MEASUREMENT OF PENSION FUND INVESTMENT PERFORMANCE

by

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1. INTRODUCTION

1.1 In the United States the theoretical and practical aspects of the measurement of investment performance have been well researched, and the investment managers and pension fund trustees are accustomed to having a battery of statistics available on the performance of a pension fund.

1.2 By contrast, in the United Kingdom, attention has only really been given to this subject in this decade. It has taken time for both investment managers and trustees to appreciate the need to measure performance and to move away from a solely qualitative assessment of the ability of investment managers to one involving a quantitative element.

1.3 There are just a few papers by U.K. authors on the investment performance of pension funds and the Institute has discussed the subject only once. This was in November 1976 when J. P. Holbrook presented a comprehensive paper covering both theoretical and practical aspects of performance measurement.

1.4 My purpose in writing this paper is not to dwell at length on theory but to explain some of the practical problems which I have encountered when measuring performance for pension funds, to suggest some solutions (or at least answers) to these problems and to outline my involvement in new aspects of investment work as a result of performance measurement.

1.5 In sections 2 and 3, methods of measurement and methods of comparison of the results when calculated are discussed. Section 4 looks at some of the problems caused by overseas and property assets whilst the subject of risk is commented upon in section 5. After investigating whether contracting-out has caused difficulties in per-
formance measurement in section 6, section 7 looks at the practical results from an investigation into the performance of a sample of U.K. pension funds over the period since 1970. Investment performance measurement inevitably leads to work in many associated areas and section 8 looks at some of these aspects including the concept of index funds.

2. METHODS OF MEASUREMENT

2.1 A pension fund is a long term investor which is not subject to tax on income or capital gains which arise from investments. Generally speaking, pension funds are in a position where contributions from the company and members exceed benefit outgo and this is likely to continue for the foreseeable future. There is therefore no particular need for current income or to realize assets. I am therefore assuming that a pension fund is investing so as to secure the maximum overall return from capital appreciation and income combined, commensurate with an acceptable level of risk. Methods of measurement should therefore take into account both income and capital appreciation. I am also assuming that it is appropriate to use market values for portfolio measurement purposes. I could go into the reasons behind these statements, but Holbrook covered these aspects in his November 1976 paper.

2.2 There are many methods which can be used to measure the investment return on a fund, and the appropriate method depends on the question that the calculations are designed to answer. For example, is the purpose to calculate the rate of return which has been earned on the pension fund assets over a particular period, or is it perhaps to compare the performance of several different investment managers? Whatever the question, it is vital to have this clearly in mind when specifying the calculations and analysing the results.

(a) The money-weighted rate of return

2.3 If calculations are intended to measure the rate of return which has been earned on the assets of the fund, then the money-weighted rate of return may be the appropriate measure. The money-weighted rate of return is that used in discounted cash flow calculations. If the initial market value of the portfolio is $M_1$, the final market value at time $n$ is $M_2$ and $C_j$ is the amount of the contribution made at time $t_j$
before the end of the period, then the annual money-weighted rate of return $i$ may be found from

$$M_1(1+i)^n + \sum_j C_j(1+i)^j = M_2$$

2.4 The rate of return $i$ will be influenced by the timing and magnitude of the cash flows, as can be seen from the following simplified and rather extreme example. Let us suppose that there are two funds A and B. The market value of both funds falls from 100 to 50 at the middle of the year and then fund B receives a cash injection of 100. Fund A now has assets of 50 and fund B of 150. During the second half of the year both funds double the value of their assets, so at the year end fund A has assets of 100 and fund B of 300.

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<th>Fund A</th>
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The money-weighted rate of return for fund A is

$$100(1+i) = 100 \quad i = 0\%$$

and for B is

$$100(1+i) + 100(1+i)^1 = 300 \quad i = 69.7\%$$

However, the manager of fund A has seen the value of his assets under management halve in the first half of the year and double in the second half. So has the investment manager of fund B. So, although both managers achieved similar performances on the assets under management, the money-weighted rates of return differ substantially, because fund B was fortunate to receive some new money at the bottom of the market. The incidence and magnitude of new money flows are outside the control of fund managers and so any method which attempts to compare the performances of different managers should eliminate the effect of new money flows.
(b) The time-weighted rate of return

2.5 The time-weighted rate of return method seeks to eliminate the distorting effect of new money flows by calculating the market value of the assets each time there is a cash flow and taking the product of the ratios of successive valuations. In other words, it examines the performance of a representative slice of the fund. In the above example the calculations of the time-weighted rate of return would be:

Fund A

\[
(1+i) = \frac{50}{100} \times \frac{100}{50} \quad i=0\%
\]

Fund B

\[
(1+i) = \frac{50}{100} \times \frac{300}{150} \quad i=0\%
\]

The rates of return in my example are now similar using this method, but there is an additional problem in that the use of this method requires a valuation of the fund each time there is a cash flow. This is not a practical proposition for the vast majority of funds, so that some approximation is needed which will produce a close and hopefully unbiased estimate of the true time-weighted rate of return. The method usually used is the ‘linked internal rate of return’. Periods of one quarter of a year are used and the money-weighted rate of return is calculated for each quarter. The rates are then linked together so that if, for example, the calculated rates for four quarters were 1\%, 2\%, 3\% and 4\%, the linked internal rate of return for the year would be

\[
1.01 \times 1.02 \times 1.03 \times 1.04 = 1.104 \quad \text{i.e. 10.4\%}
\]

2.6 Since only one quarter is considered at a time the importance of the new money relative to the money already in the fund is considerably reduced, but the procedure does not entirely eliminate the effect of new money flows. If periods shorter than one quarter are selected, then a closer approximation to the true time-weighted rate of return would be achieved. The shorter the time period the more extensive the data and the number of calculations required; hence a reasonable balance must be obtained between increased administ-
ration and increased accuracy. For normal market conditions quarterly data is likely to be sufficient, but given the large changes in market prices that have occurred at times in recent years, monthly data would be preferable during periods of rapidly varying market prices.

(c) The unitized concept

2.7 An alternative approach would be to follow the unit trust or managed fund method by calculating a unit price for the pension fund. However, whilst investment performance calculations would be greatly simplified, the unit trust price would need to be calculated every time the fund received a cash flow. Indeed, since the trustees would own all the units in the pension fund, the administrative effort involved is not likely to be worthwhile. If the information was available to calculate an accurate unit price, then without working out the unit price, it would be possible to make precise calculations for the time-weighted rate of return or alternatively perform money-weighted calculations. Hence, it is difficult to see what is gained by calculating a unit price.

