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Investment Strategy

WHAT IS STRATEGY?

It will come as no surprise, having read the title of this book, that it is going to deal with investment strategy, and a particular approach to investment strategy at that. Before we dive into our deliberations, however, it might be a good idea to consider briefly what strategy is, or should be, since I have been continually surprised over the years to find the basic concept so widely misunderstood.

In his classic work *On War*,[1] Von Clausewitz points out that strategy must have a tactical result in mind, which in turn is a means to achieving its ultimate objective. In military terms – the field in which strategy was most often applied until recently – this means that, to use his words, strategy has victory as its desired tactical outcome, which is the means to achieving the strategic objective, which is peace. My own definition of strategy would be: 'an action plan designed to achieve specific objectives', which I think is consistent with Von Clausewitz's view.

Considerable confusion arises as to the difference between strategy and tactics, particularly in the world of investment, and this is such an important distinction that it is worth taking a little time to consider it, since it is in the failure to distinguish between tactics and strategy that most corporate 'strategic plans' fall down.

Tactics are the steps laid out in the action plan which, if properly carried out in the proper sequence, are designed to lead to the objective being achieved. Strategy is the totality of the whole process, which needs to take a broad view of the whole environment within which the plan has to operate, rather than the individual circumstances within which a particular action takes place. All too often one sees a particular approach being cited as a 'strategy' when it is not; it is an individual course of action that should be performed within the framework of an overall long-term plan, not seized upon as the totality of what is

[1] Penguin Books, London, 1982.

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required. To go overweight in Japanese equities, for example, is not a strategy, though it may frequently be represented as one. It is a tactic. Whether or not it is successful must be judged by how well it helps to achieve the overall objective, whatever that may be.

I do not have the original German text available, but I suspect that what is translated in the English version as 'a tactical result' may well be one of those compound German words that could be equally well interpreted as 'the result of tactics'. It is these individual tactical results that form the stepping stones by which we cross the river and achieve our objective of reaching the other side.

I introduced the phrase 'long term' deliberately since I think this is another valid distinction between tactics and strategy. Tactics often take the form of fairly instant action (the shifting of troops from one part of a battlefield to another) whereas strategy implies something that will take place over time (the winning of a war by the successive outcomes of a whole series of battles). In investment terms this is often a stumbling block, with most investors being obsessed with the cult of annual returns and short-term results, rather than recognising that investment objectives are essentially long term, and that individual annual returns within any given period are at best a distraction, and at worst immaterial, and we will be returning to this point in much more detail at various times.

So, if we can adopt as a working assumption the concept of strategy as an action plan designed to achieve specific objectives over time, then we can turn our attention to what investment strategy is, or should be. There are two parts to the exercise. We need to analyse our environment and identify our objective, and we will be covering this first part of the exercise in this chapter. In the following chapters we will be looking at what steps we might take to achieve our objective.

WHAT IS INVESTMENT STRATEGY?

As we have already seen, strategy does not operate in a vacuum. It can only be formulated with regard to the specific objectives to be achieved, and to the environment in which we find ourselves. The objectives must be precisely laid down so that there can be no possible misunderstanding about what they are, or what has to happen for them to be judged to have been achieved. They must be realistic, having regard to the environment, since there is no point in setting a strategic plan that

cannot succeed, having regard to all the surrounding circumstances. Most of all, they must be *vital*.

It is possible for an investor to think of many things he or she would like to achieve. To plan successfully, however, we need to clear away the mental clutter and identify those things that absolutely *have* to be achieved, things which, if not achieved, would perhaps threaten the very *raison d'être* and survival of the organisation. It is these things (and preferably just one thing, so as to allow total focus upon it) that will drive the investment strategy. This will form the end to which whatever tactics we lay out in our action plan will be the means.

