

## **PENSION FUND PERFORMANCE MEASUREMENT —THE WAY AHEAD?**

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### **1. INTRODUCTION**

1.1 In the last ten years Staple Inn has played host to two major discussions on performance measurement. In November 1976, Holbrook's definitive paper<sup>(1)</sup> to the Institute set out in some detail the theoretical basis of performance measurement while in January 1980 Hager's paper<sup>(2)</sup> to the Student's Society gave a detailed view of performance measurement in practice.

1.2. Between them the two papers provide a fairly comprehensive description of what was, even in 1980, a relatively novel science for many U.K. pension funds. At the time of writing the majority of large- and medium-sized directly invested pension funds have their investment performance measured. Yet even after fifteen years of performance measurement in the U.K. some of the fundamentals of performance measurement are questioned and even disputed by a sizeable proportion of actuaries—for example in his March 1985 paper<sup>(3)</sup> to the Faculty of Actuaries Marshall states, "This must call in question the validity of its (the Time Weighted Rate of Return) use for comparative purposes". This paper aims to show that much of the criticism stems from misuse of the statistics and unjustified expectations. In particular those people who believe that the questions:

- (i) What is the return on a portfolio?
- (ii) What is the correct comparative?
- (iii) What is the risk profile?

have a single answer are expecting too much. All these questions can be answered but the answers will depend on who is asking the question and why he is asking.

### **2. THE ASSUMPTIONS**

2.1. I am taking as my starting point the following:

- (i) *The Money Weighted Rate of Return (MWR)* measures the average increase in the value of the assets over a given period—the formula is described in § 2.3 of Hager (1980).
- (ii) *The Time Weighted Rate of Return (TWR)* eliminates the distorting effect of timing of cash flows and thus reflects the rate of return of a unit holding

of the underlying investments—the formula is described in § 4.7 of Holbrook (1977).

- (iii) The approximate method commonly used to calculate the TWR by compounding MWRs over short time intervals provides in all but extreme cases a good approximation to the actual TWR.

2.2 The arguments are well rehearsed in Holbrook (1977) and Hager (1980) and not pursued further in this paper.

2.3 The one major element in the calculation of returns for comparison with other funds that has far from universal acceptance is the allowance for the expense of investing new money. If money is invested in the market then, unless the money is left on deposit, there will be a cost in investing the money (jobber's turn, broker's commission, V.A.T., etc.). In calculating the overall absolute performance this is part of the return since it reduces the value of the assets. However in calculating return for the purpose of comparing investment skills consideration must be given as to whether funds with higher cash flows should show lower returns simply as a result of extra expenses associated with these higher cash flows. The answer to this question depends crucially on the purpose of the calculations, thus the matter of expenses is considered in detail at a later stage.

### 3. THE CENTRAL ISSUE

3.1. The first question that has to be asked is: "What is performance measurement and why is it necessary?" Holbrook (1977) defines performance in this context as "achievement relative to objective". I accept that this is the bottom line of performance but any implication that performance measurement looks only at the result and not at the means whereby the result was achieved is one with which I would not be happy. This is not just a matter of semantics but, potentially, a fundamental difference of opinion. In my view, one of the deficiencies of some of the commercial performance measurement services is that they concentrate too much on the result and pay too little heed as to how it has been achieved.

3.2 Holbrook's definition of 'performance' clearly begged the question as to what the investment objectives of a pension fund are. He stated two principles which he believed commanded fairly wide support:

- (i) "the portfolio should be constructed with regard to the nature of the liabilities"
- (ii) "subject to (i), the objective should be to maximize the rate of return by investments which involve an acceptable level of risk".

3.3 This is probably how most actuaries perceive the investment objectives of a pension fund but in practice it is not quite so simple. I suspect that the primary objective of the investment manager is to perform in such a way that he not only

maintains his market share but also attracts new business—in this context, the liabilities of the fund are of secondary importance. In contrast, the Trustees are much concerned about the liabilities but will be less concerned about maximization of return if this merely leads to a contribution reduction for the Sponsor. The Sponsor in turn is interested in maximizing returns so that the fund costs less but is probably less concerned about liabilities which will emerge in forty years' time. The Member quite simply would like a large and secure Index-linked pension when he retires.

3.4 Not only do objectives differ but just as importantly different groups will have both different definitions of what constitutes risk and what is an acceptable level of risk.

