INVESTMENT ISSUES FOR THE PENSIONS ACTUARY

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INTRODUCTION

1. The purpose of this paper is to stimulate discussion on a number of investment issues affecting consulting actuaries in their role as advisors to pension plans. It has been written against an Australian background, but references are also made to overseas developments. It is hoped that the subject is also of interest and concern to consulting actuaries in other parts of the world.

2. The paper deals wih the following aspects of the general subject of pension plan investment:

   The overall objective (paras. 6 to 12)
   Subsidiary objectives (para. 13)
   Choice of investment vehicle (paras. 14 to 18)
   Performance surveys (paras. 15 to 23)
   Split funds (paras. 24 to 25)
   Index funds (paras. 26 to 30)

   and attempts a summary in paras. 31 and 32.

3. The paper assumes that the liabilities of the plan should be funded. Some authorities may dispute this assumption on economic grounds but the author, without wishing to argue the case here, is content to make it for the conventional "if there isn't going to be a real reward for investment, then the economic order as we know it will collapse and the state of pension plan investments will be the least of the world's worries" reason. In some parts of the world there are other reasons for funding, of course, such as legislative requirements and accounting and auditing consequences of transgression of GAAP.

4. Overseas readers who would like more information about the Australian scene are referred to the paper written by Martin Stevenson and the present author for the 1976. IACA Conference. Section 2 of that paper is still a reasonably up-to-date summary of the position.

5. The decision to establish a "funded" pension plan leads to a series of questions about the investment of the accumulating assets of the plan. If there is an actuary involved in its establishment, he will ensure that these investment questions are set out clearly, and given careful consideration, although his relationship with the client may limit his freedom of action in this regard (for example, in the situation where he is employed by an organization which invests funds on behalf of pension plans, and it is that organization which is advising the employer on the establishment of the plan, rather than the actuary; even in that situation, some of the investment questions will have to be answered if the organization has investment options available). In this paper, the role of the consulting actuary, acting in the interest of the client without conflicting responsibilities to an investment organization, is considered.

The overall objective

6. If the employer who established the plan (just called "the employer" in this paper) had had a free choice in whether or not his plan should be funded (that is, suppose he was not constrained by any feeling that the benefits should be secured by a body of assets not within his control, or by any accounting principles or legislative requirements) he may have decided to establish a fund, and pay periodical contributions rather than merely pay the benefits as they fell due, because of a belief that contributions set aside and invested externally would earn a better rate of return than if he merely retained them and used them "in his business". In these circumstances, the plan's overall investment objective might merely be to do just that. (He may, of course, have had other reasons for funding, such as to smooth pay-as-you-go benefit payments.)

7. In practice, however, in many countries of the world (including the major ones where consulting actuaries operate), terminal funding of pension liabilities is an option not available to employers, for one or other of the reasons referred to in para. 3. Some other overall investment objective is therefore desirable, though the employer would no doubt still be interested to know whether the investment manager has done better with the pension plan assets than he (the employer) could have done.

8. In "Institutional Investor", February 1977, there appeared an article headed "ERISA compliance: A survey", based on a 1976 study of pension plans of 184 corporations by Dreher Rogers & Associates. One area covered by the study concerned investment objectives of the plans. It appeared that 54% of the respondents included performance goals in their investment guidelines. These goals were included in the guidelines in a variety of ways – the following table is adapted from one in the article:

Form of the performance goal	Respondents using this form, as % of all respondents who included goals in investment guidelines
Non-quantified	15
Relative to market indices	9
Relative to other pension plans	9
Relative to actuarial assumptions	9
Relative to inflation	7
Absolute amounts not related to actuarial assumptions	15
Two or more of the above criteria	19
Other	2
Not specified	15

9. The article quotes a number of examples of the various forms of performance goals. The following is a selection:

Non-quantified Preservation of principal, emphasis on quality bonds with liquid stocks, maximization of total return consistent with the foregoing.

Relative to market indices Over a three to five year period, total rate of return to exceed Standard & Poor's 500 Stock Index by an average of 1 to 3 per cent.

Relative to other pension funds Managers expected to remain in the top quartile of performance vis-a-vis all investment managers.

Relative to inflation Prevent erosion of capital contributions and maintain earnings equal to at least 3 per cent over current inflation rate.

10. In the light of work done by various researchers into the performance of pension plans it is doubtful that goals such as the last three quoted above can be achieved over any reasonably long period of years (or, for that matter, could have been achieved over many short past periods).