Let us think in terms of an institutional investor. The institution may take many forms, but we will usually be adopting an occupational pension plan as our model for illustrative purposes. What does a pension fund absolutely *have* to achieve? I think the answer is obvious: a pension fund must be able to meet its liabilities to pensioners as they fall due. This is the only thing that matters, and everything else must be subordinated to it. This is the strategic end to which we need to find the means.

The objective has been identified. However, as yet it is stated in very general terms. We need to analyse further exactly what it is that needs to be achieved in order for our strategy to be judged to have succeeded. We need to think about the length of period over which our strategy needs to operate. We should try to understand how the objective fits into its surrounding environment. All of this will, of course, be done where possible by reference to the circumstances of the individual investor.

One final point before we move on. Strategic planning is a rational process. It requires the rigorous application of logic, and the ruthless suppression of emotional responses. Logic can be cruel and can produce unpleasant conclusions, but the fact that they may be unpleasant is not a reason for ignoring them. Throughout this book we will be attempting to find a simple starting point grounded in the real life circumstances of real world investors, and then to use logic to arrive at the correct outcome. There is no room in this process for blind prejudice. In particular, there is no room for unthinking support for, or dislike of, a particular asset class. We must be prepared where necessary to think the unthinkable, and not shirk from questioning accepted notions as illogical, even where these may have assumed the form of religious dogma. I ask you to bear this point in mind particularly when we consider the concept of risk in later chapters.

PLANNING TO ACHIEVE THE OBJECTIVE

1. Real and Artificial Liabilities

A pension fund has a stream of liabilities stretching out before it into time. It seems logical, therefore, to suggest that when a pension fund begins to plan its investment strategy it needs to think in these terms: cashflows over a long period. Unfortunately we immediately encounter an apparent problem here as pension funds do not exist in isolation. They are attached to a sponsoring employer (sometimes several sponsoring employers) and these have issues of their own which require them to take a very different view. It is most important that we should understand why this is, and why we need to keep the two totally separate.

Briefly, sponsors tend to deal in artificial liabilities whereas pension funds, which have the obligation of actually paying liabilities as they fall due, cannot afford to do this. Their planning process must be based on real liabilities. Unfortunately in practice the difference – and, in many cases, the conflict of interest between the sponsor and the pension plan – is often fudged, and the pension plan finds itself looking at discounted figures that are convenient for the sponsor's accounting purposes, but inappropriate for the pension fund's planning purposes.

This is not intended in any way as a criticism of those corporations and public bodies who sponsor pension plans. It is simply that their needs and requirements are separate and different. This ranges from the obvious to the relatively subtle. It is obvious that a company cannot make additional contributions to its pension fund without depriving either commercial projects of working capital or shareholders of dividend income. Similarly a Local Authority, say, cannot increase its pension fund contributions without either diverting money from public spending programmes (health, education, policing, etc.) or raising additional taxes. Thus in both cases the sponsoring organisation faces a conflict between the interests of different groups, to all of whom it owes a separate duty. That is not their fault. It is rather their misfortune that they are required to play God and attempt to resolve these conflicts of interest in the least objectionable way.

It is not so obvious that sponsor and pension plan should view the stream of future liabilities in different ways, because each is subject to different imperatives. For the sponsor, any deficit in the pension plan is both technically and legally a debt owed by the company to the pension fund. Their need is to find a figure to place in their accounts,

in respect of this liability, that is both as low as possible and acceptable to their auditors. This need has been met by the introduction of 'new world' accounting standards (FRS 17 in the UK, but similar schemes have been introduced both in the USA and in some European countries, the latter under the aegis of a European Union standard) which bring consistency and uniformity.

Both of these are admirable qualities in their own way and in the right context – and the world of financial accounting is undoubtedly such a context. Nobody can disagree that it is surely a good thing if all pension fund sponsors are required to account for their pension liabilities in the same way. Unfortunately, however, there is always a trade-off inherent in such situations, and here consistency and uniformity have been achieved at a price. That price is real world accuracy, and it is this lack of real world accuracy that makes them unsuitable for use by the sponsored pension plan.