3.5 Subscribers to the theory that good long-term performance is achieved by aiming for good short-term performance may argue that the different objectives listed in § 3.3 amount to the same approach. However, it is important to make the point that different groups do have different objectives, and hence, may measure the performance of the Fund in different ways. Any suggestion that there is a single answer to the question "What is performance measurement?" is not only erroneous but also leads to a dangerous over-simplification of the problem.

3.6 Marshall (1985) follows a more detailed but similar argument to reach the rather sweeping conclusion that "the methods currently used to measure performance are unsound and damaging". I dissent from this hard-line view but must agree that the current methods of presentation of results often tend to encourage abuse of the end result. A more logical conclusion to Marshall's paper would be that the methods currently used to measure *relative* performance are *approximate* and *without explanation from a competent measurer may lead to confusion*. This conclusion is perhaps less punchy but certainly more accurate.

3.7 There are five distinct groups with a major interest in the performance of a typical pension fund—they are the Investment Manager, the Trustees, the Sponsor, the Members and the Actuary. Each has an obvious interest in the performance of the fund (and hence a need to monitor it) but their interests and thus their reasons for monitoring it are different. In practice it is possible for one person to act in several capacities—to find a member who is also a Trustee and represents the Sponsor is not uncommon. The next few sections assume that such individuals are capable of wearing several different hats, simultaneously.

#### 4. THE INVESTMENT MANAGER

4.1 The Investment Manager will be interested in the performance of the funds he manages for two main reasons—management and marketing.

4.2 Measurement of performance is a useful management tool. By calculating the return on various parts of his portfolio the Investment Manager has a monitoring device which can point to areas which may require remedial action. The measure he should use is the TWR with expense allowance and the comparative measure the relevant Index. At the total fund stage he can compare

with a 'Model Fund'. Comparison with indices is necessary since the manager can avoid the time lag that occurs until performance measurement service samples are sufficiently large. The TWR with expense allowances is necessary because Indices are 'expense free'.

4.3 Another approach is that of comparison with a 'model' fund where money is notionally invested in an index or a number of indices. At the end of the period the value of the notional fund is compared with the actual value of the fund. This leads to more accurate comparisons for each fund with the market but, because of varying cash flows, does not allow a manager to make comparisons between the various funds under his management. Such internal inter-fund comparisons can, in the short term, highlight portfolios which have moved significantly out of line with the house's investment stance and, in the longer term, provide evidence as to the abilities of particular members of staff.

4.4 Performance measurement figures provide a useful marketing weapon for the good performers. Nowadays most managers have a record of their house's performance for use in obtaining new business. Until recently none of the measurement services has been in a position to provide representative figures for all the major fund managers and so it has been largely left to each manager to provide his own figures. Whilst most managers appear to quote representative figures, each manager will clearly wish to present himself in the best possible light and this must cast some doubt on any figures provided. In addition it may be difficult to get a clear impression of the variance of the returns about the medians. From the managers' point of view, the TWR is the best measure. Since all the major measurers at present make no allowance for expenses at the total fund stage, the figures quoted by the managers should ideally be consistent with the comparatives.

4.5 A potential problem for the manager is that he wishes the figures to represent his skill. Yet in some of the funds the manager's return may be affected by, for example, an inherited holding in property unit trusts or his performance may be inhibited by Trustee guidelines. Whatever the reason, it is a matter of fine judgment which portfolios should make up a particular manager's sample and which are unrepresentative. To date, this decision has been taken by the person who has most to gain from a display of good performance—the manager himself.

## 5. THE TRUSTEES

5.1 While many different parties have an interest in the performance of pension fund assets in the U.K., those charged with the responsibility for taking the decisions are the fund's Trustees. The law requires that a pension fund Trustee acts as a 'prudent man' would in taking those decisions. It is my contention that a 'prudent man' would first evolve a strategy consistent with the liabilities of the fund. Having evolved this strategy, he would then set up a structure which would aim to maximize return within an acceptable level of risk. Finally the 'prudent man' will be aware both of his own fallibility and of the fact

that he lives in a changing world. He will thus at regular intervals seek to reassure himself that his strategy remains relevant and that his structure does indeed stand a good chance of maximizing return within an acceptable level of risk. In other words he will wish to monitor his performance.