11. It is sometimes asserted (without any supporting evidence as far as the author is aware) that even the measurement and comparison of performance will influence the investment manager to sacrifice longer-term soundness of decision in an attempt to obtain good short-term results. It is a simple step to the further assertion that a manager set an impossible objective may well take risks he could not otherwise consider, so that he will attain the goal at least occasionally. A more important reason for avoiding unattainable goals is the inevitable erosion of confidence of the client in the manager as a consequence of the latter's failure to meet the objectives.

12. It is difficult to determine objectives in quantifiable form which are attainable and which still challenge the investment manager's ability. To achieve results "not less than Standard & Poor's 500 Stock Index by a margin greater than the investment management expenses" is hardly inspirational, however realistic it may be as a goal. In the author's view, the most satisfactory investment objective is likely to be one couched in terms such as "not below the median result of such-and-such investment performance survey over a three to five year period" coupled with a set of reporting and liaison guidelines which the employer or the plan administrators expect to be met.

Subsidiary objectives

13. Subsidiary objectives may be set from time to time in relation to:

Liquidity The plan may have particular periods when benefit outgo can be expected to exceed contribution receipts (more likely to occur in Australia than in other countries because of the preponderance of lump sum benefits); prudence may dictate that more than usually liquid investments should be held to ensure cash will be available during such periods. Allowance for this substantial constraint must be made when comparing the investment performance of the plan with that of others during the periods affected.

Security Fluctuations in asset values are not usually of much consequence in a defined-benefit plan in an ongoing situation. However if benefits are linked directly to asset values (as is quite common in accumulation plans which are popular in Australia) it can be argued that fluctuations should be limited by appropriately-chosen investment policies.

Broad policy A feature of the Australian retirement benefit plan environment has been pooled funds invested by life insurance companies where the employer or plan administrators must choose the "sectors" in which the plan's new money is to be invested. In this context "sectors" means types of investment characterised in ways such as:

- corporate stock
- real property
- Government securities (a separate sector in Australia because of investment requirements for tax approval)
- other fixed-interest securities

The fixing of the proportions between these sectors is properly a short-term investment objective (though in practice the decision, once made, is often unchanged). Where a plan's assets are invested as a separate portfolio, the administrators and the investment manager often agree broad policy objectives of the form "at least x% of the cash flow should be invested in ordinary shares, and y% in real property", though it would be usual for the manager to have a good deal of short-term flexibility.

Investment objectives and choice of investment vehicle

14. In Australia, the following types of investment vehicle (in addition to conventional life insurance policies) are available for pension plans:

    (a) Individual portfolio, invested by the administrators (or by staff employed by the employer)

    (b) Individual portfolio, invested by a professional investment manager, external to the administrators and the employer

    (c) Pooled fund, of the type referred to in paragraph 13 with investment proportions chosen by the administrators

    (d) Pooled fund, where investment proportions are chosen by the manager.

15. The chosen overall investment objective is unlikely to point the way firmly in the direction of a particular one of these vehicles. Unusual subsidiary objectives, however, may do so: no pooled fund may be available which matches a liquidity or security constraint, for example, so that an individual portfolio may be the only vehicle which offers sufficient flexibility.

16. The size of the plan may, of course, limit its investment options: in Australia, at least, consulting actuaries are often involved in quite small plans

where the management charges which would be levied on separate portfolios would compare so unfavourably with those of pooled funds that superior investment performance (even supposing that could be forecast with confidence) would be unlikely to make up the difference. At the opposite end of the scale, the expense involved in doing a proper job in relation to a full range of investments is likely to discourage administrators other than those of the largest plans from establishing their own investment staffs.

17. Neither does a wish for superior investment performance lead to a restriction on the field of choice between the vehicles listed in para. 14. In Australia, little difference appears to exist between the performance of pooled funds invested by particular managers and that of individual portfolios they manage.

18. When considering the vehicle to be used for a large plan without special features it is the author's view that, while performance cannot be ignored, the main questions to be asked concern the attitudes of the administrators to the investment function, the style of management they feel comfortable with and the extent to which they wish to be involved in investment decisions. It is more likely that satisfaction on all these points will be available by way of an individual portfolio, rather than a pooled fund.

Do performance surveys help to determine the type of vehicle which should be used, and the particular manager?

