadt (1996 cited by Engstrom, 2004) highlighted some of the mis-specification problems associated with performance evaluation that arise when the funds under consideration hold

assets that are excluded from the benchmark index.

According to Bagot and Armitage (2003), the importance of choosing a correct benchmark when seeking to determine what value the fund manager has added, lies in the fact that the managed fund's rate of return is explained as the return on the benchmark, plus the difference for taking more or less risk, plus the difference due to stock selection abilities. Brinson, Hood and Beebower (1986) re-defined this analysis in line with industry practice as follows: the benchmark is a passive portfolio with an asset allocation chosen by the investor, and the rate of returns on the managed fund is explained as the returns on the benchmark, plus the difference due to stock selection. Brinson *et al* (1991 cited by Bagot and Armitage, 2003), Allen (1991 cited by Bagot and Armitage, 2003), Ankrum and Hensel (1994 cited by Bagot and Armitage, 2003) have since extended this framework to identify the incremental rates of return from risk-positioning within asset classes and from currency selection.

An interesting development in the literature is performance measurement without general benchmarks. Grinblatt and Titman (1993) measure performance by multiplying the twelve month change in portfolio weight by the following month's returns on that stock.²² Another evaluation approach that escapes the benchmark in efficiency risk is the value-based method advocated by Bagot and Armitage (2003).

²² They compute the portfolio change measure by using both 1st quarter and 4th quarter lagged portfolio weights. However, they focus on the measures from the 4th quarter lagged portfolio weights setting since 1 quarter lagged portfolio weights only generate measures close to zero. This might be due to the fact that the funds do not change their portfolios very much within one quarter.

2.14.3.2 How to account for risk relating to the different asset classes held in the given portfolio held by the fund?

According to Akiniolire and Smit (2003), conventional theories of performance evaluation dictate that returns must be adjusted for risk before they can be compared. The simplest and most popular way to adjust returns for the portfolio risk is to compare rates of returns with those of other funds with similar characteristics. This approach, groups similar funds into a universe of like assets, then the time-weighted average returns of each fund within the universe are ordered, and each portfolio manager receives a ranking.

According to Bodie *et al* (2002), this form of comparison is a useful first step in evaluating performance. Akiniolire and Smit (2003) note that such rankings can be misleading because within a particular universe some managers may concentrate on particular subgroups such that portfolio characteristics are not truly comparable. Risk-adjusted methods of fund performance evaluation using mean-variance criteria were published during the same time as the Capital Asset Pricing Model. Akiniolire and Smit (2003) note that currently there are different risk-adjusted measures commonly used for performance evaluation; these are Sharpe's measure, Treynor's measure and Jensen's measure.

According to Akiniolire and Smit (2003), Sharpe's measure divides average portfolio excess returns over the sample period by the standard deviation of returns over that period. It measures the reward to total volatility trade-off.

Sharpe's measure:
$$\frac{r_p - r_f}{\sigma_p}$$

where r_p is the return of the portfolio, p ; r_f is the risk-free rate, and σ_p is the total risk of the same portfolio.

Treynor's measure also evaluates excess returns per unit of risk, but it uses systematic risk instead of total risk.

Treynor's measure:
$$\frac{r_p - r_f}{\beta_p}$$

where r_p is the returns of the portfolio, p ; r_f is the risk-free rate and β_p is the beta of the portfolio.

Jensen's measure, on the other hand, measures the average return on the portfolio over and above that predicted by the Capital Asset Pricing Model, given the portfolio's beta and the average market returns. Jensen's measure is the portfolio's alpha value. A positive value denotes a portfolio whose returns are consistently greater than those implied by its level of systematic risk, and thus denotes superior performance. In a similar manner, Akiniolire and Smit (2003) argue, negative or zero values denote inferior or neutral performance respectively.

Jensen's measure:

$$\alpha_p = r_p - [r_f + \beta_p(r_m - r_f)]$$

The M^2 measure of performance is a variant of Sharpe's measure; it was introduced by Modigliani and Modigliani (1997 cited by Akiniolire and Smit, 2003). This measure focuses on total volatility as a measure of risk, but its risk-adjusted measure of performance has the easy interpretation of a differential return relative to the benchmark index.

The downside of all the above measures includes their tendency to lower the

rating of managers who do not beat the index, and also the intrinsic problems arising from the assumption of the Capital Asset Pricing Model.

Ferson and Warther (1996 cited by Engstrom, 2004) and Ferson and Schadt (1996 cited by Engstrom, 2004) advocate the use of a conditional performance evaluation approach to address the limitations of the three methods discussed above. With this method, only managers who correctly use more information than is generally publicly available are considered to have potentially superior ability.

The conditional model uses the following equation for the fund returns:

$$RP_t = \alpha + b_0 RM_t + b_1 [RM_t * (DY)_{t-1}] + b_2 [(RM_t) * (TS)_{t-1}] + \varepsilon_t$$

According to Akinolire and Smit (2003) the above specification adds the dividend yield (*DY*) and the term structure of interest rates (*TS*) as two additional parameters to the regression equation traditionally used to estimate the unconditional alpha.

2.14.3.3 How does one attribute performance to either value creators or value destroyers?

Traditional approaches employed to measure the performance of funds have more often than not been marred with incompatibility to the task at hand. A popular tendency has been to rate funds according to raw ex-post returns as opposed to doing so using risk-adjusted rate-of-return indicators (either ex-ante or ex-post). In certain cases, even when the risk-adjusted rate of returns is used, the performance measurement tended to be purely an arithmetic exercise where returns are crudely compared for variance, with no accompanying effort to unmask the key drivers of the variances in returns.

In response to this shortcoming, academics have developed performance attribution analysis as a method of unmasking key performance drivers or value destroyers (Lambert, 1998). By unmasking performance drivers, this method of analysis seeks to add to the wide array of methods whose aim is to determine whether there is an affirmative case for active portfolio management or not. Bagot and Armitage (2003) argue that policyholders belonging to retirement funds are not too much concerned with the fund manager's turnover rate; for them the all-important question is: What has the manager done for them, given their initial investment and the cash inflows they have injected into the fund along the way?

Bagot and Armitage (2003) propose that when investors want to ascertain a manager's contribution to the value of their investment, attribution analysis provides a better understanding of the manager's contribution. They present a value-based method of analysis which, they argue, enables precise attribution analysis as opposed to the traditional use of TWR's (time weighted rate of returns). With the value-based method the manager's contribution is measured by the difference between the final market value of the investors' holding in the fund, with its associated cash flows over time, and the final value of the equivalent holding in the fund's benchmark. The major attraction of this approach is that performance evaluation using values is advantageous in cases where there is more than one interval under evaluation.

According to Bagot and Armitage (2003), in a multi-interval context with intervening cash flows between start and finish, we cannot measure the manager's contribution to the value of the portfolio using TWRs, hence attribution analysis cannot be done correctly. Bagot and Armitage (2003) argue that the results of the analysis for the whole portfolio are no longer applicable to different investors in the portfolio. Even if there are no intervening cash flows, attribution

analysis using TWRs will be inexact unless the constituent asset classes held by the portfolio and its benchmark are identical in every interval.

The value-based method, argue Bagot and Armitage (2003), measures the manager's contribution by the difference between the final market value of the investor's holding in the fund, with its associated cash flows over time, and the final value of the equivalent holding in the fund's benchmark. The value-based method is a form of money weighting in that the impact of the manager's interval-specific decisions on the final value of the holding is positively related to the preceding cash flows made by the investor. Bagot and Armitage (2003) conclude their study by stating that performance evaluation in terms of values is advantageous if there is more than one interval. According to Bagot and Armitage (2003) it enables attribution analysis to be conducted precisely and transparently, and it enables each investor to be provided with a customised report of the manager's contribution to his or her holding.

There are two major drawbacks, however, with the results generated by this method of analysis. First, the method does not present results in a manner that can be immediately compared with the rates achieved by other funds (i.e. rate of returns). Secondly, the results, whether expressed as values or as percentages, may not be appropriate for use in an assessment of the manager's skill. However, the value-based analysis enables the manager's contribution to the fund and to the holdings of individual members to be analysed in a correct way.

2.14.4 Relationship between performance evaluation and fund management

The pension asset management policy significantly affects the future returns of a fund (DB plan) and therefore the contributions to be made by the firm. Understanding the incentives of pension fund managers helps us to predict asset

allocation decisions and fund performances better. Arnott (1997 cited by Bagot and Armitage, 2003) advances that performance evaluation is indispensable to hiring fund managers, checking their performance, and firing them if necessary.

Asthana and Lipka (2002 cited by Bagot and Armitage, 2003) note that both defined-benefit and defined-contribution plan sponsors are increasingly interested in establishing performance-related termination thresholds for investment managers. Managers are dismissed when they perform below the applicable benchmark. A major criterion to judge the pension fund manager's performance is the returns earned by his or her pension asset portfolio. Higher returns imply lower employer contributions to the defined benefit pension fund in the future. For higher expected returns, fund managers have to invest in high risk portfolios and on the efficient frontier. Most sponsoring firms establish fund management policies that state the desirable risk-return profiles for their pension funds. These policies are typically guidelines, and fund managers have adequate freedom to determine the risk-return profile of their portfolios.

In their study, Asthana and Lipka (2002 cited by Bagot and Armitage, 2003) find that dismal performance prompts managers to reallocate their assets in the subsequent periods. This result persists even after they control for riskiness of the asset portfolio, firm and plan sizes, funded status, profitability, leverage, and age distribution of participants. Asthana and Lipka (2002 cited by Bagot and Armitage, 2003) observe that the actions of the managers result in improved portfolio performances even after controlling for investment risk and the mean-reversion phenomenon of asset returns. Further, they observe that the market responds negatively to pension asset reallocations to high-risk portfolios. Their study observed that some calculated interventions on the side of fund managers, does affect performance either positively or negatively, which necessitates performance evaluation and review.

2.14.5 Performance evaluation and its impact on management fees

Determining the affirmative case of superior performance by active fund managers is critical, given that active fund managers pride themselves on their ability to generate superior returns. In line with this promise they collect substantial fees in certain cases, as compensation for their alleged ability to return to member's superior interest on funds invested.

Further, as Kugi (2002 cited by Blake and Board, 2000) argued in her study, isolating superior managers from their poor performing counterparts can also help improve portfolio managers' compensation system. In some countries like the UK and South Africa where the mutual fund industry is not as developed as the US, the fee structures in operation appear to provide a strong disincentive to undertake real active management which seeks to add value for shareholders. This is possible because although fund managers are set the objective of adding value, their fees are generally related to year-end asset values and not directly to performance (Blake and Board, 2000).

According to Blake and Board (2000) there are essentially a number of bases on which pension plan charges can be levied; however, these can be broadly categorised as charges imposed on contributions and charges imposed on fund value.

Charges imposed on contributions can either be:

- Entry charges, which are either related to, or independent of, the size of the contributions, or
- Regular (periodic) charges, either related to, or independent of, the size of

contributions.

On the other hand, charges imposed on the fund value can either be regular charges based on interim value, or exit charges based on redemption (i.e. terminal, transfer or paid-up) value.²³

In support of the above, Blake *et al* (1998) argue that genuine *ex ante* ability which translates into superior *ex post* performance, increases the base used for calculating management fees. According to Blake *et al* (1998), this incentive is not very strong as active management subjects the manager to nontrivial risks, given that even the returns achieved by a truly superior fund manager will often be negative and sometimes large as well. Blake *et al* (1998) then conclude that the potential consequences of underperformance (failure to renew the mandate) arising from poor luck far outweigh the prospective benefits from active management (a slightly higher fee) for all but the most certain security selection or market-timing opportunities.

In an earlier study conducted to measure added value in the pension fund industry, Blake and Board (2000) found little correlation between the fees charged by funds and their actual performance. Blake and Board (2000) argue strongly in favour of a wider usage of performance-related charges by pension funds, which will reward superior performance while penalising poor performers.