5.2 The liabilities of most pension funds are long term and partly fixed and partly salary related. Since the primary aim of the Trustee is to ensure that these liabilities are met, the starting point for any investment strategy must be the 'matched' position. Such a position may exist in theory but, in practice, suitable investments do not exist for exact matching of salary related liabilities. However, gilts do provide an adequate match for fixed medium-term liabilities while U.K. equities/index-linked gilts are likely to provide a reasonable match for salary related liabilities. I do not intend to rehearse the justifications for this statement but would refer the reader to § 5.3 of Marshall (1985). Whatever an individual's predilections *vis-à-vis* U.K. equities and index-linked gilts, I think most would agree that the return on at least one of these is more likely to move in line with U.K. salaries over the longer term than any other form of investment. With this in mind, it should not be beyond the wit of the actuary to provide for the Trustee a proportionate split of the assets between the proportion which relate to fixed liabilities ( $f$ ) and those which relate to accrued salary related liabilities ( $100-f$ ). The 'safest' strategy for the Trustee to adopt would then be to invest  $f\%$  of the assets in suitably dated gilts (the 5–15 year Gilt Index) and the remaining  $(100-f)\%$  in U.K. equities/index-linked gilts (the FTA All Share Index/Index-linked Index).

5.21 In the previous paragraph it is assumed that the Scheme is neither in deficit nor surplus. If this is not the case then the deficit or surplus can be taken to be met out of future contributions. Alternatively, in the case of a surplus, it is possible to take the approach that the proportion of the assets which relates to the disclosed surplus may be invested to maximize return with no regard being taken of risk. This latter approach is more likely to apply when the surplus relates to the overfunding of past service liabilities.

5.3 Having established the 'safest' position, risk for the Trustee is defined immediately. It is the extent to which the actual asset allocation differs from  $f\%$  in gilts and  $(100-f)\%$  in U.K. equities and the extent to which the actual stocks selected deviate from those in the relevant Index. There is of course a further risk that the fund is wound up and the liabilities become short term rather than long term—for a minority of funds this may be an overriding consideration.

5.4 In practice very few Trustees go through this process explicitly with their actuary. However I contend that most do go through the process in an unstructured way. To anyone who believes that portfolios are managed with complete discretion, I would ask how many groups of Trustees would view a portfolio with 60% invested in overseas equities in the same light as one which was 60% invested in U.K. equities?

5.5 It is also my contention that rather than leave it to the Investment Manager to guess what the Actuary and the Trustees will tolerate in terms of

movement away from the 'safest' position and instead of leaving the Trustees to guess what the 'safest' position is, the Actuary should go through this exercise with the Trustees. In the light of these discussions, the Investment Manager can be told both of the 'safest' position and of the extent to which he may depart from this position without further reference to the Trustees.

5.6 Set against this background performance measurement as it exists today is a most valuable tool but deficient in several areas. It provides a useful measure of a manager's skill but very little information on the relevance of his decisions to the fund in question. I suggest that any analysis of pension fund performance conducted on behalf of the Trustees should contain the following:

- (i) The MWR (calculated using market values). This measure can be compared with the MWR on a notional fund made up of  $f\%$  of the relevant Gilt Index and  $(1-f)\%$  of the relevant Equity/Index-linked Index. This comparison should reveal the extent to which the deviation from the 'safest' position had added to/subtracted from return. The actuary should probably repeat the exercise using start and end 'actuarial values' rather than market values to reassure himself that this didn't alter the comparison.
- (ii) The TWR (calculated using market values). This measure should be calculated for each of the major sectors—U.K. gilts, equities, overseas, property, etc. Allowance for the cost of investing money in each of these sectors should be made—the allowance being based on the typical cost of buying into the sector. It is essential to make such an allowance as the calculated returns are designed to measure stock selection abilities. The decision to invest in a particular sector is strategic and thus the cost of this decision must be debited elsewhere. The allowance also facilitates comparison with indices. The TWR should also be calculated for the total portfolio. The logic of earlier arguments dictates that there should be an expense allowance based on the cost of investing new money in the proportion  $f : (1-f)$  (gilts : equities). However in order to facilitate inter-fund comparison I suggest that in calculating the expense allowance,  $f$  should be taken equal to zero on the sweeping assumption that, since most funds now like to give inflation-related increases to pensions,  $f$  will be very small in most cases. Clearly this assumption is not going to be right all of the time but standardizing the allowance does allow inter-fund comparisons at this level.