2.8 Unit prices are however readily available for many funds run by institutions, and may be used to measure the performance of the unit fund. Once again it is vital to have the question which is being answered clearly in mind. Returns derived from unit prices do not necessarily reflect the performance of the underlying assets since the pricing method of the unit fund can frequently be altered (from an 'offer' to a 'bid' basis or to somewhere between these two values) and the expenses of management will usually have been debited before arriving at the unit price. New unitholders usually pay the expenses of investing the new money which they bring to the fund and therefore the cost is not debited to investment performance if unit prices are used to measure performance. Furthermore, the unitized vehicle may contain property assets or currency loans. So, for all the above reasons, returns derived from unit prices may produce different answers from those derived using the method of section 2.5. It all depends on whether the treatment of expenses, investment management fees, property, currency loans etc. in the unit price is similar or dissimilar to the treatment required to answer the question being asked. However, this is often forgotten in practice and comparisons are made without regard to fundamental differences in the calculation of the underlying statistics.
3. METHODS OF COMPARISON

(a) Comparison with other funds

3.1 Once returns have been calculated, the next stage is to make some comparison between the returns and some yardstick. The choice of yardstick will depend to a great extent on the purpose of the calculations. When making comparisons, it is necessary to compare like with like. In section 2.4 some of the problems associated with comparisons of returns on a money-weighted basis were illustrated. Only limited comparisons are possible on a money-weighted basis and for the purpose of this section I shall assume that time-weighted rates of return (or some approximation to them) are being calculated.

3.2 The natural method of comparison is to compare the returns of a pension fund with those of other funds with similar characteristics. The characteristics could be those of size, level of cash flow, nature of the liabilities, constraints on the investment manager and the level of risk which is acceptable to the trustees. If pension funds were divided according to just these criteria, then it would only be possible to compare the returns for a fund with those of a few other funds. A large sample size would be much more desirable if it was still possible to maintain a like with like comparison.

3.3 In the U.K. most self-administered pension funds have final salary type liabilities and as mentioned in 2.1 are in the position of not having to realize assets for the foreseeable future. With the levels of inflation experienced in recent years, and the uncertain investment conditions which have prevailed, funds have generally made little or no allowance for the maturity of their liabilities when framing investment policy. In addition, very few investment managers are hampered by investment constraints which cannot be easily changed by reference to the trustees, and most constraints are really better described as investment guidelines until the next trustees' meeting. Usually one finds that any actual constraints which are set down are to prevent transactions in the parent company's securities or possibly those of competitors, and this type of constraint is likely to have only a very marginal effect on investment performance. These considerations make it possible to substantially enlarge the sample which can be used.

3.4 The sample size could be further increased if it was found that the returns were independent of the size of the fund and the level of the cash flow. From the evidence available to me (detailed in section 7),
I have been unable to find any significant link between the size of a fund and returns, or apart from short periods, between the cash flow of a fund and returns. The returns of final salary pension plans can therefore be compared together, and the advantages of using a larger sample size probably outweigh the disadvantages of combining funds with insignificant differences in characteristics.

3.5 The next problem is to decide on the period over which performance is measured. Ideally, this would be over as long a period as possible so that the results should have some statistical significance. Since changes in long-term trends would take some time to emerge, annual reviews of long-term performance are probably sufficient. However, many trustees and investment managers spend a great deal of time concentrating on short-term results. Whilst I am aware that the long term is a succession of short terms, I do feel that a relatively poor short-term performance is quite acceptable if this leads to improved long-term performance. I sometimes wonder if investment managers are inhibited from taking decisive action because of the possible effect on short-term performance.

(b) Notional funds

3.6 A further yardstick for making comparisons is the notional fund. This is a fund which is invested at some date in various sectors in certain specified proportions and each sector performs in line with a stated index. For example, a fund invested 60% in equities and 40% in fixed-interest assets may be used where a 60:40 ratio is considered to be a reasonable long-term asset mix (or is the investment manager's current guideline) and the aim of the investment manager is supposedly to outperform this notional fund. Let us assume that at 1 January the notional fund is invested 60:40 and the equities subsequently rise in the first quarter of the year, so that the ratio becomes 70:30. Does the notional fund now sell the better performing asset (i.e. equities) and purchase the other asset to maintain the original 60:40 mix, and if it does so, are expenses to be taken into account?

3.7 The problem of rebalancing presents a fundamental difficulty to the notional fund concept. If the notional fund does rebalance periodically, it is acting in an artificial way in that a real investment manager would be most unlikely to follow this policy. If the notional fund is not rebalanced periodically, the original 60:40 ratio may be changed over time into some other ratio such as 80:20 and misleading conclusions can easily be drawn from the '60:40' notional fund unless
great care is taken to understand precisely what it is. A more useful concept may be a notional fund which does not rebalance but which was invested originally in the stated ratio (say 60:40) and invests new money received in the same ratio.

3.8 A 60:40 notional fund can therefore produce a wide range of results depending upon the procedures for its calculation which need to be clearly specified and understood. However, it is difficult to see what question can be answered by using notional funds which cannot be more easily and satisfactorily answered by inter-fund comparisons on a time-weighted rate of return basis. Since it is fairly rare to find a manager who has constraints on his investment policy which cannot be easily altered by reference to the trustees, there is little point in making a comparison with a model fund invested in a similar way to the investment manager’s guidelines. In any case this certainly does not advise the trustees whether the guidelines were correct, which is the question they probably should be asking.

3.9 Notional funds may be more useful for short term comparisons such as the analysis of performance between overall strategy and stock selection. There may also be a place for the notional fund in single sector comparisons. For example, if the problem is to ascertain whether the stocks chosen within the U.K. equity portfolio have produced a higher or lower return than the stockmarket as measured by the Financial Times–Actuaries All Share Index, it is quite feasible to set up a notional fund with the same cash flows as the actual U.K. equity portfolio and to buy and sell units in this index. Here again, care needs to be taken to ensure that the calculations actually do answer the question being asked and that the problems associated with expenses (see section 3.10) have been considered.

(c) Expenses

3.10 The treatment of the expenses involved in managing the investments of a fund and those resulting from individual transactions need to be carefully assessed. It is again necessary to start by asking what is the purpose of the calculations which are to be made, since in some circumstances it will be appropriate to make allowances for expenses and in other cases it will not.

3.11 For example, if the purpose of the calculations is to compare the returns on the underlying securities of various funds, then the investment performance should not be debited with the investment manager’s fees. It may also be argued that in this case the costs of
investing the new money received by the fund should also be excluded. However, this is not as simple to do as may at first appear. In practice, the investment manager usually receives cash sums and these sums are deposited with the other cash available within the fund until the sums are required for permanent investment. The cash balances will be increased by the proceeds of sales and depleted when purchases of securities are made. Sales which are subsequently followed at a later date by purchases (i.e. switches of assets) cannot often be clearly seen as such and hence it is not easy to identify which securities have been purchased by new money. Furthermore cash may be invested temporarily in one form of asset, for example short gilts, although the ultimate aim is to invest in another, say in equities. Even if it is clear how the new money has been invested, should the allowance for expenses be the expenses actually incurred, the expenses if the new money had been invested in the proportions determined by the long term strategy of the fund or in some other way?