All these accounting standards work in the same way. They look at the liabilities of the pension fund (and, arguably, not all the liabilities but only those that have already vested) and then discount them, usually by the relevant Government bond (Gilt) rate. Now, that is all very well for accounting purposes. Indeed, it is difficult to think of any way of treating them for accounting purposes that does *not* involve discounting. I have no problem, therefore, with FRS 17 and similar schemes as accounting standards.

Therein lies the crux of the problem, though. I take no issue with them *as accounting standards*, but the problem is that pension funds forget that this is what they are. Worse, it never seems to occur to them that not only are they accounting standards, but accounting standards of third parties. They do not apply to pension funds, but only to organisations that sponsor pension plans. Pension funds should simply ignore them as irrelevant when embarking upon their own planning process.

The conflicts of interest inherent in the system to which I refer above show graphically the importance of sponsor and pension plan being viewed totally separately[2] and this is a wonderful illustration of one

[2] Sadly, the UK Government does not agree and has recently passed a new Pensions Act which, rather than sweeping the conflicts away by requiring the appointment of independent trustees and in-house investment professionals, as recommended by the Myners Report, decided instead to perpetuate the existing conflicts by requiring that potentially all the trustees of a scheme should be either employees or directors of the sponsoring company.

specific example of this. A pension fund needs to know exactly what its future liabilities are likely to be. It needs to know, so far as is possible, the actual amounts and dates of future cashflows. It needs to consider future liabilities that have not yet accrued, not just the net present value of present liabilities projected into the future. I hope it will be clear from all this that FRS 17 and the like may do a great job as accounting standards, but as investment planning tools they are useless – worse, misleading.

All of which is rather a shame, because in the talks I have had with pension trustees and managers in the preparation of this book, they all seemed simply to be adopting the sponsor's accounting position and assuming it as their own. It did not seem to occur to them that their responsibility was to their members and to their liabilities, and not to the sponsoring employer. It is not their job to cause the sponsor as little trouble as possible. It is their job to safeguard the pension funds' abilities to pay all future liabilities as they fall due.

In all of these discussions, they were all able to tell me more or less instantly what 'their' obligations were under FRS 17 (these discussions all took place in the UK). Yet none of them was able to say what the real liabilities were, or what shortfall this implied in the overall funding of the scheme. Of course FRS 17 does not state 'their' liabilities at all, but the accounting treatment of the liabilities of the sponsor. My recognition that they seemed incapable of distinguishing between the position of the sponsor (a third party for their purposes as trustees) and the fund, and between an accounting position based on discounting and a real life situation based on actual liabilities, was one of many moments during the preparation of this book when I felt the mental equivalent of a bucket of cold water being poured over my head. (Another was when the NAPF released figures showing that the average UK pension trustee spent just four hours a year discussing investment matters. One pension professional told me: 'I'd be happy to get their attention for half of that'!)

So what we need are the real figures, the actual liabilities, not just a single figure that has been artificially arrived at – 'artificially' in the sense that it has been discounted on some arbitrary basis. I do not mean to imply that all systems that discount pension liabilities are simplistic; far from it. Some consultants have extremely complex models and, indeed, it was these very models that first drew attention to the staggering scale of the deficits to which many pension schemes are currently subject. Yet they all operate by discounting, and as part of

this discounting process they take account of notional investment performance during the period under review. This is the essential and fundamental problem with the system, and the one factor above all that condemns the strategic planning of pension funds as artificial.

We need to plan to achieve our objective. Our objective is to meet our liabilities as they fall due. We also need to calculate what target rate of investment return is required during the period under review to enable us to do that. We then need to plan our asset allocation in such a way that the target rate of return can be achieved. This is the crux of the matter, and where I part company intellectually from all that seems to be happening in practice.