Blake and Board (2000) also unmask the effects of front-load charges on investable assets through use of two conventional approaches that measure the

²³ The terminal value referred to here is the value of the accumulated fund on the retirement date of the policyholder. On that date, the accumulated fund is usually used to buy a life annuity from an insurance company in return for a single fixed charge.

reduction in yield (RiY) as well as the reduction in contributions (RiC).²⁴ According to Blake and Board (2000), the higher charges lower the net contributions invested, and therefore lower the fund's maturity value which in turn results in a larger reduction in yield. The structure of these charges has a depressive effect on fund performance as they reduce the funds available for investment. According to Blake and Board (2000), front-loaded charges do not tend to provide the best incentive for fund managers to deliver good service. Blake and Board (2000) showed that it is very difficult to determine the total charge that will be levied on a particular fund, because of the complex interactions between the components of the total charge and also because the use of performance-related charges requires an estimate of future performance to be made before charges can be projected.²⁵

Blake and Board (2000) conclude their study by agreeing with the UK Office of Fair Trading in so far as it asserts that

"the best way [to run a simplified defined-contribution pension scheme] is to embrace passive fund management, thus requiring funds to compete in terms of their administration costs, not their spurious promises of future excess returns."²⁶

Given the up-front impact of the charges levied under the front-load fee structure, there is a case for an appraisal activity. This activity will seek to match the fees extracted from the contributions with the returns accruing to the fund to gauge if

²⁴ Charges are said to be front-loaded if they are levied prior to the delivery of the service to which they relate, while they are said to be back-loaded if they are levied afterwards.

²⁵ A further difficulty is caused by the differing treatment of commission. Most pension plans are arranged either through a firm's own sales force or appointed representatives, or through an independent financial adviser (IFA). In most cases pension plan charges will include an element of commission payable by the provider to the arranger of the plan. Some plans, however, are commission free, which means that the arranger's fee must be paid directly by the customer. Clearly any complete assessment of a plan's costs should include both the provider's charges and the commission payable.

²⁶ Office of Fair Trading, 1999b, P.2.

value has been created. Performance evaluation is critical in so far as it determines whether the fund has realised superior returns as a result of active management that adequately compensate for the fees levied.

The critical need to rigorously assess the performance of portfolio managers was also indicated by Rubinstein (2003 cited by Anon, 2003). According to Rubinstein (2003 cited by Anon, 2003), financial economists have a duty to develop what he casually termed good ways to measure performance which will help in weeding out irrational money managers. Rubinstein (2003 cited by Anon, 2003) marshals compelling arguments affirming the minimal rationality of the market and thereby undermining the case for active portfolio management. With the aid of Jensen (1968 cited by Rubinstein, 2003), he concludes in his article that the average actively managed fund does not outperform a market index. According to Rubinstein (2003 cited by Anon, 2003) the average fund underperforms by about the size of its fees and trading costs.

Notwithstanding all the controversies around active management, it is worth noting that for the market to remain efficient, active fund management has to be pursued as it ensures that stock mispricing and profiting opportunities are eroded and that markets are constantly restored to equilibrium. Active fund managers should be rewarded for their efforts through the use of performance-related fees, thus re-enforcing the critical need for rigorous performance attribution measures.

Other studies that tackled this subject include the earlier works of Sharpe (1966 cited by Blake and Board, 2000), Jensen (1968 cited by Blake and Board, 2000) and Treynor (1965 cited by Blake and Board, 2000). The findings of Sharpe (1966 cited by Blake and Board, 2000) and Jensen (1968 cited by Blake and Board, 2000) demonstrated that mutual funds perform below market indexes and suggest that the returns were not sufficient to compensate investors for the diverse mutual fund charges. Sharpe (1966 cited by Blake and Board, 2000)

found that funds with lower expense ratios provided better net returns than funds with high expense ratios. Sharpe (1966 cited by Blake and Board, 2000) concluded that investors were not being compensated for the loaded fees.

According to Blake and Board (2000), the front loaded fees have a value-destructive role in themselves when looked at from the perspective of the reduction in contribution (RiC) measure.²⁷ This measure expresses the loss in value arising from the fund's charges as the difference between the gross contributions and the effective contribution applied to the fund, where effective contributions are defined as the contributions that would have to be paid into a zero-load plan so as to generate the same terminal value as the scheme in question. Blake *et al* (1998) demonstrated that most UK pension fund managers earn fees related solely to the value of assets under management and not to their relative performance against either a predetermined benchmark or their peer group in the market.

2.15 PERFORMANCE PERSISTENCE

The performance of investment portfolios in South Africa as well as globally has been a subject of numerous studies. A number of studies have focused on testing the existence of performance persistence for these funds, while others have pursued the more fundamental question of how to evaluate performance in

²⁷ The reduction in contributions is not a new measure. It is also known as a percentage rate of premium and it was the measure of reporting charges originally recommended by the UK's Securities and Investment Board for the new disclosure regime for life assurance and unit trusts that came into operation in January 1990 (see Securities and Investment Board, 1988). However, following industry representations, the Securities and Investment Board adopted the reduction in yield measure of reporting charges on the grounds that it is a more appropriate approach for a product intended to be a long-term investment vehicle and that the short-term impact of charges is broadly reflected in the discontinuance values which have to be disclosed (Securities and Investment Board, 1989, p.15).

the first place. A study by Jensen (1968 cited by Grinblatt and Titman, 1989) concluded that active mutual funds under perform their benchmarks by 1% per year on average. He further found that only one third of equity funds outperform the S&P 500 in any given year.

Malkiel (1973, 1984 cited by Grinblatt and Titman, 1989) found that two thirds of mutual fund managers under performed the market averages and that an equal percentage of pension fund managers underperformed the market averages. In support of the Jensen (1968 cited by Grinblatt and Titman, 1989) conclusions, Malkiel (1973 cited by Grinblatt and Titman, 1989) also noted that average equity mutual funds underperformed the S&P 500 index by 1,8%.

On the question of performance persistence, Bogle (2000 cited Grinblatt and Titman, 1989) found that top performers of the previous year do not outperform in the following year and, further, that top performers for the past ten years do not outperform in the following ten years. Carhart (1985 cited by Grinblatt and Titman, 1989) also found that equity mutual funds underperformed the market by 1,8% per year after adjusting for risk. The Carhart (1985 cited by Grinblatt and Titman, 1989) study concludes that there is little evidence of stock-picking ability and no evidence of persistence in performance. The study also notes that 31% of mutual funds have ceased to exist over the past 30 years, which strengthens the case for persistence in poor performance.

It is important to note also a study by Hagstrom (2001) which underscores the essence of this current study as well as the methodology followed. In his study Hagstrom (2001) notes that the traditional yardstick that is often used when measuring performance is price change: the difference between the prices originally paid for the stock and its market price today. In the long run, existing theory tells us, the market price should approximate the change in the value of

the business. In the short run, however, prices gyrate widely above and below a company's value; they are dependent on factors other than the progress of the business (Hagstrom, 2001).

The problem is that most investors use short-term price changes to gauge the success or failure of their investment approach. The quarterly performance reports of most funds are based on data generated using these sometimes erratic stock price movements. Unfortunately, these short-term price changes often have little to do with the changing economic value of the business and much to do with anticipating the behaviour of other investors. In addition, professional investors are required by their clients to report performance in quarterly periods, as is the case with most South African provident funds.

Frequently, clients become impatient while waiting for the price of their portfolio to grow at some predetermined rate. If they do not see short-term performance gains, clients become dissatisfied and sceptical of the investment professional's ability. Anticipating this imminent short-termist pressure and eager to cut their losses, *fund managers precariously offload poor performers and look for the "must buy's" of the moment* (Hagstrom, 2001). The unfortunate thing about this approach is that not only do funds loose out on the percentage decline in the previously held stocks, but they also pay premium prices to acquire positions in star performers.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

There are primarily two distinct research paradigms, quantitative research and qualitative research. Both generally aim for description, (understanding and) explanation and prediction. Quantitative research is based on numerical data and rigorous analysis of variables. This method produces statistical results and often enough lends itself to the prediction of phenomena.

Qualitative research, by contrast is primarily based on non-numeric, qualitative data which during analysis are examined for patterns, themes and holistic features. According to Yin (1989 cited by Tellis, 1997), the qualitative method concentrates on describing, understanding and explaining. Apart from these two "pure" research paradigms, one can also use a combination called mixed research which mixes the best (or most useful) of both qualitative and quantitative research methods and combines both quantitative and qualitative data. This study contains a number of difficult-to-quantify aspects, so that the qualitative method was chosen. This choice is in line with the observations of Yin (1994 cited by Tellis, 1997) that, where the researcher is called upon to work with the situation that presents itself in each case, the qualitative method befits the task.

3.2 RESEARCH DESIGN

There are various types of qualitative research that can be used, depending on how appropriate they are for the task at hand. These are briefly explained in table 3.1 on the next page:

Table 3.1 – Types of qualitative research

Research type	Definition
Phenomenology	A form of qualitative research in which the researcher attempts to understand how one or more individuals experience a phenomenon.
Ethnography	A form of qualitative research focused on describing the culture of a group of people.
Case study research	A form of qualitative research that is focused on providing a detailed account of one or more cases.
Grounded theory research	A qualitative approach to generating a theory from data that the researcher collects.
Historical research	Research about events in the past.

Source: Adapted (2005).

According to Tellis (1997), an empirical investigation of a contemporary phenomenon within its real life context is one situation in which a case-study methodology is applicable. Tellis (1997) further observes that the case-study approach as well as other studies has been used extensively in areas such as government studies and evaluative situations. Tellis (1997) observes that the government studies were carried out to determine whether particular programs were efficient or if the goals of a particular program were being met. The

evaluative applications on the other hand were carried out to assess the effectiveness of educational initiatives.

According to Tellis (1997), in both types of investigations quantitative studies tended to obscure some of the important information that the researchers needed to uncover. According to Yin (1994 cited by Tellis, 1997), single-case designs are used to confirm or challenge a theory, or to present a unique or extreme case. Thus, in order to determine whether the fund management strategy of the Rennies Provident Fund created or destroyed shareholder value, a single-case study approach was followed. Stake (1995 cited by Tellis, 1997) advanced that this approach is appropriate when the researcher wants to gain an understanding of the particulars of a specific case.

Yin (1984 cited by Tellis, 1997) states that there are three conditions that influence the design of case studies:

- ⇒ The type of research questions posed;
- ⇒ The extent of control an investigator has over actual behavioural events;
and
- ⇒ The degree of focus on contemporary events.

The nature of the present study's research questions (What and Why questions) justifies an intrinsic exploratory-explanatory single-case study (Tellis, 1997). This view is supported by Yin (1993 cited by Tellis, 1997), Levy (1988 cited by Tellis, 1997) and Stake (1995 cited by Tellis, 1997). The investigator had no control over the actual behavioural events, which is a characteristic of case studies according to Tellis (1997). The current study also meets the third condition by examining contemporary events even though historic data were used.

Further, Yin (1994 cited by Tellis, 1997) proposes the following five components of case studies:

- ⇒ The study's questions;
- ⇒ its propositions, if any;
- ⇒ the study's units of analysis;
- ⇒ the logic linking the data to the propositions; and
- ⇒ the criteria for interpreting the data.

Similar to the Levy (1998 cited Tellis, 1997) study and the Tellis (1997) study, the present study does not have a proposition, and its unit of analysis is the case study Provident Fund.

For the current single-case study, a four-stage research methodology was followed. The four stages that comprise the chosen methodology follow the recommendations of Yin (1994):

- 1) Design the case study protocol:
 - a. Determine the required skills and resources, and
 - b. Develop and review the protocol.
- 2) Conduct the case study:
 - a. Prepare for data collection,
 - b. Conduct desk top secondary data collection,
 - c. Distribute questionnaires, and
 - d. Conduct interviews.

3) Analyse the case study evidence:

a. Analytic strategy.

4) Develop conclusions, recommendations and implications.

3.2.1 Documentary Data

Stake (1995 cited by Tellis, 1997) and Yin (1994 cited by Tellis, 1997) identified six sources of evidence in case studies:

- ⇒ Documents
- ⇒ Archival records
- ⇒ Interviews
- ⇒ Direct observation
- ⇒ Participant-observation
- ⇒ Physical artefacts

Yin (1994 cited by Tellis, 1997) advances that not all sources are essential in every case study, but the importance of multiple sources of data to the reliability of the study is well established.

The identified data sources for this study are:

- ⇒ Documentation from the Rennies Provident Fund, annualised returns from other funds, performance reports from various asset management firms, study reports or any other relevant documentation that could add to the database.

- ⇒ Archival records, which include survey data (completed questionnaires). Confidentiality of the survey respondents is ensured by assigning codenames to the respondents.
- ⇒ Interviews of trustees, to fill in gaps in the policy documents.

Before a researcher starts collecting any data for the purposes of a study, it is critical to determine beforehand the purpose of collecting the data and what/who are the sources of that data. The relevant population is clearly defined in the next section.

3.2.2 Population

According to Donald and Schlinder (2003), research projects have a unit of study which is generally referred to as the population element. While this population element can be a person, it can easily be something else.

For the purposes of this study, the population element is specified as all the members of the Rennies Provident Fund employed by South African Container Depots in Cape Town during the fourth quarter of 2003.

3.2.3 Sampling

With many research projects there is generally a finance and time constraint that researchers must grapple with. In order to manage this constraint, researchers sample the target population and use the findings from the sample to generalise their findings (Donald and Schlinder, 2003).