3.12 If the purpose of the calculations is to identify whether the returns on a specific sector of the fund (e.g. the equity portfolio) have outperformed some yardstick and an allowance for the expenses of investing new money in equities is required, there are still practical problems in proceeding. If it is argued that no allowance for expenses should be made when equities are switched (e.g. a sale of BP accompanied by a purchase of Shell) but when exposure to equities is reduced (i.e. a strategy change is made) some allowance should be made, it is necessary to differentiate between switches and strategy decisions in order to proceed. This is virtually the same problem as that discussed above, and is not simple to solve in practice. There is a lot to be said for making no allowance for expenses when performing the calculations and inserting some arbitrary allowance for expenses once the results have been calculated.

4. COMPLICATIONS FROM OVERSEAS INVESTMENTS AND PROPERTY

(a) Overseas investments

4.1 Apart from investing in U.K.-registered companies which actually trade overseas, there are two main ways to purchase overseas assets. The most common way is to make direct purchases and the other is to use a currency loan.
4.2 Although the abolition of Exchange Controls with effect from 24 October 1979 has made the direct purchase of an overseas asset almost as easy as making a purchase of U.K. asset, overseas investments still present some additional problems for the performance measurer.

4.3 It is now common for U.K. pension funds to have holdings of Eurobonds, overseas fixed interest stocks and foreign currency cash deposits as well as overseas equities. These additional asset categories and the increased proportions of pension fund investments now allocated overseas have resulted in a larger number of transactions between sterling and another currency than previously. Since it is vital to ensure that the data received is accurate and that all cash flows have been correctly identified, it is now necessary to have a much more extensive set of data checks and generally much more time is now needed at the data reconciliation stage before processing can begin. Some of the difficulties in this area arise from accounting partly in sterling and partly in a foreign currency, where insufficient attention has been paid to profits or losses on exchange rate fluctuations.

4.4 All funds should use the same source for prices for the valuation of their assets in any comparison, but for some categories of overseas asset there will inevitably be a range of sources. For example, transactions in Eurobonds take place with certain banks who act as market-makers rather than through a stock exchange. Prices are therefore likely to depend on which market-maker is consulted. This could lead to some distortion in the calculated returns.

4.5 Income from overseas assets is usually paid net of withholding tax from the overseas country and it is generally not possible for a U.K. pension fund to reclaim this withholding tax. For performance purposes, the income which needs to be taken into account is the net amount received plus the tax paid, if any, which can be reclaimed from the Inland Revenue, less the expenses involved in collecting the income and any other overseas safekeeping charges on the investment.

4.6 The alternative method of overseas investment makes use of a currency loan, which is sometimes accompanied by a sterling deposit. The removal of Exchange Controls from 24 October 1979 has discouraged the use of this method of finance. Currency loan arrangements are not as simple to deal with as investments purchased directly, especially where the comparative performance of various
funds is being measured. One method is to first evaluate the return on the non-currency loan assets (the main fund), i.e. excluding the assets purchased using the loan, the loan itself and if applicable the associated sterling deposit, and any currency loan interest paid or sterling deposit interest received. In other words, the performance of the assets excluding the loan is measured and then the effect of the currency loan arrangements is added so that the impact of the loan on the main portfolio can be assessed.

4.7 After the main fund return has been calculated, the effect of the associated sterling deposit can be added by increasing the asset base by the amount of the deposit and including any income received from the deposit. The remainder is essentially a portfolio of foreign currency assets and an outstanding loan. The key feature is the notional profit or loss at any point in time, i.e. the difference between the market value of the assets and the loan, and this needs to be converted into sterling using the normal sterling exchange rate. The total fund calculations including the currency loan arrangements must also reflect the cost of financing the loan.

4.8 The individual fund can be shown the effect that its currency loan arrangements has had on the overall return, but it is not really feasible to make inter-fund comparisons of the overall returns of funds including currency loans. The reasons for this are that funds are exposed to different levels of gearing and therefore different levels of risk. In addition, the investment manager may not be free to alter the size of the currency loan and the decisions of the trustees and manager in this area tend to be rather blurred. I would therefore advocate the simple solution of restricting inter-fund comparisons to the results for the main fund and then advising individual trustees of the effect of their currency loan arrangements on their main fund.

4.9 Based on my experience, pension funds which have had currency loan arrangements have generally found that it would have been wiser to have been less adventurous. Some funds suffered large losses, especially in 1973 and 1974, even though the size of the currency loan was small in relation to the size of their main fund. Even in more recent years, when conditions have been less unfavourable, currency loan arrangements have had only a small effect on the main fund performance and this is sometimes positive but usually negative. I look forward to the day when I can meet a group of trustees and tell them of the large profits that they have made using
their currency loan. So far it has not happened, but with the total abolition of Exchange Controls in October 1979 managers may now have better opportunities to enhance returns by investment overseas.

(b) Property

4.10 Approximately one sixth of a pension fund’s assets is on average invested in property. Although it is easy to ascertain the market values of the Stock Exchange securities of a fund in an objective manner and using a consistent basis, it is not possible to do this for property assets. Property valuation is subjective and different valuers will arrive at varying prices for the same asset. Some funds do not have their property valued regularly on the grounds that property valuations cost a great deal of money and serve little purpose to a long term investor who does not need to realize assets to pay benefits for years to come. Other funds only have ‘back of the envelope’ guides to property market values from time to time. The only values which can be determined accurately are the buying and selling prices when transactions actually take place.

4.11 The small and medium sized funds tend to obtain their property exposure through the medium of property unit trusts. Although buying and selling prices of property unit trusts are given at certain intervals by the trusts, they need not have regard to the value of the underlying property assets and a recent property valuation of the trust may not necessarily be available when the price of the units is determined. The price of the units is set by the managers of each trust and may be influenced by such factors as the need to encourage the creation of new units to provide cash to pay for developments under way, or perhaps the need to discourage purchases of units if the managers are finding difficulty in investing the cash already available.

4.12 Given this valuation problem which applies to both direct property assets and property unit trusts, there is little alternative but to exclude these assets from short-term performance comparisons. If they were to be included, they could cause misleading conclusions to be made about the relative performance of funds or the performance of a fund relative to some standard. However, having decided that they cannot be included, assets which average a sixth of a fund cannot just be ignored.

4.13 An investment in property is essentially much more long term than a Stock Exchange investment. Property transactions can take
months rather than minutes to arrange, can only be made in substantial amounts and depend on the availability of the necessary buyers and sellers. For these reasons it may not be appropriate to examine property performance over short periods of time even if the valuation problem did not exist.

4.14 My own approach is to try to avoid producing property calculations for short periods of time, but where appropriate, to comment on the overall strategy of the fund (i.e. proportions invested in fixed interest assets, equities and property) in the light of general trends in each of the three markets. When data is available for property for periods of say five years or more, then it may be useful to calculate the returns on property over this period to see the approximate effect on the results of the fund. However, care is needed in the interpretation of the results because of the valuation difficulties.