5.7 The comparatives to be used are the indices (in this way the merits of 'active' management may be compared with 'indexation') and the returns of other comparable funds. I shall consider in a little more detail in § 9 what constitutes a comparable fund but in order to make the comparison at the total fund stage worthwhile one has to assume that  $f$  will be similar for most funds. Certainly those funds for which the Trustee guidelines are significantly different must be excluded from any comparative data base.

5.8 Whatever the arguments as to the comparability of total fund portfolios, it is my belief that far more emphasis should be placed on performance within the individual sectors. In particular, equity stock selection has a vital part to play in overall return. In most pension funds equities make up in excess of 70% of the total assets; under or overperformance in this area thus has a significant impact on return. It is my experience that, while managers find it extremely difficult to alter asset allocation between the major sectors for the consistent benefit of the fund, several do manage to consistently outperform in stock selection. Indeed common sense would seem to indicate that a skilled investment manager is far more likely to be able to predict which companies will perform over the next year than to predict which major sector will provide the best performance. Acceptance of this principle leads to a strategy of controlling the investment manager's asset allocation strategy and judging him on his stock selection abilities.

## 6. THE SPONSOR

6.1 In virtually all pension funds the Sponsor is the agent of a group of people who are not necessarily beneficiaries of the fund. In the case of limited companies, the group in question is the shareholders; for a local authority, the ratepayers; for nationalized industries, the taxpayer, etc. In these cases the Sponsor's prime responsibility is to the relevant group. Some would argue that the Sponsor is also responsible to his employees. While not wholly dissenting from this argument, it does seem that, with both the State and the Trade Unions taking an increasing interest in all areas of Company management, the justification for the Sponsor adopting a 'paternalistic' attitude to his workforce is much diminished.

6.2 If one accepts this argument then it follows naturally that the Sponsor should be concerned with minimizing pension costs. He is however constrained by the fact that by so doing he should not weaken morale amongst the workforce nor hinder recruitment of staff. Superior investment performance can obviously lead to a reduction in costs without any reduction in benefits and so satisfies the constraints. It is now increasingly recognized that changes in the level of pension contributions can have a significant impact on company profitability and it is thus important that the Sponsor should monitor this area of potential expenditure as he would any other.

6.3 Unlike the Trustee or the Member, the Sponsor's time horizon is fairly short term. Events which stretch forty years or more into the future have little relevance to management which is more likely to be judged on a year-to-year basis. The Sponsor's strategy should thus be to maximize return over the intervaluation period in the hope that the Actuary will recommend a reduction in the contribution rate. Even an increased contribution rate may be acceptable to the Sponsor provided that his competitors are having to increase their contributions by a similar (or greater) amount.

6.4 With pension contributions having a significant impact on many Com-

panies' finances, comparative performance measurement is thus a vital management tool. Strictly speaking the Sponsor is concerned with absolute returns based on actuarial asset values. In practice comparative data bases for such figures do not exist and are unlikely to do so. Instead the Sponsor must rely on the assumption of a high degree of correlation between these absolute MWRs and TWRs based on market values. Comparisons should be made with other funds; for the aim is to outperform one's competitors.

6.5 It is perhaps in the area of risk where the Sponsor's emphasis varies most from that of the Trustees. Risk to the Sponsor is that his contribution rate will be increased while that of his competitors will not. His 'safest' position is thus to construct a portfolio which coincides with the average pension fund portfolio both in its distribution between the major sectors and in the individual stocks it holds. The extent to which the actual asset structure departs from this position is the extent to which risk is being taken. Moreover the Sponsor is probably less risk-averse than the Trustee. Indeed it is often his job to take calculated risks in order to improve profitability.

6.6 To my knowledge, no index exists to quantify this type of risk. Most people would probably agree that to be five per cent over-exposed to U.K. equities at the expense of property is less risky than being five per cent over-exposed to cash at the expense of equities but to quantify the extra risk is difficult if not impossible. This deficiency can be partially remedied by discussion with an experienced measurer who, through dealing with many funds, will have a better 'feel' than anyone for the extent to which deviation from average may prove to be significant.

## 7. THE MEMBER

7.1 The Member's main requirement is that his pension entitlement is paid. In addition he will be concerned that in the event of a winding-up sufficient resources are available to provide a reasonable deferred pension. In the normal course of events, the Member has an interest in any superior investment performance which leads to an improvement to benefits. In practice this usually means that a Member is interested to ensure that Trustees are maximizing return within an acceptable level of risk.