However, for the purposes of this study, the researcher will survey all the members of the Rennies Provident Fund employed by South African Container

Depots in Cape Town during the fourth quarter of 2003. Thus, the researcher will not draw a sample of the respondents but rather will do a census.

The reason for choosing a census is that the target population is not less than 100 members and they are located in one depot in Cape Town. Thus it will not be expensive to survey all the members, and a census in turn will limit the error margins that are inherent in most research studies that use sampling, thereby increasing the reliability of the findings.

3.2.3 Data collection methods

According to Tellis (1997), a case study is known as an example of a triangulated research strategy. Feargin (1991 cited by Tellis, 1997) asserted that triangulation can occur with data, investigators, theories, and even methodologies. According to Stake (1995 cited by Tellis, 1997), it is the protocols that are used to ensure accuracy and alternative explanations which are called triangulation. The need for triangulation arises from the ethical need to confirm the validity of the process. In case studies this could be done using multiple sources of data (Yin 1984 cited by Tellis, 1997). Tellis (1997) argues that the problem in case studies is to establish meaning rather than location.

Stake (1995 cited by Tellis, 1997) and Yin (1994 cited by Tellis, 1997) identified six sources of evidence in case studies:

- ⇒ Documents
- ⇒ Archival records
- ⇒ Interviews
- ⇒ Direct observation
- ⇒ Participant-observation

⇒ Physical artefacts

According to Tellis (1997), when the researcher wants to triangulate evidence, documents can be used to corroborate evidence from other sources. For this study, only the first three sources of data listed above will be used, as discussed previously in section 1.6.2. Denzin (1984 cited by Tellis, 1997) identified four types of triangulation: data source triangulation, when the researcher looks for the data to remain the same in different contexts; investigator triangulation, when several investigators examine the same phenomenon; theory triangulation, when investigators with different view points interpret the same results; and methodological triangulation, when one approach is followed by another, to increase confidence in the interpretation.

According to Yin (1994 cited by Tellis, 1997), there are three tasks that must be carried out as part of the actual case study. These three tasks are: preparation for data collection, distribution of the questionnaire and conducting interviews. Data collection should be treated as a design issue that will enhance the internal validity of the study, as well as the external validity and reliability, (Yin 1994 cited by Tellis, 1997).

In order to increase the reliability of the study, the survey questionnaire will be hand-delivered to the participants through shift supervisors. Reminders would be sent to participants one week after the original contact to encourage participation.

3.3 QUESTIONNAIRE DESIGN AND LAYOUT

The first rule when designing a survey questionnaire is to design it so that it fits the medium to be used. The second rule of thumb to follow when designing a questionnaire is to keep it short and simple, in order to elicit a high response rate.

3.3.1 Questionnaire layout

In this research the questionnaires are going to be used to determine the members' risk profile, as well as their expectations in terms of returns; to establish their perceptions regarding the performance of the fund and, lastly, to determine their view on whether they see value added for them as a result of the fund's investment management strategy. The questions used in the questionnaire are of the definite multichoice type; one open-ended question is included in section 3 to solicit additional information that might be valuable to the study.

To elicit this information, the questionnaire (see Appendix B) is divided into the following seven main parts:

Part 1 - Member's personal information and contact information - was designed to establish the member's position within SACD and to determine the correlation between the members' contributions and their salary bracket.

Part 2 - Permission to use the data for the research - was designed to obtain informed consent from the members/respondents.

Part 3 - Members' profile - was designed to obtain data on the member's number of years with the fund, risk profile, and risk appetite.

Part 4 - Asset allocation and performance target - was designed to obtain data concerning the member's investment approach preference and return

requirements.

Part 5 - Fund performance - was designed to solicit data on how the members perceive the fund to have performed, to determine their gains or losses in monetary terms for the period under investigation, and to determine their monthly contributions.

Part 6 - Performance objectives - was designed to determine the appropriateness of the Rennies Provident Fund's stated return requirements.

Part 7 - "Other issues" - was designed to determine any other issues that are relevant to the study from the member's perspective.

3.3.2 Analysis

According to Tellis (1997), analysing case study evidence is the least developed aspect of the case study methodology and hence the most difficult. Tellis (1997) further states that some researchers have suggested that if the study were made amenable to statistical analysis, the process would be easier and more acceptable.

Miles and Huberman (1984 cited by Tellis, 1997) suggested analytic techniques such as rearranging the arrays, placing the evidence in a matrix of categories, creating flowcharts or data displays, tabulating the frequency of different events, using means, variances and cross-tabulations to examine the relationships between variables, and other such techniques to facilitate analysis.

Tellis (1997) argues that there must first be an analytic strategy that will lead to conclusions. Yin (1994 cited Tellis, 1997) presented two strategies for general use: one is to rely on theoretical propositions of the study, and then to analyse the evidence based on those propositions. The other technique is to develop a

case description, which would be a framework for organising the case study. According to Tellis (1997), Lynd conducted a widely cited “Middletown” study in 1929, and used a formal chapter construct to guide the development of the analysis. Tellis (1997) further argues that in other situations, the original objective of the case study may help to identify some causal links that could be analysed.

3.3.3 Validity and reliability

Validity is a term used in research methodology that indicates the extent to which a test complies with the aim it was designed for (Tellis, 1997). Reliability, on the other hand, deals with how certain a researcher is that an inference he/she has made is correct. Since all inferences are based on partial information about a population, there is always a chance that the inference made is incorrect. The science of statistics, however recognises this fact and requires that every inference be accompanied by a measure of its reliability, as claimed by Dietrich and Schafer (1984 cited by Tellis, 1997). According to Tellis (1997), reliability and validity are the most critical elements of all research projects.

CHAPTER 4: ANALYSIS AND INTERPRETATION OF THE DATA

4. 1 INTRODUCTION

In this chapter the primary goal of the Rennies Provident Fund, the Fund's return requirements, the Fund's investment constraints, investment guidelines for asset managers, the performance benchmark and performance statistics will be discussed. The analysis that is presented in this chapter is based on secondary data.

4.2 PRIMARY GOAL OF THE FUND AND ROLE PLAYERS

The stated primary goal of the Rennies Provident Fund is to provide a generous lump sum to members on retirement which includes the build-up of contributions with real growth. The Fund's policy document delegated the responsibility of running the Fund to elected trustees who in turn delegated this role to the investment sub-committee. According to the policy document the investment sub-committee is charged with contracting investment managers and making the decisions that may need to be taken regarding investment matters, provided that they are taken within the framework of the Rennies Provident Fund's investment policy document.

The Fund's investment policy document also specifically states that the investment managers will be required to conform to the investment mandate provided to them by the investment sub-committee, and that they should be employing sound audit principles at all times and report back regularly to the investment sub-committee. The Fund's investment policy document also states

the role of the investment consultants; according to the document the consultants are responsible for drafting and explaining the portfolio manager mandates and facilitate in setting appropriate benchmarks.²⁸ The Fund's investment policy document further states that, the investment consultants should also assist the investment sub-committee with all investment-related matters as they arise, and assist with all functions relating to the restructuring of the Fund's assets.

4.3 RETURN REQUIREMENTS

According to subsection 5.1 of the Fund's investment policy discussion document, the Fund aims to provide better returns to the members than members could obtain alone. The fund aims to achieve superior returns by pooling the members' separate investments to achieve economies of scale with investments in a diversified portfolio. The document makes a note that measurement against inflation should only be done over long periods of rolling three, five and ten year periods. The Fund primarily aims to beat an internal benchmark of CPI +3% over the long term. According to the Fund's investment policy document, the Fund intends maintaining a buffer to smooth returns and be able to absorb adverse market conditions as a result of its exposure in equities.

4.4 INVESTMENT CONSTRAINTS

The Rennie Provident Fund's investment policy discussion document categorises constraints as follows: investment time horizon, liquidity considerations, tax considerations and legal constraints, strategic

²⁸ Attempts to get the documented mandates for the five different asset managers who were managing the Fund's assets during the 2003 financial year were unsuccessful, as NBC advised that they were not in a position to disclose this information.

holdings/unlisted investments and socially responsible investments, offshore investments and general constraints.

4.4.1 Investment time horizon

By virtue of the fact that the Fund is a retirement fund, its investment horizon as it is stated in its investment policy discussion document is long-term. The effective time horizon for asset managers however is shorter. According to the Fund's investment policy discussion document, this is due to the fact that asset managers need to demonstrate performance on a regular basis.

The case for balance between short-term performance requirements and the need to provide for the long term is highlighted and linked to the selection of appropriate assets. *The stated official performance evaluation period is three years.*

4.4.2 Liquidity

The fund is generally not constrained by liquidity considerations under normal conditions. However, the fund should be in a position to meet extraordinary liquidity requirements when they arise. The policy document states that the Fund's holding in an investment should not cause it difficulty in liquidating the holding, and that such liquidation should not affect the price of the asset in question.²⁹ In line with the aforementioned point, the Fund is wary of guaranteed products and insurance company smooth-bonus investments, given their liquidity constraints. The Fund views the use of derivatives and other structured guaranteed products as limiting since sometimes they have lock-in periods which would further constrain liquidity. The trustees are also precluded from investing

²⁹ Investment Policy Document, Rennies Provident Fund, p. 7.

directly in property and other private equity vehicles.

4.4.3 Tax considerations and legal constraints

The Rennies Provident Fund's investment policy discussion document requires asset managers to consider the implications of tax on member's benefits when devising their asset allocation strategies within the parameters of the mandates set by the trustees. The fund is subject to the provisions of Regulation 28 of the Pension Funds Act 1956.

4.4.4 Strategic holdings, unlisted investments and socially responsible investments

According to the Fund's investment policy, it does not intend to enter into any *future agreements binding it to hold specified investments for periods exceeding three years*. The Fund's investment policy also states that strategic holdings must be ratified by the Board of Trustees. In particular, investments with a lock-in or with a term in excess of one year should be discussed by the Board of Trustees prior to approval.

Investments in unlisted assets are limited to 2,5% of the Fund, in line with Regulation 28, and they must be agreed on with the Board of Trustees prior to commitment. Without explicit trustee approval this type of investment is not allowed in terms of the Fund's policy document, with the exception of the following:

- International banks with a Moody's international rating of Aa2 or higher,
- Standard and Poor's rating of AA- or higher, and
- Domestic banks with a CA- Ratings long-term rating equal to or better than

ZaA.

The Fund acknowledges the positive social impact of investing in socially responsible investments; however, an investment limit of 10% of the Fund's assets has been set for this type of assets.

4.4.5 Offshore investments and other limitations

The Fund views holding positions in offshore assets as a sound investment strategy for the purposes of minimising risk. Investment in these assets, however, is capped at 15% of the Fund's value by the South African Reserve Bank; the Fund's asset managers are not precluded from maximising this limitation.

4.5 INVESTMENT GUIDELINES FOR ASSET MANAGERS

The asset managers are allowed to take advantage of anomalies in derivative pricing in order to enhance the portfolio's investment returns; derivatives may also be bought to provide insurance against a specific event. They can also be used to effectively allocate funds across different asset classes or as a hedging tool.

However, they may not be used to speculate in the derivative market or be used in geared transactions. Scrip lending is also provided for, as long as it does not impede the manager's ability to manage the assets within his given mandate.

4.6 PERFORMANCE OF THE RETIREMENT FUND INDUSTRY IN GENERAL AND THE RENNIES PROVIDENT FUND IN PARTICULAR

In this section the performance statistics of the retirement industry in general and those of the Rennies Provident Fund in particular will be discussed. These statistics were obtained from various secondary data sources in order to undertake a desk-top comparative analysis of the performance of the Rennies Provident Fund versus the performance of the overall pension fund industry.

4.6.1 General performance statistics of the retirement fund industry

According to the 44th Annual Report from the Registrar of Pension Funds (2002), there was a count of 14 257 pension funds in operation in South Africa, with aggregate net assets under management totalling R867 396m³⁰. For the same period reported, these pension funds had a combined total membership of approximately 9,7m policyholders who collectively contributed R60 552m³¹ into their respective funds for the same reported 2002 period. These funds in turn paid out benefits of approximately R72 492m for the same reporting period.

By just doing a crude arithmetic comparison of benefits paid out *vis-à-vis* the contributions received for the 2002 reporting period, the result is a deficit of R11 940m for the year.

$$R60\ 552m - R72\ 492m = -R11\ 940m$$

With this deficit in mind, it becomes strikingly clear that funds have to maintain a

³⁰ 44th Annual Report of the South African Registrar of Pension Fund's, 2002, (p.20).