4.15 If we look at a five-year period and we suppose that property can be valued to within $\pm 10\%$ of its real value, the maximum possible valuation error could be $10\%$ one way at the start and $10\%$ in the other direction at the end of the period, or roughly $20\%$ in total. In approximate terms, this would mean that the calculated equivalent annual rate of return on property assets could be $\pm 4\%$ away from the correct return. Furthermore, we do not know if the $10\%$ tolerance figure for the possible divergence of opinion on property values is correct. So, if we have calculated that property has achieved an equivalent rate of return of say $15\%$ per annum over this five-year period, whereas the remainder of the portfolio has only achieved a return of say $5\%$ per annum, it is fairly safe to conclude that property has had a beneficial effect on the fund over the period considered. However, if the equivalent annual return on the property portfolio had been say $7\%$ per annum and the remainder of the portfolio still achieved a return of say $5\%$ per annum, then I do not consider that one can conclude that the property assets have necessarily had a beneficial effect on the overall fund.

4.16 The major problem here is that the assumptions which are used to calculate returns can be easily forgotten and it is difficult to be sure that misleading conclusions will not be made from the figures as they stand. An example of this can be seen in some of the 'league tables' which are produced for various property unit trusts or insurance company property managed funds and which appear with little or no details of the assumptions used in deriving the figures or a warning about their interpretation.
5. RISK

5.1 In the United States a great deal has been written on the subject of risk-adjusted performance figures, and I am sometimes asked whether we produce returns with risk adjustments.

5.2 Unfortunately, the word 'risk' in this context can mean different things to different people. For example, it can be defined as the chance of a monetary profit or loss, the chance of a higher or lower return than the one expected or the chance of a change of investment values which is not matched by a corresponding change in the liabilities of the fund.

5.3 In the United States, the concept of a beta analysis is well known and its use is fairly widespread. We are now beginning to hear more of this on this side of the Atlantic. Rates of return of the fund and the stockmarket, as represented by some index, are plotted and a linear regression line is fitted using the least squares method. The slope of this line is beta. The idea is to choose shares with a beta greater than one in a rising market (i.e. the prices should rise more than the market in general) but to have shares with a beta less than one in a falling market since these shares would fall less than the market averages. Beta analysis has been widely linked with risk, but apart from the technical objections which have been raised against this work, it is not really related to risk as it is generally understood by U.K. pension fund trustees. Beta concentrates on the changes in asset values, but the contribution rates payable by employer and employee to a pension fund in the U.K. need have no regard to short term fluctuations of asset values, and asset values are only a matter of concern for those who wish to sell. For the foreseeable future, most final salary type pension schemes will be able to pay benefits out of income received from contributions and from investments and hence will not need to realize assets. Indeed, given this positive cash flow and the long-term nature of a pension fund’s liabilities, the problem is to invest as advantageously as possible in order to pay future benefits, and so low levels of security prices may represent a good buying opportunity.

5.4 In trying to evaluate a measure for risk for a pension fund, it is necessary to try to ascertain the risk free state against which to measure departures. In general most of the liabilities of a pension fund for members who are still in service are linked to changes in salary levels and only a small proportion of the liabilities is deno-
minated in monetary amounts. Even those benefits which are so
denominated, such as pensions in payment, may be subject to perio-
dic review by the trustees and the monetary amounts may be in-
creased. Therefore, these benefits are to some extent similar to the
salary related benefits for active members. Thus, in practice there is
probably only a small proportion of benefits of a fund which can be
quantified in money terms and which can be ‘matched’ by dated
Government fixed interest securities.

5.5 The ‘matched’ investment for the salary-related liabilities is
presumably some sort of investment whose value rises with salary
levels. Unfortunately, no such investment currently exists in the U.K.
If the corporate sector maintains its share of the Gross National
Product and is able to pay out to shareholders at least a constant
share of that GNP, then equities should provide an overall return
from capital and income which more than keeps pace with salary
rises. This expectation may not be realized and it depends on the
continuation of a ‘mixed market’ economy in a form similar to that
which exists today. A 100% equity portfolio can hardly be regarded
as the risk-free state for a fund, but I believe that it is nearer the risk-
free state than a fund which is totally invested in cash or fixed interest
securities.

5.6 It could be argued that property is a more suitable investment
than equities for matching salary-related liabilities. Property values
and rent have shown strong rises in recent years and property has the
advantage of being a tangible asset. However, in the long term
property may not show as high an investment return as equities. The
prices of goods and services are related to the costs which must be met
to produce those goods and services such as raw materials, energy,
rent, interest rates etc. I would therefore suggest that rents (and hence
property values) are likely in the long term to be closely linked to the
prices of goods and services. However, a pension fund’s liabilities are
linked to salaries and salaries tend to rise more than prices—the
difference in the long term being related to the real growth of the
economy. Property may still provide an overall return from income
and capital combined which keeps pace with salary-related liabilities.
If the growth in rents is in line with price increases, then the initial
yield on the investment must be at least equal to the long term real
growth in the economy. Property may also be vulnerable to changes
in shopping patterns, decreased use of offices with advancing tech-
nology and changes in the type of items manufactured. I would
submit that a fund which is totally invested in property is nearer the risk-free state than a fund totally invested in cash or fixed interest assets; but it is still some way from the risk-free state.

5.7 The problems associated with attempting to define the risk-free state emphasize that there is no simple way of measuring risk for a U.K. pension fund. It seems fairly clear that the use of measures for risk such as standard deviation and mean absolute deviation which are common in the U.S. are totally inappropriate in the U.K., because large fluctuations in asset values do not mean that the U.K. pension fund is running high levels of risk. Indeed, if one assumes that all of its liabilities are salary-related, a fund could show large fluctuations in asset values and yet still cover its liabilities providing that the returns on the investments were closely linked to the changes in salaries.

5.8 Further research is necessary into the complex concept of risk in the U.K. but it is unlikely that it will prove possible to devise a simple measure to enable any risk-adjusted performance figures to be produced.

5.9 My research into this topic has been concentrated on the variability of return about the median levels. Trustees tend to become concerned if their investment strategy is substantially different from the average and hence I have tried to devise some measures to see if relatively high or low returns for the long term are associated with relatively high or low returns in individual years. In other words is it worth the effort to maintain an investment strategy markedly dissimilar to the average?

5.10 In order to test this, the results for a fund for each year can be given a score which is derived by dividing the calculated return by the difference between the upper quartile and lower quartile results and ignoring the sign. The scores for individual years are then added and averaged. The scores can be compared with the calculated returns. So far the scores do not appear to be correlated with the returns, but it is probably unsafe to conclude that it is best to follow a close to average type of investment strategy. This type of test may appear to be rather unsophisticated but I have yet to be convinced that complex statistical tests would be more useful in this area. I have also developed other types of measures of variability relative to the median fund which attempt to identify the types of strategies followed by various managers and their reaction to changing market conditions. However, these studies have yielded little information that was unavailable from a less statistical and more general examination of the figures.
6. CONTRACTING-OUT

6.1 On 6 April 1978, the provisions of the Social Security Pensions Act 1975 came into force, and a new earnings-related State Scheme was set up. Occupational pension funds may be used to contract-out some or all of their members from these earnings-related benefits provided that the fund satisfies certain criteria. Basically the fund’s benefits must accrue at certain minimum rates and an overriding guarantee that the pension benefit will not be less than the guaranteed minimum pension (GMP) must also be given.