7.2 This is Holbrook's second principle and, to a large extent, the Member's and Trustees' aims and objectives coincide. However the Trustees sit between the Company and the Member and so are probably as much concerned with the downside as with the upside. In contrast, the employee of a profitable Company may be less worried about the downside knowing that the Company will make up any deficiency. As a result he may wish for a more significant departure from the 'safest' position (as defined in § 5.2) than the Trustees will accept. In practice, the inherent conservatism of the individual more often results in a very 'risk averse' membership.

7.3 The Member is most interested in the 'bottom line'. In order to assure



himself that the Trustees are performing their duties to his satisfaction, he will wish to know the return on the total assets compared with the median pension fund return. In theory he will be interested in both the TWR based on market values and the MWR based on actuarial values. In practice I suggest that the presentation of two figures for return for the same period may confuse the less sophisticated member. In order to facilitate comparison and because market values are more easily understood by the layman I suggest a single figure should be presented, being the TWR based on market values.

7.4 If performance is below par the Member will want to know why. In particular the Member may wish to see the effect of various Trustee decisions, e.g. splitting portfolios, direct investment in property, etc. When performance is substandard, it is important to the Member to know whether this is a result of such a Trustee decision or whether it is just the 'luck of the draw', e.g. unpredictably bad performance from the manager(s).

7.5 In my experience one of the difficulties when presenting figures is in persuading the Member that performance should not be judged over short time periods. Most of what he reads and the analogies he may draw from other areas lead him naturally to the conclusion that one year is a sufficient time span over which to judge performance. The Member may also be suspicious that the good relationship between the Trustees and the Investment Manager owes more to school ties and good lunches than it does to good performance. In these cases he may regard requests that one year's bad performance should not be judged too hastily as confirmation of his worst suspicions. There is little one can do to rectify this except point to the many cases where one year's bad performance is followed by a year of good performance.

## 8. THE ACTUARY

8.1 The Actuary's interest in a pension fund's investment performance depends upon whom he is advising and the extent of his involvement in the investment decisions. However he clearly has a professional interest in the effect the performance of the fund has on succeeding actuarial valuations.

8.2 In view of this he should ensure that a MWR based on actuarial values is calculated at the time of each valuation covering the inter-valuation period. Comparison of this figure with a MWR based on market values and average increase in membership earnings over the period will give him a better insight into the investment side of the valuation. In particular it should help him in assessing his financial assumptions and the method by which he values the assets.

8.3 Risk to the actuary must surely be the risk that his assumptions and methods become incompatible with the particular investment stance adopted by his client. He will thus wish to consider in some detail the 'safest' position (as defined in § 5.2) and the extent to which a fund's actual investments deviate from this position. He should also be concerned as to the extent to which the actual investments deviate from assumptions made in valuing them. For example, if the

method of arriving at an 'actuarial value' is that of notionally investing each sector in the relevant index, then the extent to which the actual investments deviate from the index may have a bearing on the final value he places upon them.

8.4 For portfolios that deviate significantly from the 'safest' position the Actuary may wish to make a reduction in the actuarial value placed upon them. At the moment such reductions would tend to be left to the judgment of the actuary concerned. However as more and more information is computerized it may well be practical within the next few years to devise a single (or a series of) reduction factors based both on within sector deviations from the index and on significant asset allocation deviations from the 'safest' position.

## 9. ASSORTED TOPICS

### *Size*

9.1 One of the most frequently asked questions is: "Does size affect performance?" The question is usually answered empirically, in the negative. However, what we should be asking is: "Is there any reason why the performances of large/small/medium sized funds are not directly comparable?" In essence this boils down to a question of whether size, or lack of it, can hinder or help a fund's operation.

9.2 There is no doubt that the larger fund can deal in larger units and therefore cut its marginal costs. The table shows the official minimum commission when buying various sized tranches of shares.

<i>Size of deal</i>	<i>Cost</i>	<i>Typical size of fund for which this represents 1 unit</i>
<i>(£)</i>	<i>(%)</i>	<i>(£m)</i>
1,000,000	·34	100 +
500,000	·41	60 +
100,000	·60	10 +
50,000	·69	5 +
20,000	·97	1 +

In practice the differential will diminish when jobbers turn and stamp duty is taken into account and will vary depending upon the stock in question. Taking all this into account and assuming typical turnover, I calculate that the relative disadvantage to the £1 million fund compared with the £100+ million fund will amount to a difference of around  $\frac{1}{4}\%$  on its U.K. equity return over a year.