³¹ This is an inflated figure due to double counting, as some members belong to more than one fund.

certain level of reserves to meet imminent benefit payouts.

The 44th Annual Report from the Registrar of Pension Funds also notes a 47 % downwards move in the combined return on investments generated by registered pension funds for the 2002 reporting period. The funds posted returns averaging 8,7 %, while in 2001, 16,4 % returns on investments was posted³². According to a report posted on the JCCI's website, the returns of the Chamber's pension fund as at December 2004 were 20,29% for the past 12 years, 19,44% for the past 10 years, 23,43% for the past 5 years and 23,02% for the past 12 months up to 31 December 2004.

4.6.2 Performance statistics of the Rennies Provident Fund

As stated earlier, the Fund has for the past 17 years returned on average 13 % per annum. For the 2003 financial year the returns that were declared were -5,7%. Tables 4.1 and 4.2 below give an overview of the performance statistics of the Rennies Provident Fund. These are presented against both the consumer price index as well as against the internally set benchmark of CPI + 3%.

³² The reported returns were calculated using the following formula: $R = \frac{2i}{A + B} - i$ where R = returns on investments, A = initial value of investments, B = end value of investments i = interest, dividends, rent, policy income or any other realised income and or expenses.

Table 4.1 – Returns vs. consumer price index³³

Period ending	CPI	Fund Interest	Fund Intern
Apr-87	17.3%	15.0%	15.0%
Apr-88	12.9%	15.0%	15.0%
Apr-89	14.9%	18.0%	15.0%
Apr-90	13.9%	18.0%	16.0%
Apr-91	15.2%	18.0%	16.0%
Apr-92	14.8%	18.0%	16.0%
Apr-93	10.6%	18.0%	15.0%
Apr-94	7.2%	14.0%	10.0%
Apr-95	10.8%	15.0%	12.0%
Apr-96	5.9%	13.0%	12.0%
Apr-97	9.5%	18.0%	12.0%
Apr-98	5.2%	15.0%	12.0%
Apr-99	7.6%	3.0%	0.0%
Apr-00	4.5%	10.0%	3% & 7.0%
Apr-01	6.5%	6.5%	5.0%
Apr-02	8.0%	15.0%	4.5%
Apr-03	8.8%	-5.7%	5.5%
Average	10.2%	13.2%	11.3%

Source: Adapted (2005).

The Fund on average outperformed the CPI over the 17-year period by 3 %.

³³ The figures listed here for the CPI are unrevised figures; they were the official figures reported by Statistics South Africa in 2005, prior to the revision of CPI figures which took place recently. The fund interest figures were obtained from the Rennie Provident Fund.

Table 4.2 – Fund real returns vs. required real returns³⁴

Period	Required Returns*	Fund Interest	Short/ Outperformance
Apr-87	20.3%	15.0%	-5.3%
Apr-88	15.9%	15.0%	-0.9%
Apr-89	17.9%	18.0%	0.1%
Apr-90	16.9%	18.0%	1.1%
Apr-91	18.2%	18.0%	-0.2%
Apr-92	17.8%	18.0%	0.2%
Apr-93	13.6%	18.0%	4.4%
Apr-94	10.2%	14.0%	3.8%
Apr-95	13.8%	15.0%	1.2%
Apr-96	8.9%	13.0%	4.1%
Apr-97	12.5%	18.0%	5.5%
Apr-98	8.2%	15.0%	6.8%
Apr-99	10.6%	3.0%	-7.6%
Apr-00	7.5%	10.0%	2.5%
Apr-01	9.5%	6.5%	-3.0%
Apr-02	11.0%	15.0%	4.0%
Apr-03	11.8%	-5.7%	-17.5%
Average	13.2%	13.2%	0.0%

Source: Adapted (2005).

Table 4.2 above reveals that on average for the 17-year period the Fund's declarations have mirrored the Fund's required rate of returns of 13,2%.

³⁴ The required returns are obtained by adding 3 percentage points to a given years CPI rate.

4.7 ANALYSIS OF THE PERFORMANCE OF THE FUND

Based on the secondary data presented in 4.6, the following tentative observations can be made:

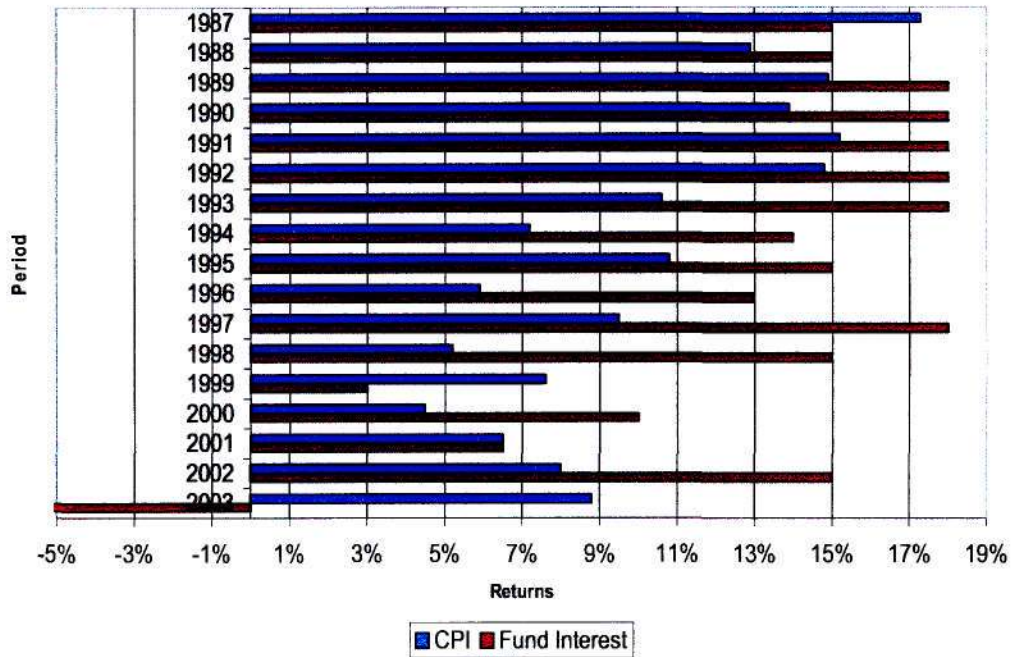
4.7.1 Evaluation criterion 1 – Returns vs. internal benchmark of CPI + 3%

An analysis using the first evaluation criterion - average real returns vs. the internally set benchmark of CPI + 3% over the past 17 years - reveals the following:

- The Fund has on average preserved the purchasing power of the members' investment in the fund by declaring positive average real returns.
- The Fund has over the 17-year period declared on average returns equalling CPI + 2,9%.

Figure 4.1 and Figure 4.2 show the Rennie's Provident Fund's performance against the consumer price index as well as the Fund's internally set benchmark of CPI + 3.

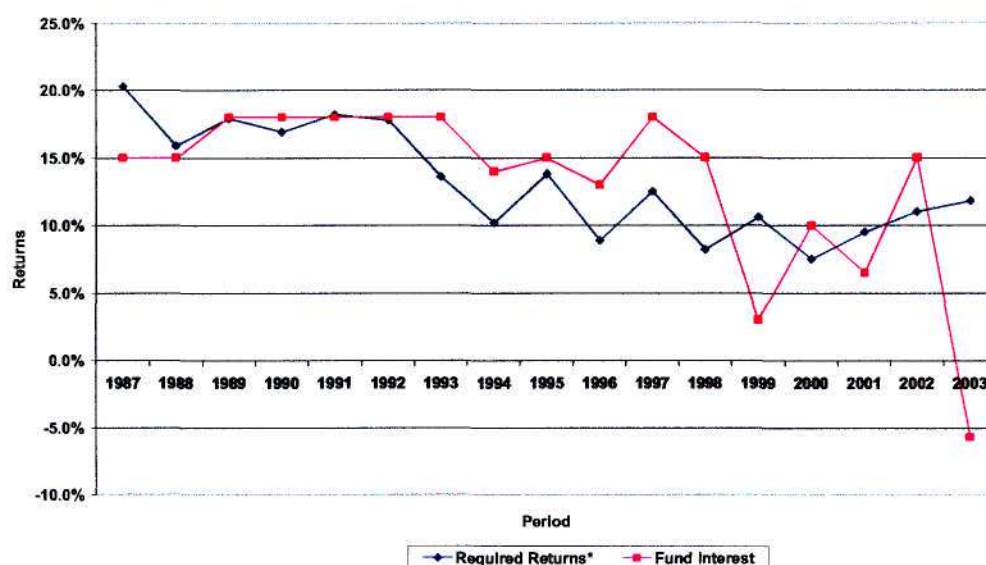
Figure 4.1: Comparison of returns declared by the Rennies Provident Fund with the consumer price index over a 17 year period.



Source: Adapted (2005).

Figure 4.1 above reveals that the Fund's returns were only below the inflation rate on two occasions, 1987 and 2003. In other years the Fund's declared returns comfortably exceeded the inflation rate, thereby providing positive real returns to members.

Figure 4.2: Comparison of realised returns and the required returns³⁵



Source: Adapted (2005).

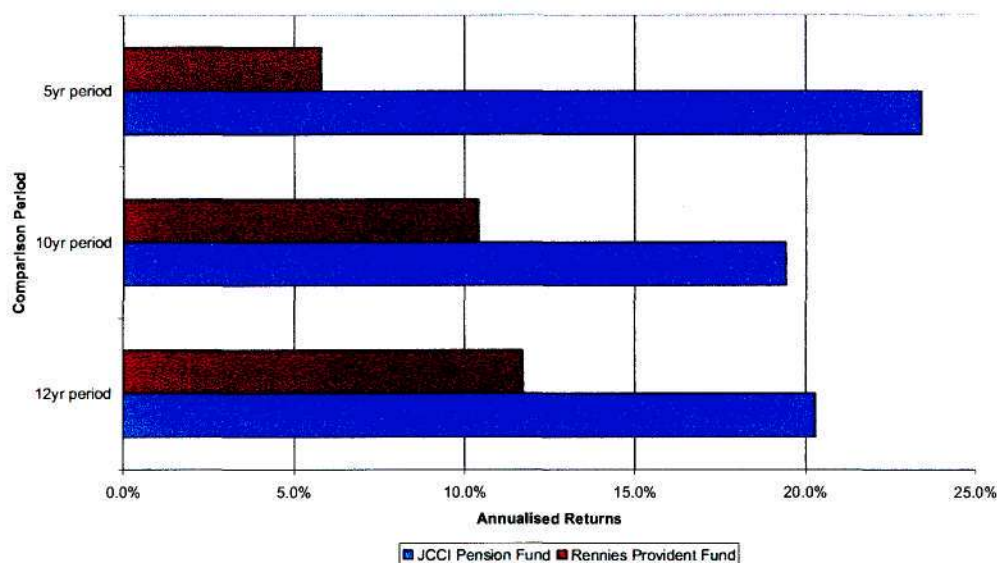
As can be seen from Figure 4.2 above, for the years 1987, 1988, 1999, 2001 and 2003 the Fund's returns were below the set internal benchmark of CPI +3%. In 1987 the fund fell short by -5,3%, in 1988 by -0,9%, in 1991 by -0,2%, in 1999 by -7,6%, in 2001 by -3,0% and in 2003 by -17,5%. Quite clearly the fund underperformed its benchmark on six different occasions; during these periods members lost out significantly from this poor performance. However, because of lack of real data, these loses could not be quantified in South African rand terms in this study.

³⁵ Required returns were derived by adding 3% to the annual CPI for the 17-year period under review.

4.7.2 Evaluation criterion 2 – Declared returns vs. returns from other similar pension funds

Using data from the 2005 Alexander Forbes Large Manager Watch report, the 2005 ABSA Consulting Actuaries Report, and other sources, comparison of the performance of the Rennies Provident Fund with that of peers is made.

Figure 4.3: Comparative performance overview - Rennies Provident Fund vs. the JCCI Pension Fund^{36, 37, 38}



Source: Adapted (2005).