19. Performance survey reports which the author has seen from various parts of the world tend to follow very similar lines. Most are based on the estimation of the time-weighted rate of return, using the familiar approach of linking quarterly "internal" rates of return; this calculation is made for all participating plans, which may be individual portfolio pension schemes, schemes participating in pooled funds, or pooled funds themselves. Results are commonly presented for individual periods of as short as three months, or six months, or one year, and also for longer periods, up to the full length of the time the particular survey has been in existence. The volume of results which sometimes emerges is nothing short of bewildering, in some cases covering every possible combination of consecutive periods which can be drawn from say, 10 years' data.

20. Results analysed are virtually always the rate of return on "all assets" (though "all assets" sometimes excludes particular types of asset where uniformity of valuation presents difficulties which are believed to invalidate performance comparisons – such as real property investments and overseas securities), and various subdivisions of types of asset – corporate stock, fixed-interest investments, and so on.

21. Results for different participating plans are combined in various ways, and the combined results given as averages, medians, quartiles, deciles and percentiles, or in list form. Plans grouped together may be by manager, type of manager (e.g. bank, merchant bank, life insurance company, etc.) or by size of assets, in addition to all plans in the survey.

22. Statistics may also be made available relating rates of return to turnover, numbers of securities held per unit of fund, or to investment policy. Sometimes measures of "risk" (usually defined as "variability of rates of return") are reported.

23. With so much work going into the surveys, and with data available for ten years and more in many of them, the novice in the field of investment performance measurement might be excused for expecting that much useful data should now be available to assist in selecting investment managers. However the survey's success at this must be heavily qualified. Reported analysis of results produced by the surveys never seem to prove anything more than the "null hypothesis" (no significant difference exists) in relation to individual plans, types of manager, particular managers and size of plan. Perhaps the best that can be said is that if the performance of a manager who might otherwise be favoured is particularly and consistently "bad" (which is a rare phenomenon) it would be as well to try to find out why, with a view to seeing what he had done about whatever he had done wrong. Particularly and consistently "good" performance (which is even rarer) would also be worthy of investigation, in order to try to asses the chances of its continuing.

Split funds

24. Published studies of the performance of "split funds", that is, plans with more than one manager (each having responsibility for investing part of the assets and cash flow) appear to be rare. Presumably the intention behind fund-splitting is to improve performance but (in the only reference to a comparison of split fund performance the author can recall having seen) Colin Lever is reported as saying, in the discussion on John Holbrook's paper in J.I.A. 104:

> "The author criticises the split fund idea because it increases expenses and costs, and the time spent in analysing performance, saying it is uncertain whether it has any beneficial effect on the performance of the fund concerned. I have tested this and a statistical test at the 2% level indicates that it does not make any difference at all."

25. In practice, fund-splitting often comes about because a change in investment management is desired (for various possible reaons, in addition to supposedly poor performance) but the administrators are reluctant to take the drastic step of transferring the existing assets from the old manager to the new. So they "hedge their bets" by splitting. One can also, perhaps, defend it on the grounds that the risk of overall poor performance is thereby reduced, but the author cannot suggest a method of placing a value on this benefit to weigh it against the increased costs (tangible and intangible) of splitting. From this atmosphere of negativity it is only a short step to the most recent development – index funds.

Index funds

26. A surprising amount of policy has been given to index funds in Australia – surprising because, as yet and as far as the author is aware, no investment manager in Australia has introduced an index fund.

27. The case for index funds (or index-matched funds) is relatively simple. It is argued that comparisons of performance of investment managers over long periods have demonstrated that none of them consistently beat "the index" on a risk-adjusted basis and, in fact, their performance is, on average, worse than "the index" to the extent of the investment expenses – that is, the cost of administration, brokerage, analysis, etc. It therefore follows that if there can be established a fund whose performance matches "the index" on a gross basis (i.e. before deducting investment expenses) and if those expenses are much less than those of a conventional fund, the investor will do better to use such a vehicle than to invest in a conventional fund which tries to beat "the index" but which fails to the extent of the (higher) investment expenses, if not by a wider margin. It has been said that index fund investment expenses (in the United States) are only of the order of one-ninth of the corresponding expenses of conventional funds.