9.3 It is argued that larger funds can take direct stakes in property and overseas while smaller funds will not get a sufficient spread if they do so. This is

clearly true but I would argue that the presence of a wide range of exempt unit trusts means that even the smallest fund can invest in these sectors. The larger funds do gain through lower dealing expenses but these have only a minor effect on return. It is a fact that larger funds tend to have a greater proportion in property but there is no reason why they should adopt this stance. My somewhat cynical view is that larger funds can justify direct investment in property—once direct investment begins, the property lobby has a foot in the door and quite naturally exerts an influence on the Trustees' future thinking on strategy. There are now around 40 exempt property unit trusts and managed funds investing in property. There is no *need* for any but the largest of funds to invest directly in property and thus no *need* for any to maintain an overweight position in property.

9.4 Where size can have a big effect is in the number of holdings (the 'spread' of the portfolio). Detailed analysis suggests that funds in excess of £100 million tend to average around 80 U.K. equity holdings while those below £5 million average 40 holdings. The reasons for the difference are twofold:

- (a) because costs of dealing at the smaller end tend to increase sharply, managers of small funds tend to have bigger 'unit sizes' relative to market value.
- (b) at the top end, large units are not only difficult to move about the market without unsettling it but also may represent an unacceptable proportion of a particular Company's worth.

The table shows the number of companies for which various sized holdings represent less than one, five and ten per cent of the Company's market capitalization.

<i>Fund Size (£m)</i>	<i>Size of holding representing 1% of Fund (£000)</i>	<i>Number of companies for which this represents less than</i>		
		<i>1% of market capitalization</i>	<i>5% of market capitalization</i>	<i>10% of market capitalization</i>
5	50	500+	500+	500+
10	100	500+	500+	500+
50	500	388	500+	500+
100	1,000	259	500+	500+
200	2,000	159	433	500+
500	5,000	84	259	388
1,000	10,000	36	159	259

Clearly the maximum degree of involvement in one company is a matter of personal taste but it does seem from the table that it is only funds in excess of £1,000 million which are seriously constrained by this factor.

9.5 It thus seems clear that there is no magic size above or below which a fund

is constrained to invest in a certain way by virtue of its size. On the other hand there is no doubt that at the extremes there are significant differences in the way funds must operate.

9.6 Many organizations construct a 'standard' or 'model' fund from average pension fund proportions and relevant indices to give an early estimate for average pension fund return. In view of the comments made in the previous paragraph the use of total pension fund money distribution or weighted average proportions (and these amount to the same thing) in the construction of 'standard' funds is misleading. Several reputable organisations use money weighted average proportions but these allow the atypical distributions of a few 'megafunds' to dominate the overall model. In recent years this has given every fund with a market value of less than £500 million an easy target to beat since the 'megafunds' tend to have a much greater property percentage.

9.7 The other major implication from the preceding paragraphs is that the vast majority of funds, probably all those in the £5 m to £500 m range, can act in a *very similar fashion. Therefore comparison with the overall median is entirely valid* for these funds and there is little need for a size-specific median.

### *Cash Flow*

9.8 Should different cash flows affect performance? Logic suggests that cash flow, unlike size, does matter. The question is: "Does it help or hinder performance?" On the one hand, there are expenses of investing money in the market and, unless one calculates return with an expense allowance, this gives the low cash flow funds a relative advantage. On the other hand, high cash flow allows a rearrangement of asset allocation without incurring the cost of selling and buying.

9.9 The empirical answer is that no significant correlation exists between cash flow and return but this may be due to the fact that as many managers put their excess cash in the wrong place as put it in the right place. Nevertheless it does seem that a good manager will produce better returns if he has significant amounts of cash to invest. There is also some evidence to suggest that funds which start wholly liquid tend to perform better in their early years.

9.10 The impact of expenses must not be forgotten. In one case I came across a fund which was growing at nearly four times the average rate, but was losing  $\frac{3}{4}\%$  per annum in return relative to the average due to the effect of expenses. It seems unlikely that this disadvantage could be overcome in anything other than a rapidly moving market.