The JCCI Pension Fund clearly outperformed the Rennies Provident Fund for the comparison periods listed above, by huge margins. Compared to this

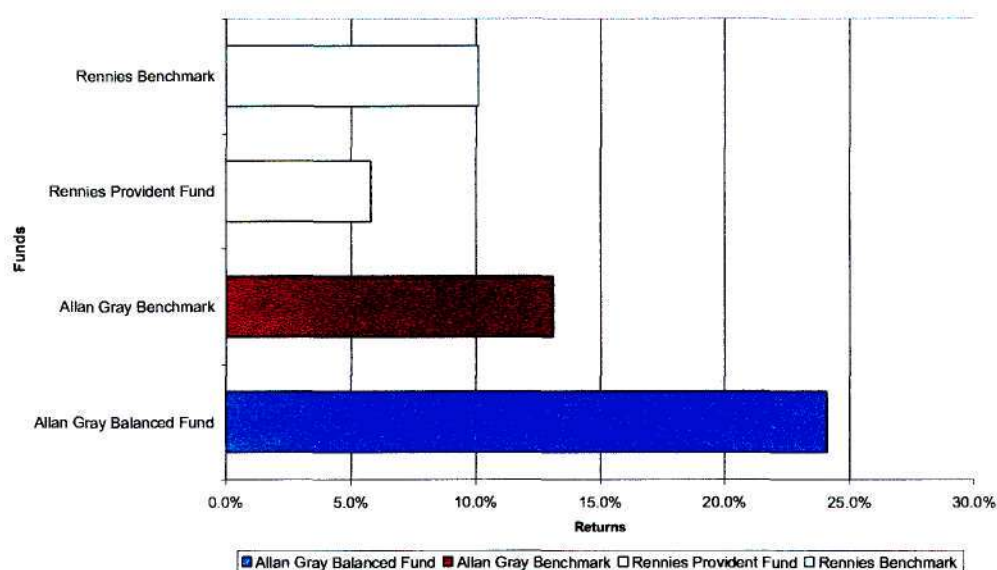
³⁶ The JCCI Pension Fund utilised Investment Solutions portfolios, with assets allocated as follows: 40% in the Performer Portfolio, 60% in the Allan Gray Portfolio.

³⁷ The fund's long term strategy is to achieve real rates of returns of 6% per annum over rolling 5 year periods relative to core CPI.

³⁸ Source: www.jcci.co.za/bmember/pension.html

performance, the management strategy of the Rennies Provident Fund resulted in inferior performance. The JCCI Pension Fund's investment objective is also ambitious when compared to that of the Rennies Provident Fund. The JCCI Pension Fund aims for 6% real returns, while the Rennies Provident Fund aims for a meagre 3%. It is however difficult to link the 3% to the risk appetite of the Rennies Provident Fund, as the membership risk profile assessment was still outstanding for the period under review.

Figure 4.4: Comparative performance overview – 5 year period (Rennies Provident Fund vs. the Allan Gray Balanced Fund)



Source: Adapted (2005).

Compared to the Allan Grey Balanced Fund, the Rennies Provident Fund was outperformed by huge margins. The benchmark that the Fund adopted is shown to be conservative and is a disservice to shareholders.

4.7.3 Evaluation criterion 3 – Value-based method (money-weighted returns)

In this subsection the value-based method - which measures the manager's contribution by the difference between the final market value of the investor's holding in the Fund, with its associated cash flows over time, and the final value of the equivalent holding in the Fund's benchmark - is used to evaluate the Fund's performance for the 2003 period.³⁹ The value-based method is also supported by Bagot and Armitage (2003).

Table 4.3 below shows that the estimated money-weighted returns for the 2003 period amounted to -7,0%.⁴⁰

Table 4.3: Estimated money-weighted returns

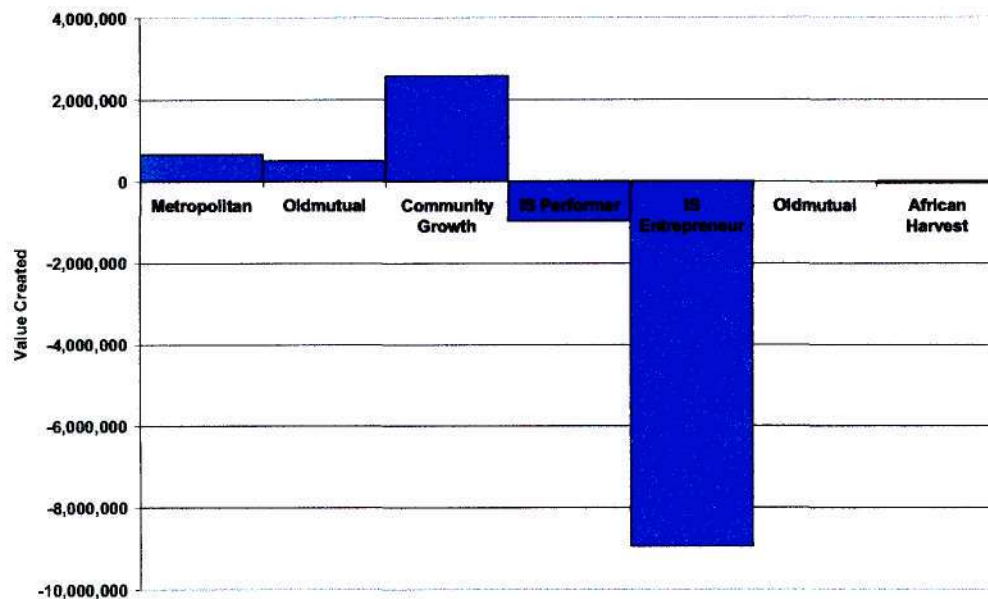
Investment Manager	Type	Fair Value	Money Weighted Returns
Metropolitan	Guaranteed	R24 418 263	2.7%
Oldmutual	Endowment	R7 095 039	7.2%
Community Growth	Managed	R12 655 792	20.4%
IS Performer	Managed	R7 996 678	-12.2%
IS Entrepreneur	Managed	R53 926 430	-16.6%
Oldmutual	Shares	R2 136	-37.4%
African Harvest	Shares	R240 397	-22.4%
Total Invested Assets		R106 334 735	-7.0%

Source: Rennies Provident Fund Financial Report, 2003.

³⁹ Comparison was only made to 2003, due to lack of data for other periods.

⁴⁰ These figures were obtained from the Rennies Provident Fund's Financial Report for the 2003 financial year end.

Figure 4.5: Overview of the value created and/or destroyed



Source: Adapted (2005).

From the above overview (Figure 4.5) which is based on an analysis of data obtained from the Rennies Provident Fund, it appears that the IS Performer and IS Entrepreneur destroyed value for the 2003 observation period and that the actual value created by the entire portfolio did not compensate for this poor performance. The observation is in line with one of the disadvantages of fund splitting that were highlighted earlier on in the literature review section of this study.

While the IS Performer portfolio performed badly during the 2003 financial year for the Rennies Provident Fund, the JCCI Pension Fund reported that since October 1997, this portfolio has on average earned the fund 14,26% per annum. While in the short term a portfolio might perform badly, when looked at over a longer period different conclusions can be drawn regarding the same portfolio's performance.

4.8 ANALYSIS AND INTERPRETATION OF THE PRIMARY DATA

In this section the primary data collected through interviews with a representative from NBC as well as with Trustees from SACD and through the survey that was carried out are analysed, and tentative observations and findings are pronounced.⁴¹ Responses were received from 47 respondents out of a total surveyed population of 110.

4.8.1 Section 1: Members 'profile

Members' profile (questions 1.1.1 to 1.1.5) was designed to establish the risk profile of the members of the Rennies Provident Fund employed at SACD Cape Town with the objective of testing the synergy or compatibility between the Fund's investment management strategy, specifically the Fund's asset allocation strategy, and the risk profile of the Fund's members.

Question 1.1.1 - Number of years with the Rennies Provident Fund

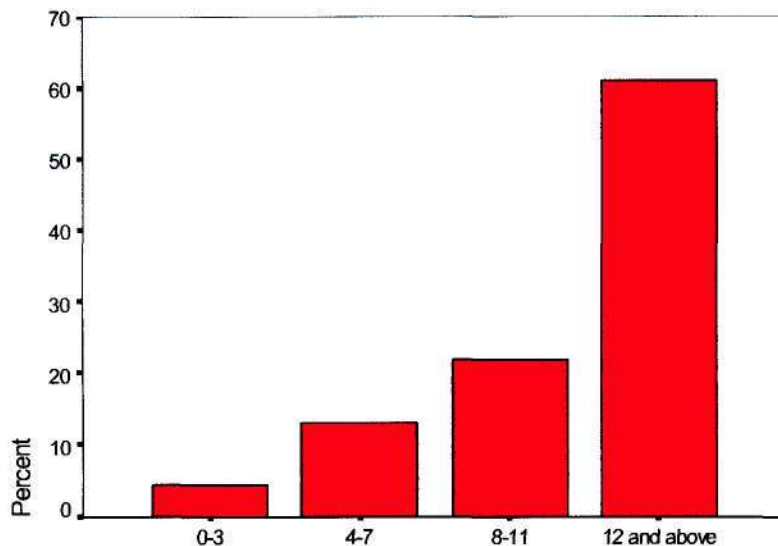
Table 4.4: Table depicting the number of years with the Rennies Provident Fund

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0-3	2	4.3	4.3	4.3
4-7	6	13.0	13.0	17.4
8-11	10	21.7	21.7	39.1
12 and above	28	60.9	60.9	100.0
Total	46	100.0	100.0	
Total	46	100.0		

Source: Adapted (2006).

⁴¹ See Appendix B for the interview schedule and example of the survey questionnaire.

Figure 4.6: Bar chart depicting the number of years with the Rennies Provident Fund



Source: Adapted (2006).

Figure 4.6 shows that 60,9 % of the respondents at SACD Cape Town have been members of the Rennies Provident Fund for more than 12 years, 21,7 % have been with the Fund for a period of between 8 – 11 years, 13 % for a period of between 4 – 7 years and 4,3 % for a period of 3 years and below.

Question 1.1.2 - Number of years to retirement

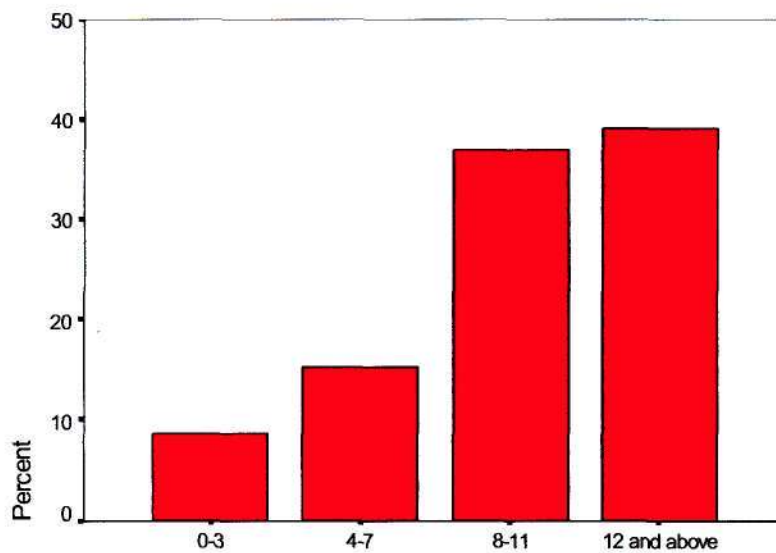
This question in combination with question 1.1.1 above seeks to establish whether the surveyed members of the Rennies Provident Fund at SACD Cape Town are in an accumulation phase or decumulation phase of their investment life.

Table 4.5: Table depicting the number of years to retirement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-3	4	8.7	8.7	8.7
	4-7	7	15.2	15.2	23.9
	8-11	17	37.0	37.0	60.9
	12 and above	18	39.1	39.1	100.0
	Total	46	100.0	100.0	
Total		46	100.0		

Source: Adapted (2006).

Figure 4.7: Bar chart depicting the number of years to retirement



Source: Adapted (2006).

Figure 4.7 above shows that 39,1 % of the respondents still have 12 years or more to retirement, 37 % still have between 8 – 11 years to retirement, 15,2 % have between 4 – 7 years to retirement, and 8,7 % have 3 years or less to retirement. Thus, over 60 % of the members of the Rennie's Provident Fund are

still in the accumulation phase of their investment life, while more than 20 % are in the decumulation phase of their investment life.

Question 1.1.3 - Members' investment risk preference

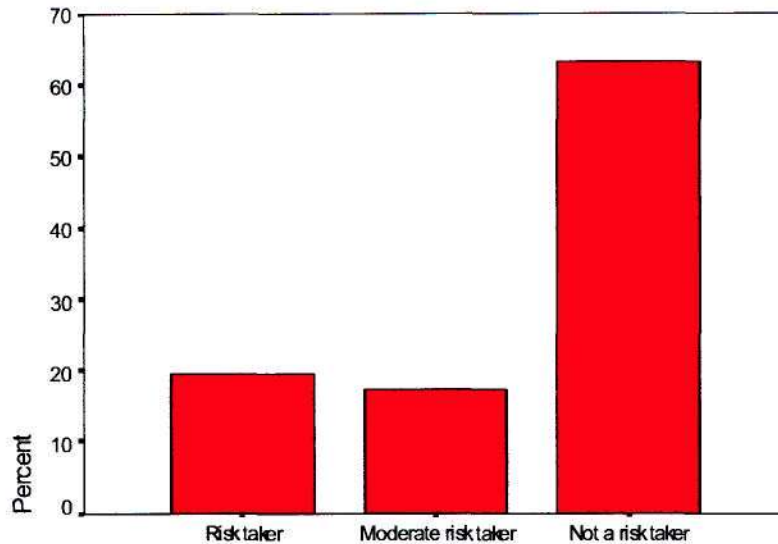
This question was designed to establish the respondent's attitude towards investment risk using three risk preference levels: risk taker, moderate risk taker and not a risk taker.