In practice, it seems that the fund's rate of return is assumed to be a 'given', fixed and immutable. Either it is plucked out of the air as an arbitrary figure (for example, the Gilt rate used by FRS 17, or perhaps as some margin over the Gilt rate, or over inflation) or, at best, assessed on the basis of the fund's existing asset mix. This is nonsense. The target rate of return determines the asset mix, not vice versa. The target rate of return is not fixed and immutable; the asset mix operates as a dial on the dashboard which can be turned one way or another to alter the rate of return. It is not an arbitrary number; it can only have any meaning if it is calculated as the rate that will allow the fund to meet its liabilities. The present system is a perfect example of the tail wagging the dog.

Nor is it strategy. We need to be proactive, not reactive. Strategy is about planning how to shape the future as we would wish it to be. The present system consists of little more than being swept along passively by events.

2. Mapping the Liability Cashflows

Let us assume that we have finally got our hands on the real figures. We can now simply map these out into the future. What I have in mind here are the net outflows of the fund.

It may be convenient to think about this as a projection into the future of the fund's financial statements. These will show (1) the level of contributions (and value of transfers in), (2) the cost of administering the scheme and (3) the level of benefits payable (and the cost of any withdrawals). For example, the publicly available accounts of the London Pension Fund Authority for 2003/4 show:

	£000
Contributions and transfers in	141 066
Costs of administration	4 040
Benefits payable and withdrawals	198 780
Net liabilities before investment return	(61 754)

There are two things to note here. Firstly, we have stated the liability position before considering the effect of investment performance. Note please that this is not a term that appears in the accounts, and the omission shows that this is not the way in which pension funds have been encouraged to think about their financial position. This is highly significant because only by viewing accounts in such a way can they be used as a platform for investment strategy, rather than as a matter of financial record.

Secondly, the LPFA is already in a negative cashflow position before the impact of investment performance. In other words, the cost of benefits payable exceeds the value of the contributions which it is receiving. This is in fact typical of the current position of occupational pension funds in the UK, as may be seen from their membership profile. Scheme members may be thought of as 'active' if they are still in employment and having contributions made for them. The others are either 'pensioners', in which case they are retired and are receiving benefits payable by the fund, or 'inactive' (sometimes called 'deferred'), in which case they have left the employment of the sponsor but have accrued rights that will kick in at some date in the future when they retire. The LPFA's 2003/4 membership breakdown was broadly typical of UK pension funds:

Members	*% of total*
Current	29
Inactive	27
Pensioners	44

Thus it is hardly surprising that the cashflow situation is negative. Positive cashflow is attributable to just 29% of the membership, while negative cashflow is attributable to 44%. Given anticipated demographic changes and the fact that there will be a steady movement of 'inactive' members to 'pensioner' status, then this situation can only get worse.

Now imagine that we can give these figures not just for the current year but for future years as well. Why should this be so difficult? Companies which come to a public stock market by way of a flotation (IPO)

are required to make such projections, usually for at least three years, and all companies routinely make such projections both for the purposes of their own internal strategic planning and for use by financial analysts. In fact, I would argue that it should be easier to do in the case of a pension plan than in the case of a company. The level of uncertainty surrounding any business must be greater than that experienced by an organisation where the future is broadly predictable by means of arithmetic and statistical analysis. After all, if one can predict the likely changes in the relative percentages of the three member types, assisted by data on the average age of the members of each group and current longevity assumptions, then the figures should more or less fall into place.

Naturally there will still be some level of uncertainty inherent in the situation. Suppose, for example, that the sponsor decides for its own business reasons to launch an early retirement programme, or to close a particular plant or subsidiary. However, we can handle uncertainty, at least to some extent, by introducing an 'uncertainty factor', notionally increasing the likely impact of liabilities (or the range of such possible impact) as they stretch further into the future.