9.11 The conclusion seems to be that a positive cashflow is advantageous but that too much cash can make life difficult for the manager, particularly in a rising or flat market. As with most of the other questions asked, the relationship between cash flow and performance is not straightforward. Hence simple correlation analyses tend to reveal little of any significance.

*Volatility*

9.12 The solutions to the B1 (Subject 7) course of tests contain the following in connection with a question on pension fund investment: "... to reduce the volatility of an equity portfolio, that is, to reduce the risk inherent in holding equities ...". I cannot agree. If there is no requirement to realize assets in the foreseeable future, why should one be concerned with volatility in a pension fund and why should there necessarily be any connection between volatility and risk? There is a risk in holding an individual equity, that is that the investment will become worthless. But to suggest that volatility of an equity portfolio in a growing fund is synonymous with risk is erroneous. In my view volatility in return (whether it be relative to inflation, the median pension fund return or index returns) is immaterial. For example 'passively' managed well-spread portfolios may well oscillate about the median (and the annual inflation rate) while producing consistent performance relative to the yardstick over longer time periods.

9.13 If one defines risk as the extent to which a manager follows a consistently and significantly different strategy from the norm, then a 'risky' portfolio can quite easily produce a series of average results before suddenly diverging markedly from the average. In short, using volatility as a measure of risk is about as useful as a doctor using death as a symptom of a treatable illness.

9.14 If one defines risk as deviation from a particular fund's 'safest' position then it is quite possible that there will be a fairly high degree of inverse correlation between 'risk' and volatility.

9.15 My conclusion is that while the study of the past volatility of individual shares may help the investment manager to select individual holdings, the study of past volatility of portfolios of holdings is futile. Could it be that an actuary's concern with volatility in a pension fund owes more to his life assurance background than logic?

## 10. THE WAY AHEAD?

10.1 Having examined the current position in some detail, I turn to the question of what should be considered good practice in 1986 and beyond.

*The Sponsor*

10.2 While the Trustee can just about justify non-participation in a performance measurement survey, there seems little justification for the Sponsor taking such a course. Pension fund financing has a noticeable impact on Company profitability (or, in the case of local authorities, rate levels). It thus seems almost negligent that the Sponsor should fail to monitor performance.

### *The Investment Manager*

10.3 It is in everyone's best interest that an independently calculated and verified median return is available for each manager. Until such time as these are available, managers with moderate records will be in a position to 'massage' their figures to show better than moderate performance and good performers will find it difficult to convince the sceptical adviser of their good performance.

### *The Performance Measurer*

10.4 It is in the nature of people that they will ask questions and expect answers whether they are reasonable questions to ask or not. It is also in the nature of people to make up their own answers if no answer is forthcoming from the expert. Much of the criticism of performance measurement stems from abuse of the statistics provided. This in turn stems from the failure of the measurer to answer some of the questions asked. In particular the measurer may be reluctant to comment on:

- (i) *Risk.* The performance measurement report should highlight in one section the deviations from the norm both in terms of asset allocation between the sectors, stock selection within the sectors, activity and concentration of investments. Consistent differences in these areas are likely to produce consistently different performance from the median and hence, for the Sponsor, greater risk. In the fullness of time it should be possible to produce an Index of this type of risk. In the short term an experienced measurer ought to be able to weigh these elements and categorize (albeit subjectively) a particular portfolio's risk profile as high, medium or low. At present by avoiding the subjective, the measurer leaves it to the layman to decide his own risk profile in an undisciplined way. Almost invariably the layman uses relative volatility by default.
- (ii) *The precise time span over which to judge performance.* There is no doubt in my mind that three years is the minimum time period over which judgement may be made. One cannot expect any manager to spot the top of a rising market or bottom of a falling market nor can one expect him not to make any mistakes. One can expect a good manager to spot that a falling market is just that and to make successful decisions over 50% of the time. The very good manager will clearly obtain consistently above average performance. The average manager's year-to-year returns will generally form one of three patterns:
  - (a) close to average returns each year,
  - (b) the 'saw tooth' pattern where individual year returns oscillate about the average,
  - (c) the 'sine wave' pattern where relative return gradually improves and then falls back.