6.2 It is necessary to ascertain whether contracted-out schemes should pursue a different sort of investment policy from schemes which are not. If different strategies are followed, then this would have to be taken into account when making investment performance comparisons.

6.3 For contracted-out schemes, the Occupational Pensions Board (OPB) monitors the levels of self-investment and concentration. Self-investment means the investment of the resources of the scheme in the business of the employer or an associated company whilst concentration means the investment of more than 10% of the fund’s assets in one undertaking or in one property. The problems of self-investment and concentration are really similar for contracted-out and contracted-in schemes so far as measuring performance is concerned. In the case of self-investment, the investment manager may not be free to deal in self-invested assets in the same way as other parts of the fund and, if comparisons between the returns of various funds are being made, there is a strong case for excluding self-invested assets from the analysis. Concentration of the assets of a fund in a single enterprise means that the fund is more dependent on the fortunes of a single investment than is generally the case and therefore is taking a higher level of ‘risk’ than other funds. A higher than average level of risk should mean that a higher than average return is also expected. For the reasons discussed in section 5, there is no simple way of allowing for this risk by adjusting the calculated returns.

6.4 Apart from the possible problems of concentration and self-investment, I can see little reason why the general investment strategy of a pension fund should be altered following a decision to contract-out. For those who remain in service the GMPs will increase broadly in line with salary rises and will form part of the member’s pension
from the other scheme, which will itself increase with salaries prior to vesting. There are however additional complications which arise if a fund ceases to be contracted-out or when an employee leaves service prior to retirement.

6.5 If a fund ceases to be contracted-out it may make arrangements for the preservation or transfer of the GMPs (subject to the approval of the OPB). Otherwise it will be required to pay premiums to the State to buy back the members' rights. This is done by the payment of Accrued Rights Premiums (ARPs) for members under State Pensionable Age and Pensioners Rights Premiums (PRPs) for those currently entitled to a pension. These ARPs and PRPs are meant to represent the cost of providing the benefits for which the State Scheme is accepting liability and are currently based on the assumption that the 'normal' long-term yield on long gilts will be 9% per annum and the 'normal' dividend yield on equities will be 4% per annum.

6.6 Schemes are given some protection against short term investment fluctuations in market prices since the calculated ARPs and PRPs based on the 'normal' market conditions will be multiplied by a Market Level Indicator (MLI) to determine the actual premium payable. For ARPs, the MLI is made up of two components, based on the yields on equities and fixed interest securities respectively weighted in the ratio 65:35. The equity component of the indicator is taken as 65 times the ratio of 4% to the gross dividend yield on the Financial Times–Actuaries All Share Index. The fixed interest component of the indicator is derived from the Financial Times–Actuaries gross redemption yield of 25-year British Government Stocks with high coupons and converts the change in this yield from the 9% per annum (convertible annually) assumed for the standard table, into the corresponding proportional change in the price of a 13% coupon 25-year stock, and at the same time applies the weighting factor of 35. For PRPs the MLI is derived wholly from the yield on Government securities, in the same way as the fixed interest component of the MLI for ARPs, except that the gross redemption yield for 15-year instead of 25-year stocks is used.

6.7 There is therefore an investment strategy which can be adopted for that part of the fund which represents GMPs which will result in virtually no profit or loss from investment if it is decided to cease to contract-out. The GMP only started to build up as from April 1978, so that for many funds, the GMPs will only represent a
small proportion of the liabilities for a considerable number of years. Consequently, trustees of long established funds may well consider that their investment strategy will not be fundamentally altered by the decision to contract-out. They should, however, be aware of the ‘nil risk’ concept of a 65% equities 35% long-dated high-coupon gilts investment strategy for that part of the fund consisting of GMPs. The problem would clearly be of much greater significance for a new fund, starting now with no past service liabilities and accruing benefits which are not much greater than GMPs. In such a fund, the major part of the assets and liabilities would correspond to GMPs and it may be foolhardy to invest a substantial part of the assets in property or overseas equities.

6.8 When an employee leaves contracted-out employment, he will be entitled to a GMP for his service prior to leaving. In certain circumstances this GMP liability may be discharged by the payment of a Contributions Equivalent Premium to the State or by making a transfer payment to another contracted-out fund. In most cases, the GMP liability will remain in the fund. It is necessary to revalue this preserved GMP between the date of leaving and State Pensionable Age by one of three methods:

(a) In line with the general level of National Earnings.
(b) At 5% per annum compound (or in line with National Earnings if lower than 5% per annum) subject to the payment of a premium to the State.
(c) At 8\(\frac{1}{2}\)% per annum compound.

If the trustees adopt method (a), equities and property may be an acceptable investment medium for the liabilities, but the trustees may have a preference for fixed interest investment to cover their liabilities under (b) or (c).

6.9 Although I have argued that in general a decision to contract-out is unlikely to bring about a fundamental change in investment strategy of a fund, and thus causes only minor problems in performance measurement, there is one by-product of contracting-out that can result in more problems. Some actuaries have taken the view that they wish to be closely involved in the investment strategy followed by contracted-out schemes which they advise. This means that investment managers are not necessarily free to pursue what they consider to be the optimum investment strategy. Since the investment strategy decision has tended to be the most important influence on a fund’s
performance in the past decade, most of the investment manager's job should be concentrated on getting this decision correct. If the decision is taken away from him, then I would question whether it is worthwhile paying the high fees involved for investment management. Indeed, I would also question whether the actuary should be closely involved in selecting the overall investment strategy of a fund. Do actuaries really have sufficient knowledge to advise in this area?

7. PRACTICAL RESULTS FROM INVESTMENT PERFORMANCE ANALYSIS

7.1 Data has been collected from a group of U.K. pension funds since the start of 1970. The size of the sample has increased from twenty-five funds in 1970 to one hundred and fifty funds in 1978. Almost all of these funds provide pensions on a 'near final' salary basis and those which do not, grant bonuses to active members and/or pensioners, and are invested according to the same type of general investment policy as applies to the 'near final' salary funds. Only a very small number of funds have any legal restrictions on the proportions invested in fixed interest assets and equities and the remainder have freedom of action in this respect.

7.2 The calculations for these funds have been performed on the linked internal rate of return basis (using periods of one calendar quarter) which, as explained in section 2.5, is an approximation to the time-weighted rate of return method. Property assets have been excluded from the calculations together with any assets for which accurate and consistent market values cannot be ascertained. Comparisons are made on an inter-fund basis, but currency loan arrangements are excluded from the comparisons for the reasons discussed in section 4.8.

7.3 Although ideally it would be preferable to have access to a larger data base, particularly for the earlier years, it is still possible to carry out several analyses and statistical tests on the available data over the nine-year period to the end of 1978.

7.4 The composition of pension fund portfolios has changed over the period of our analysis. The property content has approximately doubled from about 8% of the total fund in 1970 to 16% of the total at the end of 1978. (The actual magnitude of the numbers depends on the method of valuation used, but the figures are only intended as a broad guide). The fixed interest portfolio in 1970 commonly con-
tained large holdings of company debentures and loan stocks which consisted of about 8% of the fund, but at the end of 1978, only a few funds held these stocks. In the fixed interest section, pension funds now tend to hold a mixture of British Funds and cash and make substantial changes in the relative proportions of these two constituents as their view of the market alters. This change in composition has occurred despite the fact that the return on debentures and loan stocks has on average exceeded that on gilts by about 2% per annum.