The important thing, however, is that at the end of this process we will have a table of actual liabilities that we can use, stretching out as far as we want to be able to predict. For ease of calculation we will restate these simply as a percentage of the present value of the pension fund. To continue our actual example, the value of the LPFA fund at the end of the 2003/4 period was £2.7 billion, and so the net liabilities (£61.754 million) represented about 2.3% of this figure. From now on, we will generally be talking about liabilities in this way, as a percentage of present fund value.

The main difference, then, between Total Funding and actual practice is that we are using real liabilities instead of artificial, discounted liabilities. I hope that the argument for this is obvious. If you are sitting down to initiate a strategic planning process then it helps if the data on which you are basing your analysis is accurate.

3. Total Funding

Because it plans to meet all of a pension plan's liabilities, I call my planning concept Total Funding, and the very simple arithmetic behind it the Total Funding Model (TFM). Total Funding assumes that any pension fund will plan to meet all its future liabilities as they fall due,

while preserving the relative purchasing power of the fund to safeguard the interests of future pensioners.

While I refer specifically to pension funds, this process could equally well be adopted by any institution with specific future funding needs. Endowments and Foundations would be obvious examples.

Having worked out our basic inputs we are now in a position to put the first element of the TFM in place.

We know our predicted future outflows. Where they are due to occur a long time in the future we will increase them slightly to allow for uncertainty. This is a purely subjective matter and you can take any figures that seem sensible to you. Personally, my preference would be to increase them by about 10% if they are more than 10 years in the future, and then with one extra percent for every extra year, up to a maximum of about 25%.

What else do we know? Clearly we know the present value of our pension fund. So remembering that we are stating the outflows as percentages of our present value, we can carry out a simple compounding exercise to find out what the future value of the fund would have to be at the end of the period:

$$\mathrm{FV} = \mathrm{PV}\left(\frac{1+O}{1}\right)^{n}$$

where O is the annual outflow, adjusted where necessary by the uncertainty factor, and n is the number of years under review.

However, O will be different each year (in the nature of things it will increase if only as a function of the growing maturity of the scheme) and so I think it could more correctly be stated thus:

$$\mathrm{FV} = \mathrm{PV}\left(\frac{1+O^{2}}{1} \cdots \frac{1+O^{n}}{1}\right)$$

Of course, in practice one would simply map the individual cashflows on a spreadsheet, but I think the formula does at least set out the general principle.

One important point that deserves to be made if only in passing is that the model can of course also be used to estimate the effect of different levels of contribution. Since O will be calculated as explained above, then increasing the amount of contribution will have the effect of decreasing the value of O. This would flow through into a decreased future value.

The Target Rate of Return can now be calculated quite simply by finding the IRR which is required to turn PV into FV over the number of years in question. This would of course be the same as the IRR of the intervening cashflows.

4. The Escalator Factor

Institutional investors need to plan their investment strategy to meet the objective of being able to meet their liabilities as they fall due, but without diminishing the relative purchasing power of their fund. We have looked in outline above at how we might consider the first requirement. What do we need to know about in considering the second?

A pension fund's liabilities might be compared to annuities, since they are payable for the life of an individual, or the joint lives of two individuals. It is therefore of great importance for our planning process that we should be able to predict the number of years, on average, for which our liabilities are likely to continue. Sadly, this is not possible because of demographic change. What we are seeing in most Western countries is an ageing population due mainly to three factors:

- A 'baby boom' caused by a bulge in the number of babies being born in the late 1940s as servicemen returned home from the Second World War.
- A falling birth rate ever since.
- Advances in medical science and lifestyle changes resulting in people living longer.

As a result, with every year that passes the average age of the population increases slightly. It has been calculated that by the year 2020 half of the UK's electorate will be over the age of 50, which gives a strong indication that pensions should be an ever more important political issue in the years to come.

At the time of writing (2005) government figures state that men and women aged 65 in the UK can expect to live to 81 and 84 respectively. Each of these figures is expected to increase by three years over the course of the next 16 (having increased by about four years over the last 20). I think it will be obvious from this that there is a clear upward trend in life expectancy generally; a boy born in the UK in 1901 could expect to live to only 45.