The bad manager will get consistently below average returns. After three years, the manager who is in fact average but who starts a period of measurement on a downward part of his 'sine curve' will generally have moved back on to an upward path. It is thus my opinion that if a manager produces three well below median returns and is in the lower quartile overall he should be replaced. However, if return is below the lower quartile overall but has been variable in the individual years the period of judgement should be extended to five years. Irrespective of the way in which a return below the lower quartile over five years is achieved, it is my view that if it is the manager's fault he should be replaced. The fine tuning of the timing of the decision to replace often depends upon when the Trustees lose confidence with the manager but it is in my opinion the responsibility of the measurer to indicate the point at which he believes poor performance can no longer be attributable to bad luck and must be attributed to bad judgement.

### *The Actuary*

10.5 If one accepts the arguments in earlier sections then it is logical that the actuary should expand his commentary on investments quite considerably. In particular he should explicitly cover the following areas:

- (i) *The return on the Fund.* The Actuary should calculate both the MWR on market values and on actuarial values over the intervaluation period. He should quote both (with explanation) and comment on any differences between them. He should also comment on differences between the actual return and the increase in salaries, pensions, etc, and compare these differences with those assumed at the time of the last valuation.
- (ii) *The 'safest' position.* The Actuary should calculate and specify the theoretically 'safest' position in terms of asset allocation. He should note any differences between this position and the actual position and either recommend changes to bring the actual position more in line or concur with the existing spread. Together with the Trustees he should draw up guidelines for the investment managers as to the extent to which they may depart from the 'safest' position. The range of these guidelines will depend upon attitudes to risk but in most cases it is likely that the Sponsor's 'safest' option (the average pension fund spread) will fall well within the guidelines. If it does not it is likely that either the fund is very young and the Sponsor is prepared to accept greater risk or the fund is very mature and the liabilities will be sufficiently short term as to concern the Sponsor. It is thus unlikely that the establishment of these guidelines will in practice lead to conflict between the Trustees and the Sponsor. If the Trustees ignore any advice the actuary may give on changes in asset allocation then it is open to the actuary to place a lower value on the assets for the purpose of calculating the future contribution rate.

10.6 During discussion of the investment manager's guidelines the Actuary should provide details of what the return is likely to have been had the managers adopted the 'safest' position in their asset allocation. If the actual return is lower then it must call into doubt the wisdom of 'active' management. Thus while the performance measurer measures the skill of a particular manager, the Actuary measures the benefits of the underlying structure.

10.7 It is to be hoped that the legislation to protect investors will not prevent the Actuary from giving such advice.

### *The Trustee*

10.8 It appears from the most recent consultative document on the disclosure requirements that the Government is, albeit inadvertently, also placing emphasis on short-term investment performance. At the time of writing there is a proposed requirement on the Trustees to give a fair view of the investment performance of the fund during the year. While this requirement could be met without quoting any comparatives the spirit of the law suggests that Trustees should quote the annual TWR together with the median achieved by one of the performance measurement samples. In order to avoid misunderstanding I suggest that this part of the Trustees report also includes some longer-term figures and some commentary.

10.9 In my view relationships between Trustee and Investment Manager would be improved if, at the time of appointment of a manager and at regular intervals thereafter, meetings were held with all the interested parties present. At these meetings the managers would be formally instructed as to the Trustees aims, their attitude to risk (i.e., deviation for a set of guidelines) and attitude to possible areas of conflicts of interest-takeovers, underwriting, etc. In my experience if discord exists between a Trustee and his investment managers, it often results from lack of communication between the parties as to, on the one hand, what is required and, on the other hand, what is being done.

10.10 The Trustees will be monitored both by the Sponsor and the Members. However while the Trustees may be concerned with the performance of various investment managers and the detail; the Sponsor and the Members are more concerned with the overall result. It is thus probable that in addition to the detailed performance measurement report issued by most services, it would be helpful if a condensed version could also be issued for the benefit of the Sponsor and the Member.

## 11. CONCLUSIONS

11.1 In my look at future improvements I have tended to concentrate on those areas which directly affect the Actuary whether in his role as performance measurer or actuarial adviser. It seems to me that in the former role many of the problems the Actuary faces are ones of presentation, although the performance



measurer's reluctance to commit himself on the unquantifiable areas such as risk and time span for judgement is far from helpful. In contrast the actuarial adviser could increase the volume of information he provides quite considerably. In particular he should insist on taking the lead in advising upon long-term investment strategy. By default this task frequently falls to the investment manager whose time horizons are considerably shorter. It is up to the actuary not the investment manager to provide a coherent long-term investment strategy.

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