7.5 In the equity sector, the proportion invested in overseas equities has increased slightly over the nine-year period but about seven-eighths of the equity portfolio was still invested in U.K. shares at the end of 1978. The use of 'in-house' vehicles for overseas investment and other more specialised areas of investment such as small companies has increased. It is now relatively common to find that an equity portfolio consists of between 30 and 50 shares in the larger companies together with a couple of 'in-house' unit trusts.

7.6 In the earlier years of the analysis, it was not uncommon to find funds which were prepared to adopt an investment strategy (i.e. the proportions of a fund allocated to fixed interest and equity assets) which was markedly dissimilar to that of other funds. Then came the falls in security prices in 1973 and 1974, followed by a substantial rise in prices in 1975. With such large swings in market values, the penalty for adopting an incorrect strategy could be high, and since then there has been a tendency to maintain strategies close to those of other funds and funds have avoided going out on a limb. Indeed, at the end of 1978, almost one-half of the funds had between 60% and 70% of their assets (excluding property) invested in equities. The adoption of investment strategies close to that of the median fund is probably encouraged by the 'house policy' of institutions. To ensure that clients of an institution do not have different performances merely because of the choice of the individual fund manager within that institution, the overall investment strategy for all discretionary pension funds is usually set by the institution.

7.7 The lessons of 1974 and 1975 have also caused trustees to alter their expectations about trying to achieve well above average performance. Many are now content to be fairly close to, and preferably slightly above, average in each year rather than be the top performer in one year followed by another year in which they have the lowest return.

7.8 A noticeable feature is the 'rigidity' of investment managers in
their investment strategy. ‘Rigidity’ here is not meant in the sense that they are not willing to suggest changes in the proportions allocated to the various different types of investment, but that managers tend to maintain a fairly constant position compared with the median fund, that is whatever the market conditions, individual funds tend to hold a relatively high or low proportion in equities.

7.9 Approximately three quarters of the returns on the U.K. equity portfolios of the funds in the sample over the longer periods were below the return on the Financial Times–Actuaries All Share Index calculated inclusive of income but with no allowance for any expenses. The practical consequences of 7.8 and 7.9 are discussed in section 8.

7.10 One conclusion which is fairly easy to reach on examining the data is that there is no single investment manager who has managed to consistently outperform his rivals. For example, on taking the nine year period 1970–78, the two funds with the highest returns over the whole period both managed to achieve annual returns above the medial level in seven of those nine years. The fund with the lowest overall return for 1970–78 has four annual returns below the median and five above it and the fund with the second lowest return only had two annual returns below the median level and seven equal to or above it. On taking a shorter period such as 1973–78, the top performing fund has four returns above the median level and two below, whilst the bottom performer has three above and three below. Furthermore the spread between the upper quartile level and the lower quartile level for the combined period results is relatively small compared with the wide range of the results for individual years. Although I would not wish to suggest that there is no such thing as investment expertise, I think that it is not quite so extensive as some investment managers may like their clients to believe, and we are having a lot of difficulty in locating it!

7.11 It is possible to devise many statistical tests to see if a link can be established between the returns on a fund and other factors such as size of fund, level of cash flow, type of manager, etc. Some of these tests have been carried out using an assumption of normality and this may not actually be valid. The tests do depend to some extent on the level chosen for ‘significance’ and the 5% level is normally used, but even tests at the 10% level are not likely to lead to a material change in the conclusions.

7.12 The findings are essentially negative. It has not, for example,
proved possible to locate any strong link between the return on a fund and its size, or between the return and the type of investment manager. For a calendar year, the returns achieved by an investment manager on different portfolios may be closely grouped, but this is hardly surprising given the ‘house policy’ of institutions mentioned above. As the time period is extended this link becomes weaker and is not noticeable over the longer combined periods. Similarly, for short periods, funds with high cash flows tend to do well when security prices decline and the converse is seen in times of rising prices. However, no significant link has been detected between cash flow and returns over longer periods.

7.13 For periods prior to 1978, data was not stored in a form which enabled a detailed analysis of turnover and activity to be performed (Activity within a sector of a fund may be defined as the lesser of purchases and sales divided by the mean value of that sector, i.e. the proportion of the sector which is switched. Turnover is the sum of purchases and sales divided by the mean sector value. This is the net investment or disinvestment as a proportion of the mean sector value plus twice the activity rate.) However for 1978, it was interesting to see that activity and turnover did not vary greatly according to the size of a fund. Larger funds tended to have slightly higher turnover and activity rates for gilts and slightly lower rates for equities. It is, however, too early to draw any conclusions from this.

7.14 The results of the statistical tests carried out by Holbrook and reported in his Institute paper were also essentially negative. It is difficult to know why this is so. The 1970s have brought very different investment conditions to those of previous decades, but the large changes in security prices have given investment managers a great deal of opportunity to obtain large gains merely by the correct manipulation of the proportion held in equities and fixed interest assets. Perhaps some of the problem stems from the fact that funds have maintained portfolios which are invested two-thirds in equities and one-third fixed interest assets over a period in which fixed interest assets have produced higher returns than equities. ‘House policy’ could be another contributory factor to the absence of ‘significance’ in the tests.

8. ASSORTED TOPICS

(a) Choice of investment manager

8.1 Measuring the investment performance of pension funds has
led to work in many associated areas. Trustees often require advice on the factors which they should consider when assessing the merits of various institutions as potential fund managers.

8.2 When actuaries began to measure investment performance of pension funds in the early 1970s, they probably hoped that their analyses would highlight those institutions, or at least types of institution, which had produced a consistently good performance in the past and that this would be a pointer to future good performance. However, as mentioned in section 7, it is clear that in the sample discussed above no one investment manager has consistently outperformed his rivals, and that for longer periods to the end of 1978 the returns for funds managed by various managers are very tightly grouped around the median. Hence, although future performance is probably the most important factor to assess correctly when selecting a fund manager, it is difficult in practice to attach much weight to the past performance of the manager.

8.3 It is often possible to determine the type of performance that will be achieved, since investment managers usually maintain similar overall strategies for the funds under their management. For example, some managers have kept a relatively high exposure to equities throughout the varied market conditions of this decade, whilst others have kept their asset distribution close to that of the average fund in each year. Since the choice of strategy has tended to be the dominant feature in assessing performance, the former strategy is likely to lead to comparatively high or low returns in individual years whilst the latter strategy may lead to returns which are close to the average in each year. The trustees need to decide if they like an exciting ride, or whether they wish to sleep more soundly each night by staying close to the averages.

8.4 It is interesting to note that few trustees who change investment managers cite relatively poor investment performance as the main reason. Loss of confidence in the individual responsible for the fund is probably the most common reason, and relations between the fund and the institution can quickly deteriorate if there is a succession of more and more junior executives appearing at trustee meetings. Inefficient administration is often a further cause of complaint. In reality, it is perhaps a combination of factors, and a poor short term return may be used as the final weapon to terminate the relationship.