Similarly, a debate is currently raging in the USA around the future provision of Social Security benefits. (In the USA, this is much more

than just an old age pension; it also embraces disability payments and financial support for the spouses and dependents of deceased and retired workers.) In the year 2000 there were 35 million Americans over the age of 65, but by 50 years later, in 2050, that number will have more than doubled to over 80 million. To put that in context, in 1950 the burden of each retired person's Social Security entitlement was spread across 16 taxpayers. By 2050 it will have to be borne by just 2.

The latest US Social Security Trustees' Report states:

> After 2000, the reductions in death rates . . . are assumed to change rapidly from the average reductions by age, sex and cause of death observed between 1979 and 2000.

Grim though this picture may be for those who have to plan for the provision of retirement benefits world wide, it may tell only part of the story. Recent press articles claim that if stem cell therapy works as some scientists claim it might, then within 30 years we may have the medical technology to allow people to live routinely not just to 100 or 120 but for literally hundreds of years. An article in *The Sunday Times* in March 2005 suggested that the first thousand-year-old human being may already have been born.

However fanciful claims of this nature may seem, there can be little doubt that we are living in a period of rapid technological progress in the Life Science area. Even a few years ago much of the work currently being performed in genetics or nanotechnology would have been regarded as science fiction. Surely this must flow through into increased life expectancy. Indeed, the one thing on which everyone seems able to agree is that life expectancy ('longevity assumptions' in actuarys-peak) will indeed continue to increase. The only area of uncertainty is by how much.

Suppose, for example, that in 30 years' time humans in a developed Western society could expect to live routinely to 100. Given the way things are going this may not be as wildly optimistic as it sounds (indeed, the current debate in the USA hints at exactly such a possibility), and it would render the figures for the UK which I quote above completely obsolete and inadequate. Instead of life expectancy increasing by three years over the course of 16, it would increase by 20 over the life of 30 – nearly four times as quickly as predicted. Against this sort of backdrop, debate about having to work longer before retiring may perhaps seem less controversial.

There are a number of ways in which demographic changes will impact upon pension plans, their funding analysis and their required investment strategy. Some of these are fairly obvious, but others less so. Clearly since a pension fund represents a portion of the overall population then if with every year that passes the average age of the population increases, so with every year that passes, the average age of the pension fund's members will increase slightly (more markedly for those schemes that are closed to new members).

This will, in turn, affect a pension plan in four ways:

- With every year that passes, the ratio of pensioners to contributors will increase slightly.
- With every year that passes, the retirement age of the average member comes slightly closer.
- With every year that passes, the assumed lifespan of each member increases slightly.
- Additionally, for many final salary (DB) schemes, a member's level of entitlement increases with length of service.

Having read this section you will understand that the future liabilities of any pension scheme (except perhaps an extremely mature one, whose members are all at or around the limit of their life expectancy) must be increasing with each year that passes, and thus its overall funding position must be worsening. This is a very important concept to grasp. Left to its own devices, the funding position of any pension plan will not stand still, but decline.

It follows, then, that a certain amount of investment return must be used simply to offset the draining effect of demographic change before any contribution can be made to actually improving the pension plan's overall funding position. Imagine that you are keeping water in a jug which is marked with lines to measure its contents but which also has a hole in the bottom so that water is running out in a thin trickle. In order to keep the water level at the same measuring line, you will have to pour more water into the jug.

Surprisingly, as we will see when we come to consider the question of asset allocation, many pension funds do not seem to understand this point, and effectively ignore it. Having read this far in the chapter, I hope you can appreciate just how disastrous it may be to ignore **the escalator factor**.