Table 4.6: Table depicting investment risk preference

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Risk taker	9	19.6	19.6	19.6
	Moderate risk taker	8	17.4	17.4	37.0
	Not a risk taker	29	63.0	63.0	100.0
	Total	46	100.0	100.0	
Total		46	100.0		

Source: Adapted (2006).

Figure 4.8: Bar chart depicting investment risk preference



Source: Adapted (2006).

Figure 4.8 shows that 63 % of the respondents do not have a preference for taking investment risks (they are risk-averse), 17,4 % are moderate risk takers and 19,6 % are investment risk takers. This figure reveals that the majority of the respondents at SACD Cape Town have a preference for a low risk investment regime

Question 1.1.4 - Other investments held

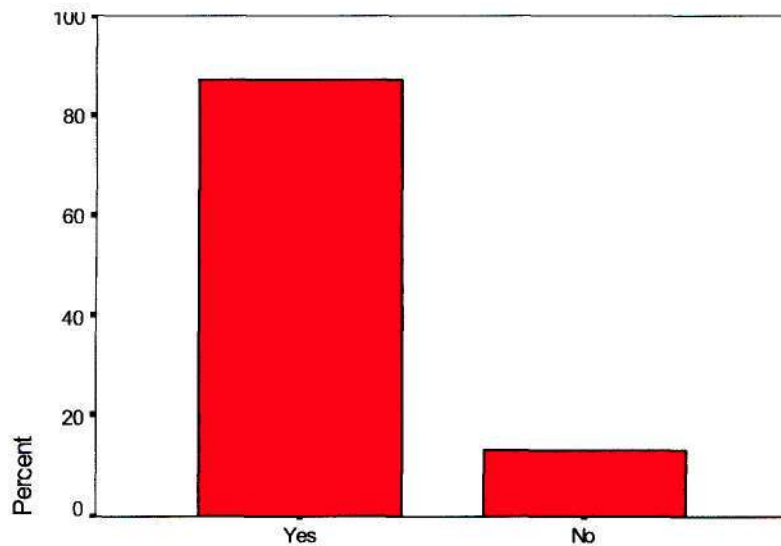
This question was designed to establish whether the respondents have other investments apart from the Rennies Provident Fund. This question allows the researcher to establish what level of exposure the respondents can reasonably enjoy and also to establish their ability to objectively compare the returns offered by the Rennies Provident Fund with other similar investments.

Table 4.7: Table depicting whether the respondents have other investments

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	40	87.0	87.0	87.0
	No	6	13.0	13.0	100.0
	Total	46	100.0	100.0	
Total		46	100.0		

Source: Adapted (2006).

Figure 4.9: Bar chart depicting whether the respondents have other investments



Source: Adapted (2006).

Figure 4.9 show that 87 % of the respondents do have other investments, while the remaining 13 % of the respondents do not.

4.8.2 Section 2: Asset allocation and performance target

Asset allocation and performance target (questions 1.2.1 to 1.2.2) were designed to establish the investment approach preference and the expected corresponding returns of the members of the Rennies Provident Fund employed at SACD Cape Town. The objective was to gather primary data that will enable the researcher to test the synergy or compatibility between the Fund's investment management strategy, specifically the Fund's asset allocation strategy, the corresponding set investment targets, and the expectations and preferences of the respondents.

Question 1.2.1 - Preferred investment approach

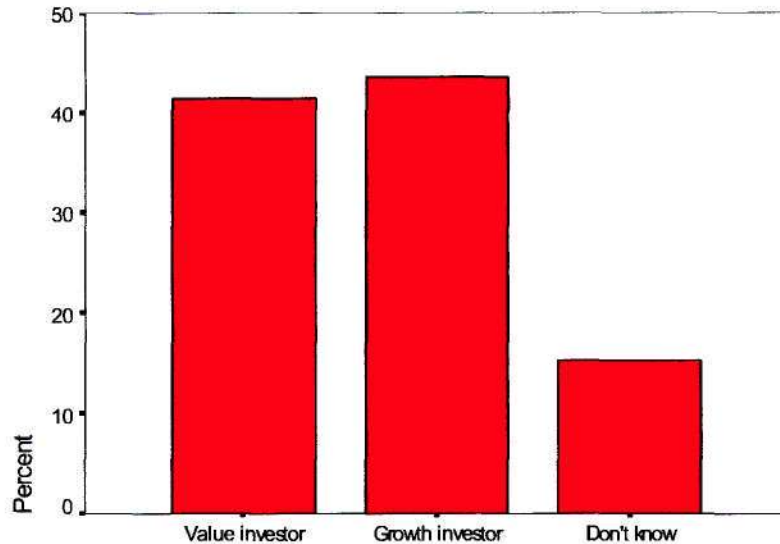
This question was designed to establish the investment approach preferred by the members of the provident fund at SACD Cape Town.

Table 4.8: Table depicting investment approach preference

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Value investor	19	41.3	41.3	41.3
	Growth investor	20	43.5	43.5	84.8
	Don't know	7	15.2	15.2	100.0
	Total	46	100.0	100.0	
Total		46	100.0		

Source: Adapted (2006).

Figure 4.10: Bar chart depicting investment approach preference



Source: Adapted (2006).

Figure 4.10 shows that 41,3 % of the respondents have a preference for a value-investing approach, while 43,5 % of the respondents have a preference for a growth-investing approach. 15.2 % of the respondents indicated that they did not know what their investment approach preference was. The above figure shows an almost even distribution of investment approach preference between the respondents that made a choice between value investing and growth investing.

Question 1.2.2 - Expected average real return per annum

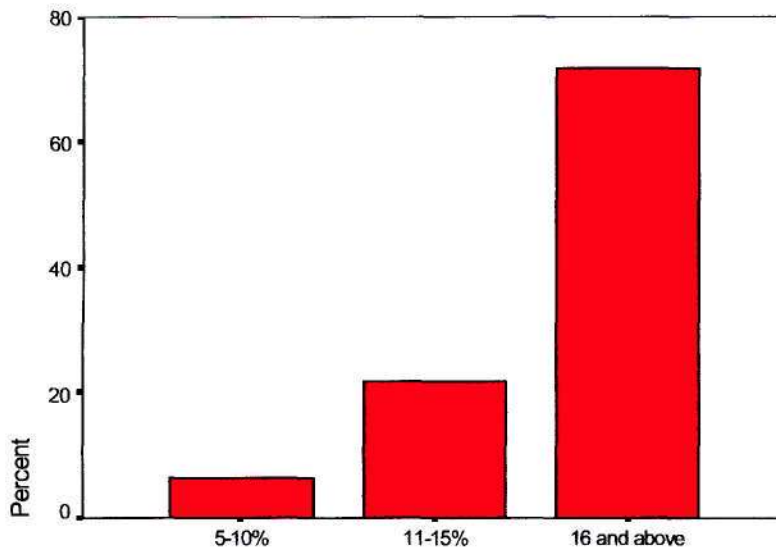
This question was designed to establish the expected average real return per annum from the perspective of the respondents.

Table 4.9: Table depicting the expected average real returns

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5-10%	3	6.5	6.5	6.5
	11-15%	10	21.7	21.7	28.3
	16 and above	33	71.7	71.7	100.0
	Total	46	100.0	100.0	
Total		46	100.0		

Source: Adapted (2006).

Figure 4.11: Bar chart depicting the expected average real returns



Source: Adapted (2006).

Figure 4.11 above shows that 71,7 % of the respondents expect an average real returns of 16 % and above, 21,7 % expect an average real return of somewhere between 11 – 15 %, and 6,5 % expect average real returns of somewhere between 5 – 10 %. It is interesting to note that 63 % of the respondents classified themselves as being risk-averse, yet 71,1 % of the same respondents want average real returns of 16 % and above.

4.8.3 Section 3: Fund performance

Fund performance (questions 1.3.1 to 1.3.3) was designed to establish the perceptions of the members of the Rennies Provident Fund employed at SACD Cape Town about the performance of the fund to date. The objective was to gather primary data that will enable the researcher to test the alignment between the fund's investment objectives and set performance targets and the member's perceptions.

Question 1.3.1 - Perceived performance levels of the fund

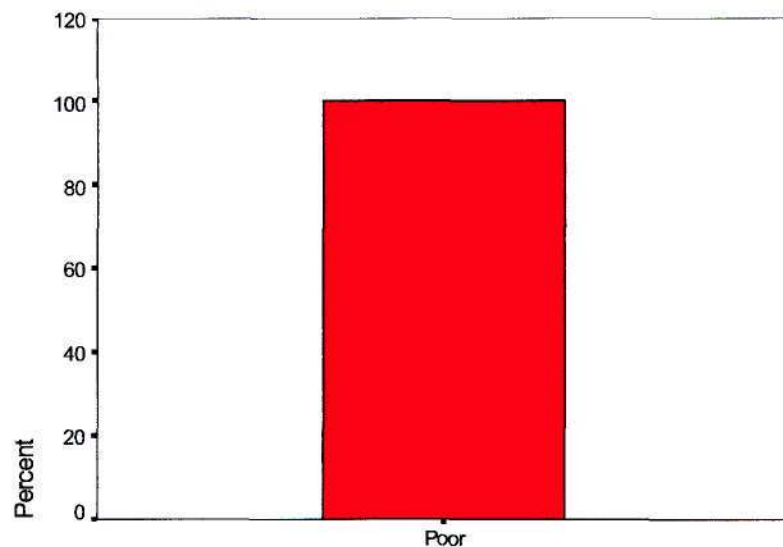
This question was designed to determine the perceptions of the respondents of the performance of the fund, using a three-point rating scale of good, average and poor.

Table 4.10: Table depicting the perceived performance levels of the fund

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	46	100.0	100.0	100.0
	Total	46	100.0	100.0	
Total		46	100.0		

Source: Adapted (2006).

Figure 4.12: Bar chart depicting the perceived performance levels of the fund



Source: Adapted (2006).

Figure 4.12 show that 100 % of the respondents perceive the performance of the fund to have been poor since they joined it. Viewed against the responses given to question 1.2.2, there is a degree of inconsistency in the responses given: to be consistent, either 28,2 % should have rated the Fund's perceived performance as average, or 21,7 % should have rated it as average while 6,5 % should have rated it as good given their respective expected average real returns. Based on the analysis of the comments given as part of the responses to question 1.3.1, the negative declarations for the 2003 financial year have overshadowed the Fund's comparatively good performance in the past periods.

Question 1.3.2 - Money-weighted returns for 2003

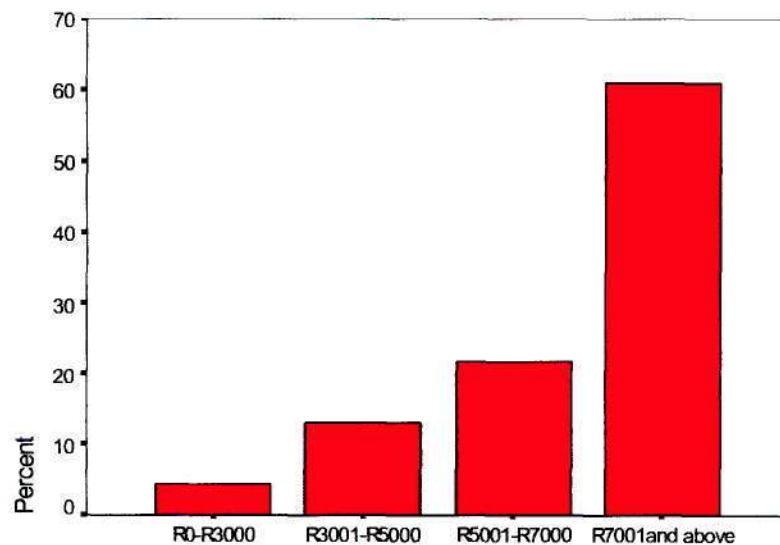
This question was designed to establish the monetary value of the -5 % declaration for the 2003 financial year.