8.5 There are many other factors which can be taken into account when looking for a new manager but I shall restrict my comments
here to just a couple. One of the major points of difficulty which does require considerable clarification at the outset is the sources of remuneration of the investment manager. Some managers receive all their remuneration from a fee, usually related to the market value of the portfolio, and believe that the manager should avoid possible conflicts of interest by restricting his activities to the supply of investment advice. Some managers, e.g. stockbrokers, receive no direct fee but do obtain commission for transactions on behalf of the fund. In effect this is a turnover-related fee, but its size can be easily measured by the pension fund. Other institutions (e.g. some merchant banks) charge a fee related to the market value of the portfolio, but also can derive additional remuneration from other sources such as dealing, cash deposits and 'in house' unit trust transactions. The main problem here is that the client cannot determine the overall remuneration received by the manager since he is not always aware of the sources of such remuneration and cannot usually ascertain the amounts received from dealing and from cash deposits. It is perhaps time for such institutions to modify and simplify their charging structures so that the pension fund can see what remuneration is being paid to the investment manager. In addition, institutions often have many varied areas of activity and it is necessary to ensure that the pension fund is fully aware of any potential conflicts of interest.

8.6 Once the investment manager has been appointed, it is important to ensure that all the details of the arrangements between client and manager are set out in a letter of appointment or mandate. Whilst many companies would not dream of conducting business even on a small scale without written instructions or a formal contract, it is surprising how many trustees are quite happy to entrust millions of pounds to an institution without such formal instructions. I am sure that this reflects the respectability of the City institutions, but in my opinion, considerable problems or misunderstandings can arise over what has previously been agreed, the sources of remuneration and the steps which are to be followed in the event of a possible conflict of interest situation. To my mind a letter of appointment is merely a sensible procedure which does not cast doubt on the respectability of the investment manager.

(b) Multiple managers

8.7 One problem which commonly arises is the subject of whether to split the investment management of a fund between two or more
Stock Exchange security managers. There may be many reasons for considering the division of the assets of the fund. For example, there may be some dissatisfaction with the existing manager, and an element of competition may be considered desirable to try to improve matters.

8.8 Even if two or more investment managers are chosen at random, the effect of splitting on the overall fund’s performance is likely to be to reduce the chance of a relatively good or bad performance in an individual year and increase the chances of a return close to the average. This is because each manager is likely to pursue a different strategy. A close to average performance can be obtained without splitting by an appropriate investment strategy, but the competition introduced by splitting may mean that each of the portfolios gets more attention from the investment manager than they would devote to the fund if it was solely in their management. This increased attention may not be desirable if it leads to an increased level of activity in the portfolio, for the reasons mentioned in section 8.17.

8.9 Although splitting does give the fund the benefit of two or more opinions and often two or more areas of specialist knowledge, the trustees of a fund have the problem that each investment manager will suggest a different investment strategy. As the investment strategy is usually the dominant factor in overall performance, it is difficult if not impossible for the Trustees to do other than just accept each manager’s strategy and allow him to implement it. If the trustees attempt to strongly influence the strategy, then they are taking away from the managers the most important decision, and reducing the competitive element between the two managers. It is also difficult to assess the relative abilities of the two managers in such cases if the managers can reasonably argue that they are not solely responsible for the performance of the fund. However, if investment managers are allowed to adopt their recommended strategy, the overall strategy of the combined funds is determined as a by-product. Splitting also means that at times one manager may well sell a particular share at more or less the same time that the other is buying it, and hence the fund as a whole merely loses by the amount of the expenses. Splitting also increases administration and duplicates the number of meetings between trustees and investment manager (on the assumption that the trustees would wish to keep the same degree of contact with each manager as they would for a single manager).

8.10 The case in favour of splitting would be much stronger if
small funds tended to outperform larger funds, since a small fund could be expected to be more manoeuvrable than a large fund and take better advantage of changing market conditions. I have not found this to be the case, possibly because investment managers generally have a 'house-policy'. 'House-policy' is an overall strategy which is determined by the institution for all the discretionary pension funds whether small or large, and hence is likely to lead to fairly similar performances of funds irrespective of size. In addition because an investment manager may well act for a large number of funds, it is difficult for him to exploit changing market conditions for each small fund under his management, since to do so he would still have to buy and sell fairly large quantities of securities.

8.11 I would not wish to suggest that splitting the assets of a fund is necessarily undesirable, but I do feel that many of the arguments that are conventionally forwarded in favour of splitting are overstated and that insufficient attention is often given to the case for using a single manager.

(c) 'In-house' funds

8.12 One conflict of interest situation which is often referred to the actuary is the 'in-house' unit trust or investment vehicle. These are becoming increasingly common and are usually formed by the investment manager for his discretionary pension fund clients in order to invest in property, smaller companies, overseas equities, commodities, and other specialised areas of investment. The charges levied by the investment manager on these vehicles are usually higher than the scale of investment management fees which the client normally pays and may include a substantial initial fee which is part of the unit fund buying price (often called a 'front-end load').

8.13 The advantages of a unit trust for the smaller fund which enable it to spread its investments are well known, but in many cases these 'in-house' vehicles appear in portfolios with a market value of over £25 million and can consist of a fifth or more of the market value of a fund. From the institutions' viewpoint, it is far easier to invest all the money for say overseas investment in one or two 'in-house' vehicles rather than to maintain an individual portfolio of overseas equities with perhaps an associated currency loan for each fund. The pension fund client may also welcome the reduced administration but he no longer has complete control over the underlying investments of his fund and may not feel he needs to invest in a unitized vehicle in
order to obtain a sufficient spread of overseas investments. If the pension fund client subsequently changes his investment manager, it is likely that the new manager would not wish to retain the ‘in-house’ vehicles of the previous manager and hence the expenses associated with sale and reinvestment have to be met. Whilst it is necessary to explain the various problems associated with these vehicles to the trustees of the pension fund, it is ultimately up to the trustees to make a policy decision on whether to hold these assets, but the ideal solution would be for the conflict of interest situation not to occur in the first place.

(d) Index funds

8.14 Over three-quarters of the funds reviewed achieved a lower return on their U.K. equity portfolios for the longer combined periods to the end of 1978 than the return on the Financial Times–Actuaries All Share Index adjusted for dividends but with no allowance for expenses. This result is rather disappointing given all the time and effort which is expended on company research by investment managers.

8.15 One reason for this result may be the ‘two-tier’ stockmarket which exists in the U.K. Institutions, including pension funds, favour investment in a selection of the top 150, or possibly 200, largest companies which offer a reasonable level of marketability. Smaller company shares are often ignored by pension funds, despite their relatively good performance compared with larger companies in recent times.

8.16 Furthermore, as studies reviewed by Henfrey, Albrecht and Richards have suggested, the available information for the larger U.K. companies is reasonably discounted in the share price, since these are well researched. Hence it is difficult to enhance the portfolio return by switching ‘institutional’ equities, given the large dealing expenses involved.