For every year that passes, a pension fund needs to grow in value by a certain amount just in order to stand still in relative terms. I call this

'the escalator factor'. Imagine that for reasons best known to yourself, you have decided to walk up the down escalator and are now approximately halfway up. If you walk quickly you will eventually reach the top. If you stop, or walk very slowly you will eventually find yourself back at the bottom.

It is the same with investment returns. If the amount of your liabilities is increasing with each year that passes, then the value of your fund calculated before payment of those liabilities must increase by the same amount in real terms each year. In other words, if you can walk upwards at exactly the same speed at which the escalator is travelling downwards you will in fact stand still in relative terms; you will stay halfway up.

What we need to know is by exactly how much the size of the fund needs to grow each year to stand still. In the practical example I gave, we could simply use trial and error, adjusting our pace and seeing if we ended up closer or further away from the top until we could find exactly the right pace needed to stay in the same place. With pension funding we can obviously not take this approach. We need to find some way of calculating the rate required, or at least making some sensible assumptions that will give us a rough estimate.

I must make clear a number of things here. Firstly, the things which we are attempting to model are to a large extent uncertain and unpredictable. Secondly, no one has previously attempted to model their effect on a pension scheme in precisely this way. Thirdly, even if we are completely right about their nature, extent and effect, then it would probably take about 10 years of actual observation and analysis to see if the hard numbers that we had decided to ascribe to them were likely to prove valid. Finally, it could be argued that there is an element of double counting, in that the actuaries may already have built various demographic assumptions into their liability estimates. Accordingly, we are in the realm of informed guesswork here, not hard scientific theory, and whatever figures we choose will be completely open to attack by anyone who may have an interest in pretending that nothing is wrong with the present system, or who may just have a conceptual problem with the model as a whole. I acknowledge all of this.

However, I strongly believe that it is infinitely preferable to make some attempt (hopefully as intelligent an attempt as possible) to model these factors in terms of hard numbers than simply to ignore them. In particular, as we will see, it is precisely when investment returns are set *outside* a Total Funding Model, i.e. in isolation, as UK pension

schemes currently do, that it is absolutely imperative to consider these factors; indeed, without considering them, investment returns must be completely meaningless in Total Funding terms.

Suggested Treatment of the Escalator Factor

We have identified four different elements of demographic change. Let us give them the symbols d_1 to d_4:

- d_1 the increase in the ratio of pensioners to contributors
- d_2 the time to retirement age getting shorter
- d_3 the increase in life expectancy
- d_4 the level of entitlement increasing with length of service.

As we have already noted, d_4 will apply in some cases but not all, and so the first thing we need to do is to check the terms of our own particular pension scheme to see whether this is so or not. In some cases this will be purely a function of length of service, and in some cases it may be a hybrid of service and age. In all cases there is usually a 'plateau' level of benefits which, once reached, cannot be exceeded.

My suggestion is quite simple. We should ascribe to each of these *d* factors a value by which it will impact on the pension fund or, to put it the other way round, a value by which the pension fund will have to increase each year in real terms in order to absorb their impact and stay in the same place. The end product of the Total Funding Model is a target rate of return. Therefore it seems to make sense to ascribe to each of the *d* factors a percentage rate of return which the pension fund will be required to earn in order to offset its effect.

I have said it already, but it is worth repeating. What I am proposing is an intuitive process rather than a strictly mathematical one, and I am not suggesting that whatever figures we use are any sort of mathematical measure of their actual effect in any given year (although they are intended to approximate to it or simulate it from year to year over a lengthy period). Indeed, given the complexities and uncertainties inherent in the situation (how longevity assumptions might change, how the ratio of current, deferred and pensioner members might change, etc.) I do not believe that it is necessarily capable of precise calculation. To anyone who is approaching the situation on a purely scientific basis, and in the expectation of a neat mathematical solution, then my approach will doubtless seem simplistic and open to attack. Yet that same person will ultimately be disappointed in the search for

the 'right' answer and in the end will be forced into making assumptions, just as we are doing.