Table 4.11: Table depicting the money weighted returns for 2003

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid R0-R3000	2	4.3	4.3	4.3
R3001-R5000	6	13.0	13.0	17.4
R5001-R7000	10	21.7	21.7	39.1
R7001and above	28	60.9	60.9	100.0
Total	46	100.0	100.0	
Total	46	100.0		

Source: Adapted (2006).

Figure 4.13: Bar chart depicting the money weighted returns for 2003



Source: Adapted (2006).

Figure 4.13 show that 60,9 % of the respondents lost between R7 000 and more during the 2003 financial year, 21,7 % lost between R5001 – R7000, 13 % lost between R3001 – R5000 and 4,3 % lost R3000 or less.

Question 1.3.3 - Monthly contributions

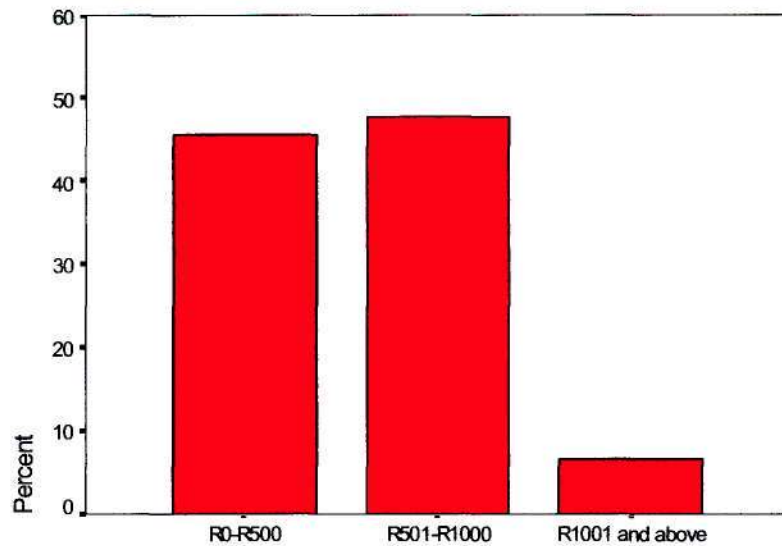
This question was designed to establish the monthly contributions that the respondents make to the Rennie's Provident Fund.

Table 4.12: Table depicting monthly contributions

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid R0-R500	21	45.7	45.7	45.7
R501-R1000	22	47.8	47.8	93.5
R1001 and above	3	6.5	6.5	100.0
Total	46	100.0	100.0	
Total	46	100.0		

Source: Adapted (2006).

Figure 4.14: Bar chart depicting monthly contributions



Source: Adapted (2006).

Figure 4.14 show that 45,7 % of the respondents contribute R500 or less per month to the Rennie's Provident Fund, 47,8 % contribute between R501 – R1000 per month and 6,5 % contribute R1001 or more per month.

Question 1.3.4 - Opening balance for 2003

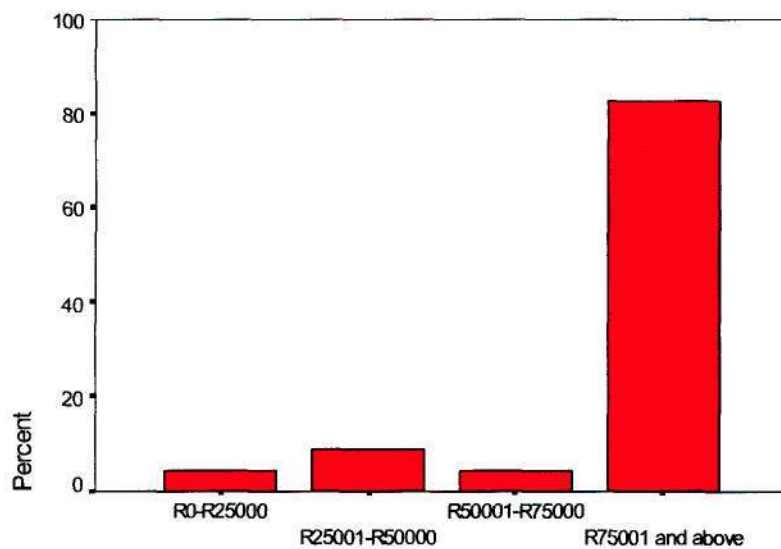
This question was designed to establish the respondents' opening balance for 2003.

Table 4.13: Table depicting the 2003 fund opening balance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	R0-R25000	2	4.3	4.3	4.3
	R25001-R50000	4	8.7	8.7	13.0
	R50001-R75000	2	4.3	4.3	17.4
	R75001 and above	38	82.6	82.6	100.0
	Total	46	100.0	100.0	
Total		46	100.0		

Source: Adapted (2006).

Figure 4.15: Bar chart depicting monthly contributions



Source: Adapted (2006).

Figure 4.15 show that 82,6 % of the respondents had an opening balance of R75001 or more, 4,3 % had a balance of about R50001 – R75000, 87 % had a balance of about R25001 – R50000 and 4,3 % had an opening balance of R25000 or less.

4.8.4 Section 4: Performance Objectives

"Performance objectives" (questions 2.1.1 to 2.1.2) was designed to establish the perceptions of the members of the Rennies Provident Fund employed at SACD Cape Town about the performance objectives that the fund has set for itself.

Question 2.1.1 - Return requirements

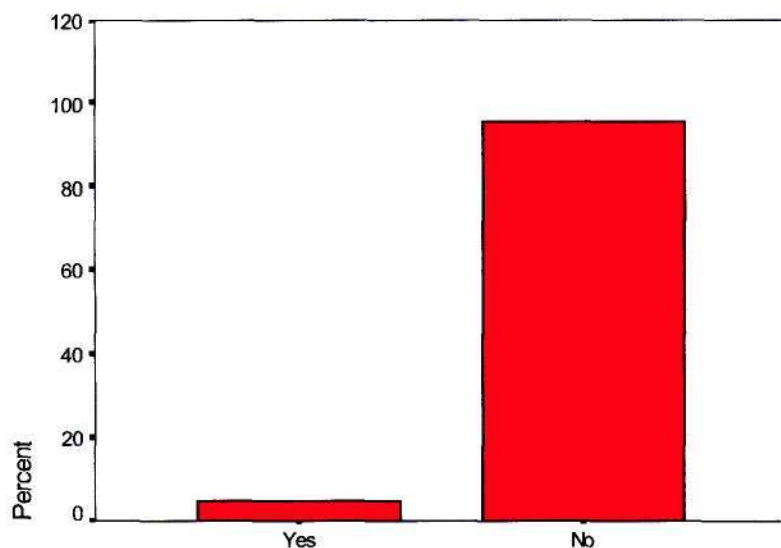
This question was designed to establish the views of the respondents of the appropriateness/fairness from the member's perspective of the performance objective that the fund has set for itself.

Table 4.14: Table depicting the views of the respondents on the fairness of the fund's stated return requirements

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	2	4.3	4.3	4.3
	No	44	95.7	95.7	100.0
	Total	46	100.0	100.0	
Total		46	100.0		

Source: Adapted (2006).

Figure 4.16: Bar chart depicting views of the respondents on the fairness of the fund's stated return requirements



Source: Adapted (2006).

Figure 4.16 shows that 95,7 % of the respondents do not see the set performance objective of returning CPI + 3% to members as a fair performance target for the fund, while 4,3 % think this is a fair performance target that the fund has set for itself.

Question 2.1.2 - Competitive return requirements

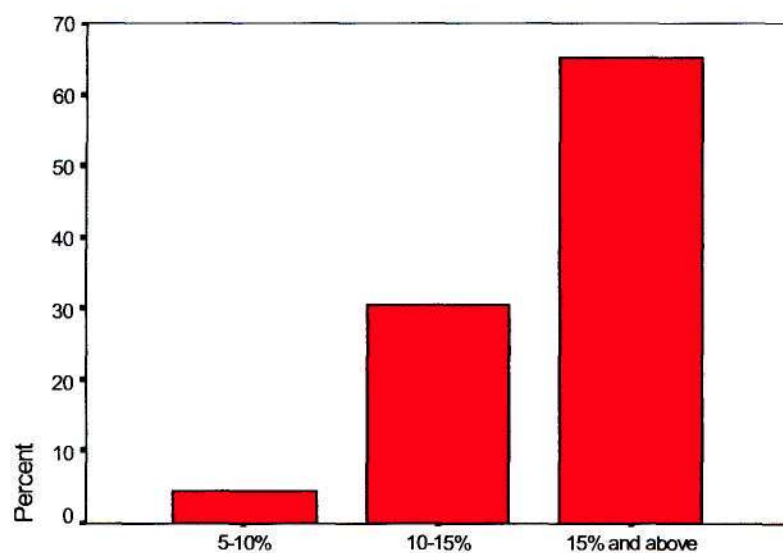
This question was designed to establish the views of the respondents on what they consider to be a competitive return requirement for an average actively managed provident fund.

Table 4.15: Table depicting the a competitive return requirement

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 5-10%	2	4.3	4.3	4.3
10-15%	14	30.4	30.4	34.8
15% and above	30	65.2	65.2	100.0
Total	46	100.0	100.0	
Total	46	100.0		

Source: Adapted (2006).

Figure 4.17: Bar chart depicting a competitive return requirement



Source: Adapted (2006).

Figure 4.17 shows that 65,2 % of the respondents consider a return requirement of 15 % and above to be a competitive return requirement which an average actively managed provident fund should strive for, 30,4 % consider 10 – 15 % to

be a competitive range, while 4,3 % consider a range of 5 – 10 % to be competitive for an average actively managed Provident Fund.

Overall, the findings of the survey questionnaire revealed a misalignment between what the members require from the Fund and the set performance objectives of the Fund. Two critical areas of misalignment are:

- ↳ the set performance objective for the Fund, and
- ↳ the Fund's current asset allocation strategy.

4.8.5 Informational Interviews

The third element of the research involved informational interviews with one representative of NBC and three trustees from SACD Cape Town. These individuals were selected in order to obtain an in-depth understanding of the reasoning behind the set performance targets as well as the current asset allocation strategy that the fund follows.

The interviews with the trustees were semi-structured interviews carried out at SACD Cape Town offices, while the interview with the NBC representative was carried out at NBC offices in Sandton, Johannesburg. The interview with the NBC representative lasted 45 minutes, while the interviews with the trustees at SACD lasted 20 minutes each.

The interviews all revealed the following:

- ↳ That to date there has been no profiling of the members of the Fund in terms of their risk preference.

- ↳ That the current set performance objectives and the resultant asset allocation by the Fund are not based on an objective analysis of the members' risk profile and preference but rather on what the trustees and the administrators of the fund think is best for members.

4.9 GENERAL FINDINGS

The principal findings of the research interviews show:

- ↳ The Fund has successfully met its internally set performance objective of returning CPI + 3%;
- ↳ Members are not satisfied with the current performance objective of returning CPI + 3%;
- ↳ There is no relationship between the Fund's set performance target and the profile of the Fund's members or their performance expectations;
- ↳ The Fund's asset allocation strategy is not based on an objective analysis of the members' risk profile or investment life stage (accumulation or decumulation phase);
- ↳ The Fund has posted poor returns compared to similar funds in the market; and
- ↳ From the member's perspective, the Fund's investment strategy has not created shareholder value over the past 17-year period.

There are a number of reasons for the Fund's poor performance. They range from lack of a comprehensive member profiling, lack of investment management expertise on the part of the trustees, or poor investment decision-making on the side of the fund management managing the assets of the Rennies Provident Fund. However, intertwined with these possibilities is the general poor performance by the equities market during the 2002 – 2003 period.

4.10 SUMMARY

To determine whether the Rennies Provident Fund created or destroyed shareholder value, research was first conducted which involved an extensive search of existing literature in the area of provident fund/pension fund performance evaluation. Qualitative research was then carried out within SACD Cape Town to find out how closely the issues raised in the literature related to the experiences and perceptions of the members of the Fund employed as SACD Cape Town. Also a desk-top comparative analysis was conducted to review the performance of the Rennies Provident Fund against the performance of similar funds using secondary data.

The primary research carried out at SACD Cape Town revealed a mixture of views and perceptions towards the performance of the Rennies Provident Fund. The main issues that were highlighted revolved around the inappropriateness of the performance target that the fund has set itself (returning CPI + 3%). Use of the questionnaire, the interview data and the secondary data collected provided a complete picture on whether the Rennies Provident Fund's investment management strategy created or destroyed shareholder value. The data collected were triangulated to provide comfort on the validity of the findings. In this case study, the primary data collected were used to support the desktop comparative analysis and the interviews carried out, in order to determine whether the Fund's investment management strategy created or destroyed shareholder value.