8.17 Turnover may therefore act to reduce rather than improve performance but there are reasons why equity turnover could occur even if this was the case. Whatever statistics show, a number of investment managers believe that active management of the equity portfolio (i.e. a high level of dealing) is beneficial to performance. Some managers also unfortunately derive all or part of their remuneration from the pension fund from dealing and hence there may be some incentive not to stay inactive. An investment manager may also
be criticised for not attending closely to the affairs of a pension fund if that manager is not reasonably active.

8.18 If a policy of frequent buying and selling of equities is pursued, I believe that the onus is on the investment manager to demonstrate to his client that an active dealing policy is beneficial and is better than a passive approach. Although investment managers naturally extol their abilities to select equities, they are usually somewhat vague if asked to specify the tests which they employ to measure the benefits of selection, let alone specify the benefits in quantitative terms. As part of the statistical tests set out in section 7, I would have liked to examine the returns on U.K. equity portfolios compared with the levels of turnover activity. Unfortunately for years prior to 1978 data was not stored in a format to enable this to be done but it is an area which will be closely examined in the future.

8.19 On the other side of the Atlantic, approximately three-quarters of U.S. equity portfolios managed on a discretionary basis have similarly failed to outperform the market index (in this case the Standard & Poors 500 Index) over periods of several years. The U.S. stock market is considered to be ‘efficient’ (i.e. the available information about the share is reasonably discounted in the share price) and this ‘efficiency’ probably covers a far greater number of companies than the 150 or 200 mentioned for the London Stockmarket. Against this background many pension funds have given up the battle to outperform the market averages and instead have decided that it would be preferable to lower their expectations to a close to market average equity performance coupled with a much greater chance of achieving this result. Hence, in the U.S., there has been a very rapid growth in the ‘Index Fund’.

8.20 Index funds can be very varied in character depending on the parameters set. Generally speaking, index funds are designed so that they only purchase (and occasionally sell) equities according to some preset formula and do not employ normal investment selection techniques. Although the goal may be the return on an index such as the Standard & Poors 500 Index, various index fund managers will employ different numbers and selections of shares in their portfolios, and alter their portfolios by buying and selling at varying times, in order to try to get their performance as close to the goal as possible. The size of the new moneyflows into pension funds mean that the volume of selling in an index fund is usually very small.

8.21 In the U.S., market practices have materially assisted the
growth of index funds. Stockbrokers’ commissions are negotiated and are very low, and brokers are able to supply shares to the index fund at prices close to middle market prices as it is known that the index fund will not exercise any investment selection against the market, but will invoke transactions on the basis of a predetermined formula.

8.22 The volume of indexed funds in the U.S. trying to track the Standard & Poors 500 Index is so large that indexed funds are now being set up to match the performance of groups of shares which are not included in the 500 Share Index, on the grounds that the prices of the constituents of the 500 Share Index have been artificially forced out of line with the remainder of the stockmarket.

8.23 Will the U.S. experience be repeated in the U.K. in the next few years? I am fairly convinced that the answer is yes, although it is unlikely to catch on to the same extent as in the U.S. There are several reasons why I believe this to be the case. Statistics are more readily accepted as a way of life in the U.S., but in the U.K., whatever the statistics show, many trustees and institutions may find it difficult to accept that a conventional actively managed portfolio of equities is likely to underperform a passive indexed portfolio. The charging structure of institutions may give them no incentive to set up an indexed fund as a change from discretionary to indexed management is likely to mean a much lower level of remuneration for the managers. Furthermore, the expenses of dealing are higher in the U.K. than in the U.S. and commissions cannot at present be negotiated with stockbrokers. Therefore, the U.K. index fund would tend to underperform the chosen index slightly, since significant expenses would be incurred on the investment of new money, whereas in the U.S. a return close to the index can be achieved.

8.24 In the U.K. very little work has been done on the sampling techniques which could be employed to pick a selection of shares which would closely track the Financial Times–Actuaries All Share Index. Until this work is further advanced, the only practical solution if an indexed portfolio is required appears to be to buy as many constituents of the Index as is possible (assuming that the aim is to match the performance of this Index). Indeed, I know of one fund which actually set up an indexed portfolio of equities (now valued at £25 million) in the first quarter of 1979 intended to track the Financial Times–Actuaries All Share Index performance, but this fund has also retained a conventionally managed equity portfolio. The actual
movement from the usual fifty stock equity portfolio to an ‘indexed portfolio’ needs careful consideration, so that the initial effect of indexation does not mean large expenses as the number of shares in the portfolio is increased. Perhaps one solution may be to do little or no selling of existing shares and add new shares as new money arrives. In this way it would take some time to arrive at an indexed portfolio, but this route may be preferable to meeting the costs involved in an immediate switch. At least, the index fund has arrived in the U.K., and is probably here to stay.

8.25 Indexation may be unacceptable to some funds, but many other strategies could be considered to try to achieve an equity performance at least in line with the market averages. One of these could be described as a ‘buy and hold’ strategy. Since a pension fund is a long term investor and has no need to realize securities in the foreseeable future, equity research could be concentrated into identifying those shares which offered the best long-term prospects for overall appreciation (capital and income combined), and the new money could be invested there. No attempt would be made to reorganize the existing portfolio on the grounds that it is unlikely to be possible to cover the expenses of switching present holdings due to the ‘efficiency’ of the market in the larger companies. If the holdings are of smaller companies, then there may be a case for varying the policy and selling some smaller companies and buying others, as the smaller companies are not as well researched and the available information on them may not be adequately discounted in the share price. This subject is discussed in the paper by Henfrey, Albrecht and Richards.

8.26 As previously mentioned, pension fund portfolios are usually concentrated in a selection of the top 150 or possibly 200 companies. Another strategy that could be adopted is to purchase some shares in smaller companies. Institutions with many clients would find it difficult to research an adequate number of smaller companies given the difficulties of actually buying shares in the smaller companies and the problems of keeping the total holding of that institution below a level where it was necessary to get deeply involved in the management of the company. From the individual fund’s viewpoint, the reduction in marketability of a small proportion of the fund resulting from the purchase of small companies shares is probably acceptable, since there will be no need to realize securities to pay benefits for many years. Even with these difficulties the principle of buying smaller company shares is probably worth pursuing.
8.27 My investment manager friends may be displeased, or even dismayed by my comments in this section, as they may be taken as casting doubt on their ability to do their jobs. Such criticism is not intended, but I am saying that as the market becomes more and more dominated by institutions their job is getting increasingly difficult and it is going to become even more difficult to achieve good relative returns on a pension fund portfolio. Hence, it is necessary to examine alternative investment strategies to cope with changing conditions.

9. ACKNOWLEDGEMENTS

Although this paper is based on my practical experience in this area over the past five years, many of the concepts and ideas which are outlined in the paper have been originated by colleagues and others. In particular, I have worked closely with Colin Lever who pioneered the first measurement service for U.K. pension funds and has been involved with the theory and practice for over a decade. However, the opinions set out in the paper and of course any errors are my own.

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