28. It is also argued in the U.S. (though the opponents of index funds have argued the opposite in Australia) that index fund investments meet the test of prudence – they represent diversification to the ultimate degree. ERISA requires a plan's fiduciaries to diversify the investments of the plan so as to minimize the risk of large losses "unless under the circumstances it is clearly prudent no to do so". The U.S. Department of Labour has issued a policy statement that, in administering ERISA, it regards diversification as important and will look at portfolio concepts. The opposite argument depends on a continuation of the common law approach that investments must be viewed individually (so an index fund is an imprudent investment because some of its constituent securities, if considered in isolation, would be imprudent investments), though it is also argued that common law will evolve as increasing emphasis is given to the portfolio, as opposed to the individual investment, approach.

29. The Australian opponents of index funds make a number of points. These are listed below, with brief counter-arguments:

    (a) An index, being based on market capitalizations of companies' stocks, is "unbalanced". (Comment: This argument, like many of the others given below, depends on the rejection of the index fund proponents' argument stated in para. 27. In this case, the thought behind the argument just seems to be that better returns will be obtained by some other combination of assets than that "the index" represents.)

    (b) Adequate diversification can be obtained with small number of stocks, and expenses will be cut down, too, in relation to a fund which attempts to hold each stock in "the index". (Comment: The concept of index-matching was developed to reduce the numbers of stocks which would need to be held in an index fund. While studies appear to have shown that indefinite diversification is not productive, the problem is to select the limited number of stocks which should be included in the portfolio and at the same time produce above-average performance.)

    (c) Acceptance of the index fund concept leads to abandoning any idea of strategic moves. That is, it is suggested that "the index" will be bought through thick and thin, whatever views as to future market movements may be. (Comment: The index fund alternative applies to ordinary shares only. The manager still needs to determine whether the index fund units should be bought or sold at a given time. Use of the index fund merely saves costs within the equity investment component.)

    (d) Plans requiring cash for benefit purposes will be denied flexibility because index funds "will be unable to liquidate 500 stocks or even a portion of these in one day and the costs of realisation will be staggering". (Comment: There may be a valid point here, regarding a net cash flow outflow of major size in relation to the size of the fund itself. But presumably in practice it is not a serious problem. The index fund cannot exactly match the index itself in the proportions invested in each stock on a day-to-day basis. If the divergence is enough, it becomes "index-matched" to avoid the problem.)

    (e) Companies whose stocks are not in "the index" will languish for lack of equity finance. (Comment: This reasoning is undermined by the suggestion, elsewhere in the article from which these points have been taken, that, for larger plans, investment should be concentrated in only about 100 particular stocks.)

    (f) Australia has no suitable index. (Comment: This is true. Only one index of ordinary shares results includes allowance for dividends and even that index has other features which make it unsuitable. Someone who wished to establish an index fund would therefore first have to establish a suitable index.)

    (g) Different parts of the equity market exhibit different behaviour. Use of an index fund prevents strategic decisions to invest in one part rather than another. (Comments: Somewhat the same point as (c)).

30. The most telling argument against index funds in Australia would be a demonstration that a group (preferably, rather than just one) of investment managers had beaten "the index" over a long period. Unfortunately the lack of statistics about fund performance and, indeed, the shortness of the period for which portfolios have been invested by professional managers in this country, suggest that it will be some years yet before even the null hypothesis can be satisfactorily tested.

Conclusion

31. Despite the accumulating evidence that "it can't be done", employers with pension plans still persist in trying to select investment managers who will produce superior investment performance. Conceivably consulting actuaries can best help by trying to discount the use of investment performance surveys for selecting "who will be best", and by suggesting that the search for the holy grail be abandoned in favour of the approach referred to in para. 18. Even if surveys showed convincingly that one manager has been best (and Australia has a manager who has been at or near the top for five years now, thought the volume of assets under management was quite small initially), overseas evidence suggests that selection on the basis of performance alone is likely to lead to dissatisfaction sooner or later when the manager's performance has reverted to average (or below) unless he is able to retain the confidence of the plan administrators and they continue to be happy with his style.

32. Actuaries have a duty to comment dispassionately on the investment options available to pension plans. They should try to ensure that employers and adminstrators understand the reasoning for and against: pooled funds, individual portfolios, split funds and index funds. They should help employers and administrators to ask the right questions of their potential managers. Colin Lever's supposition (JIA 104, as above) may well be right:

"I am beginning to think that the most that any group of trustees can expect from their investment manager is that initially he should relieve them of the nervous strain of actually buying and selling investments, which I do not underrate and that, subsequently, he should provide an efficient administrative service and then, thirdly, that he should retain their confidence and keep them fairly content with what is taking place."