It is within this context that this case study was carried out using both qualitative and quantitative research methods to answer the same research question. This

analysis suggests that the current investment management strategy of the Rennies Provident Fund is not creating shareholders value.

The following chapter will discuss the conclusions.

CHAPTER 5: CONCLUSION

5.1 INTRODUCTION

In this section the findings of the study are summarised, and conclusions are drawn based on the data collected as well as the literature review carried out.

5.2 CONCLUSION

In line with the Rennie's Provident Fund's investment objective of providing the members with returns that are superior to what they could have obtained by themselves, evaluation criterion one shows that the fund has delivered on its promise to members. It could however be argued whether the average -0,1% that they fell short is significant or not. The point to remember, however, is that the members do not necessarily have to invest their money on their own. There are a variety of investment vehicles available to them, for example, index funds with cheaper management fees, which they could use. Further, the survey that was carried out as part of this study revealed that 95,7 % of the Fund's members who were surveyed do not think that the current rate of return is appropriate, specifically their view is that it is too low a return rate in view of the management fees that are levied.

Evaluation criterion two revealed that the fund has not outperformed the market. This observation suggests that members paid management fees that were not matched by superior performance. In the eyes of the members, the reduction in contributions (RiC) as a result of the management fees destroyed value as it (the reduction in contributions) reduced the money available for investment. Also the

degree to which the Rennies Provident Fund underperformed the replicating benchmark represents a destruction in value in the eyes of the members that was occasioned by the comparatively inferior performance of their Fund management strategy. An analysis of the risk profile of the members based on the survey data collected indicates a mismatch between the current balanced investment approach employed by the Fund versus the age and risk profile of the surveyed members. The Fund can increase its performance target and accordingly adjust its investment approach and adopt a more aggressive approach in line with the indicated return requirements (Figure 4.11) notwithstanding the indicated risk preference and investment approach preference.

Evaluation criterion three reveals a significant reduction in the rand value of the members' investment in the Fund during the 2003 period. For some members the -7.0% of money-weighted returns translated into losses well above R20 000, and these losses might take time to recoup at current performance levels. Although Table 4.2 shows a break-even between the required returns and what the fund has returned on average in percentage terms, in monetary terms the losses are much higher than the returns earned. Members who have been with the Fund for long and are nearing retirement were the hardest hit by the negative performance in 2003.

In the light of the above, the performance objectives that the Fund has set for itself need revision as they are not aggressive enough when compared to: what the market has to offer, what it (the market) has posted as average returns, and what the majority of the respondents to the survey consider to be an acceptable average return from an actively managed provident fund. However, this exercise will have to be linked to a thorough analysis of the Fund's membership risk and age profile, to ensure that there is correlation between what the Fund seeks to achieve and the retirement requirements of its members.

In summary, this study found that there is no significant value that has been added by the Fund's management strategy. During the 2003 financial year, the fund-splitting approach that the Fund adopted destroyed shareholder value as the losses incurred by some fund managers outweighed the positive returns posted by others. The study also highlighted that the management fees that have been paid over by the members have certainly destroyed value for members in the form of RiC (reduction in contributions), while no matching excess returns were realised to justify the charges. Further, using the evaluation criterion 1, this study found that the fund has fallen short of its promise to return to members satisfactory returns better than what they could have obtained by investing elsewhere.

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APPENDIX A – STOCHASTIC PENSION FUND MODEL⁴²

Theoretical model

Assume that there is a single risky asset whose returns, $r(t)$, is generated by an independent normal distribution with mean, μ , and variance, σ^2 ⁴³. Consider the accumulation phase of a defined contribution pension plan which begins with an initial investment $A(0)$ (which might be zero) and makes regular contributions of d per period. Returns are continuously compounded so that at any time t , the value of the assets in the fund will be log-normally distributed and determined by the following accumulation equation:

$$(1) \quad A(t) = [A(t-1) + d].\exp(r(t)).$$

The first four non-central moments of the distribution of $A(t)$ are given by:

$$(2) \quad \begin{aligned} f(t) &= E[A(t)] \\ &= E[A(t-1) + d].E[\exp(r(t))] \\ &= [f(t-1) + d].m_1 \end{aligned}$$

$$(3) \quad \begin{aligned} g(t) &= E[A(t)^2] \\ &= [g(t-1) + 2.d.f(t-1) + d^2].m_2 \end{aligned}$$

$$(4) \quad \begin{aligned} h(t) &= E[A(t)^3] \\ &= [h(t-1) + 3.d.g(t-1) + 3.d^2.f(t-1) + d^3].m_3 \end{aligned}$$

⁴² See Blake (2003) for a more detailed discussion with illustrative examples.

⁴³ The assumption of independence is consistent with long term mean reversion in asset prices. Poterba and Summers (1998 cited Blake 2003) and Blake *et al* (1998) find evidence for this in the US and UK respectively. The assumption of long term normality in asset returns is consistent with the central limit theorem: the fat tails that are commonly observed in empirical asset returns distributions may well be the result of the smallness of the sample size used.

$$(5) \quad k(t) = E[A(t)^4] \\ = [k(t-1) + 4.d.h(t-1) + 6.d^2.g(t-1) + 4.d^3.f(t-1) + d^4].m_4$$

since $A(t-1)$, d and $r(t)$ are all independent and where:

$$(6) \quad m_j = E[\exp(j.r(t))] = \exp(j.\mu + 0,5.j^2.\sigma^2).$$

The initial values for these iterations are:

$$(7) \quad f(0) = A(0), g(0) = [A(0)]^2, h(0) = [A(0)]^3, k(0) = [A(0)]^4.$$

Variance, skewness and kurtosis at t are given by:

$$(8) \quad V[A(t)] = E[A(t) - f(t)]^2 \\ = g(t) - f(t)^2$$

$$(9) \quad S[A(t)] = E[A(t) - f(t)]^3 \\ = h(t) - 3.g(t).f(t) + 2.f(t)^3$$

$$(10) \quad K[A(t)] = E[A(t) - f(t)]^4 \\ = k(t) - 4.h(t).f(t) + 6.g(t).f(t)^2 - 3.f(t)^4.$$

The value of the fund at t if it had been invested in a riskless asset with constant returns r_f is denoted $F(t)$ and is found using an equation similar to (1).

Equation (1) can also be used to determine the value of the remaining assets in the decumulation phase of the plan which begins on the retirement date with a fund worth $A(0)$ and makes regular pension payments of d per period: in this case $d < 0$ in (1). The relevant moments are also given by (2) and (8) – (10).

In some jurisdictions, the size of d is actually determined to ensure that the plan member does not exhaust his fund before the end of his life:

$$(11) \quad d = \frac{A(0)}{a(0)}$$

where $\ddot{a}(0) = \sum_{t=0}^{\infty} {}_tP_0 e^{-rt}$ is the annuity factor at retirement age 0 and ${}_tP_0$ is the survival probability between retirement date 0 and time t .

It is straightforward, though cumbersome, to show that the effect of an increase in asset risk σ^2 (holding μ constant) during the accumulation phase is to:

- raise $E[A(t)]$
- raise $V[A(t)]$
- raise $S[A(t)]$
- raise $K[A(t)]$

The effect of an increase in asset risk is therefore to raise both the expected value and also to increase the right-skewness and fatten the tails of the distribution. This means that the distribution function of a fund invested in a high-risk asset (denoted $D(A(z,t, \sigma_H^2))$ below) will begin further to the left and so will initially be above that for a low risk asset (denoted $D(A(z,t, \sigma_L^2))$ below), but will cross over the latter function at some point and remain below thereafter. This means that a high-risk portfolio can never stochastically dominate a low-risk portfolio, since the following condition for (second-degree) stochastic dominance will be violated for small x :

$$(12) \quad \int_{-\infty}^x [D(A(z,t, \sigma_H^2)) - D(A(z,t, \sigma_L^2))] dz < 0$$

Therefore, there always remains a trade-off between risk and expected returns. This can be illustrated using the commonly used investment strategy of cost averaging. During the accumulation phase of an investment programme with regular contributions, the average size of the terminal fund will be higher if the fund invests in assets with a large dispersion of returns than if it invests in assets with a small dispersion of returns but with the same expected returns. This is because there is a higher probability of buying assets at low prices and the increase in risk makes the terminal distributions of the fund more right-skewed. At the same time, the tails of the distribution are fatter and this raises the variance of the fund's terminal value as well as the probability of both very low and very high terminal values occurring. Risk-averse plan members will be concerned to reduce the probability of low terminal values and this requires higher contribution rates with high variance investment strategies than with low variance investment strategies.

During the decumulation phase of the programme, when a regular income has to be paid from the fund, it is better to do this from assets with low dispersion of returns than with assets with high dispersion, even if the expected returns are the same. This is because there is a higher chance of having to sell assets at low prices and this may deplete the fund value such that even subsequent high investment performance may not be sufficient to compensate.

APPENDIX B – SURVEY QUESTIONNAIRE

ANALYSIS OF THE PERFORMANCE OF THE RENNIES PROVIDENT FUNDS INVESTMENT MANAGEMENT STRATEGY

PERSONAL INFORMATION

First Name	
Last Name	
Position	
Company	

Ques. Nr#	
-----------	--

CONTACT INFORMATION

Telephone Number	
Mobile Number	

Permission to use my responses for academic research

I hereby give permission that my responses may be used for research purposes provided that my identity is not revealed in the published records of the research.

Signature: _____

Please answer the following questions by filling in / ticking the check boxes provided. Where required, kindly provide comments on the space provided below the check boxes to enable the researcher to have more insight into your response?

SECTION 1: MEMBER PROFILE

1.1.1 How many years have you been a member of the Rennies Provident Fund?

0-3 yrs	4-7 yrs	8-11 yrs	12yrs & above

1.1.2 In how many years will you be retiring?

0-3 yrs	4-7 yrs	8-11 yrs	12yrs & above

1.1.3 If you were to classify yourself in terms of your investment risk preference, which category from the ones below would best describe your attitude towards investment risk?

RISK TAKER	MODERATE	NOT A RISK TAKER

**ANALYSIS OF THE PERFORMANCE OF THE RENNIES PROVIDENT FUNDS INVESTMENT
MANAGEMENT STRATEGY**

1.1.4 Do you have any other investments apart from the Rennies Provident Fund?

YES	NO

1.1.5 If the answer is Yes, can you please specify the name of the investment and the interest rate on that investment?

NAME	% INT. RATE

SECTION 2: ASSET ALLOCATION AND PERFORMANCE TARGET

1.2.1 Which investment approach do you have a preference for?

VALUE INVESTOR	GROWTH INVESTOR

1.2.2 What is the average real rate of return that you expect to get from your Provident Fund per annum?

5 – 10%	11 – 15%	15% and above

SECTION 3: FUND PERFORMANCE

1.3.1 What is your perception of the performance of the Rennies Provident Fund since you've joined it?

GOOD	AVERAGE	POOR

Can you comment on why do you view their performance as such?

**ANALYSIS OF THE PERFORMANCE OF THE RENNIES PROVIDENT FUNDS INVESTMENT
MANAGEMENT STRATEGY**

- 1.3.2 During the 2003 financial year when the fund declared -5% annualized returns, how much did you loose in absolute monetary terms?

0 – R3000	R3001 – R5000	R5001 – R7000	R7000 and above

- 1.3.3 How much do you contribute to the fund per month?

0 – R500	R501 – R1000	R1000 and above

- 1.3.3 What was your funds opening balance for 2003?

0 – R25000	R25000 – R50000	R50001 – R75000	R75000 and above

SECTION 4: PERFORMANCE OBJECTIVES (RETURN REQUIREMENTS)

- 2.1.1 The Rennies Provident Fund has set itself a performance objective of returning CPI + 3% to its members. Would you say this is a fair performance target to set as a fund?

YES	NO

- 2.1.2 Assuming the fund has a balanced mix of members in terms of their age profile and risk appetite. What do you consider to be a competitive return requirement that an average actively managed Provident Fund should have?

5 – 10%	11 – 15%	15% and above

SECTION 5 - OTHER ISSUES

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4 DECEMBER 2007

MR. T QAMARANA (202523888)
GRADUATE SCHOOL OF BUSINESS

Dear Mr. Qamarana

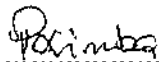
ETHICAL CLEARANCE APPROVAL NUMBER: HSS/0728/07M

I wish to confirm that ethical clearance has been granted for the following project:

"Analysis of the performance of the Rennies Provident Funds Investment Management Strategy"

PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years

Yours faithfully



.....
MS. PHUMELELE XIMBA
RESEARCH OFFICE

→ cc. Post-Graduate Office (Christel Haddon)
cc. Supervisor (Mr. S Fouche)