For the same reason, it is completely open to you to discuss and insert your own figures, and it may be that you will suggest completely different ones (particularly if you happen to be working in the sphere of stem cell research!). The important thing is that you should at least insert *some* numbers, because only then will you see the heavy drag of the escalator factor on pension returns, and only then will you in consequence recognise just what little effect on Total Funding your present returns may be achieving.

Let us ignore d_4 for the time being and focus on the other three d factors. I think we would all agree that it is d_3 (the increase in longevity assumptions) that has potentially the most explosive effect. The need to pay the average member pension benefits for 20 years longer than anticipated will clearly be a greater burden to a pension fund than to receive contributions from any one member for a slighter shorter time, or to find overall net cashflow worsening slightly from year to year. Therefore it seems logical that whatever value we ascribe to the others, the value of d_3 should be greater.

Instinctively, there should be some sort of proportionality between the escalator factor and investment return. Intuitively, it does not feel right that it should not be able to offset the escalator factor within the parameters of a reasonable rate of investment return. At the same time, it does not feel right that the d factors should be given such low value that they become numerically insignificant. There must be a compromise solution whereby they have a significant impact, but not such a huge impact that they can never be completely compensated for.

Accordingly, I am going to suggest that we use 0.5% as a starting point for each of the d factors, but then increase d_3 to 1% to take account of its greater likely impact. Thus, assuming for the sake of the example that d_4 does not apply to our scheme, this would give us a total for the d factors of 2%. This means that the fund needs to grow at 2% a year just to stand still in Total Funding terms. Is that correct?

No, it is wrong. Remember that we said 'in real terms'. In other words, we also have to factor in inflation. There is no benefit in our fund size growing by 2% if its actual purchasing power (its ability to pay out pension benefits) has been eroded in the meantime. Thus we can arrive at the formula:

$$E = d_1 + d_2 + d_3 + d_4 + i$$

where E is the rate required to remain in the same relative position ('the escalator factor') and i is the expected rate of inflation. Thus the value of the fund one year from now needs to be:

$$\mathrm{FV} = \mathrm{PV}\left(\frac{100 + E}{100}\right)$$

where FV is the fund value in one year's time and PV is the present fund value.

Let us try an example of this, assuming a present fund value of £100M and an expected rate of inflation of 3.5% (and remembering that $E = d_1 + d_2 + d_3 + d_4 + i$, but that we are ignoring d_4 for these purposes):

$$\mathrm{FV} = £100\mathrm{M}\left(\frac{100 + 0.5 + 0.5 + 1 + 3.5}{100}\right)$$

$$\mathrm{FFV} = £100\mathrm{M}\left(\frac{105.5}{100}\right) = £105.5$$

Following the normal principle of compounding we can also perform the same calculation over n years simply by raising the calculation to the power of n. Let us assume that we need to calculate the required future value in 20 years' time:

$$\mathrm{FV}_n = \mathrm{PV}\left(\frac{100 + E}{100}\right)^n$$

$$\mathrm{FV} = £100\mathrm{M}\left(\frac{105.5}{100}\right)^{20} = £100\mathrm{M} \times 2.92 = £292\mathrm{M}$$

This example helps to show the magnitude of the impact of the escalator factor. The fund in this example could grow by very nearly three times over a 20-year period and thanks to compounding still not be any better off in terms of its ability to pay its liabilities as they fall due.

In my experience this issue is not at all well understood by many pension plans and throws into a very dubious light the rates of return expected from their current asset allocation mixes. We will be examining this in more detail in a later chapter, but suffice it to say at this point that their expected rates of investment return are frequently barely enough to cover the escalator factor, and therefore can have little or no

effect on Total Funding. My case for suggesting that the point is not understood is strengthened by the fact that, to take UK pension funds as an example, they are putting a large portion of their fund (frequently about 30%) into an asset class (bonds) which they must know is most unlikely ever to match the escalator factor (let alone their target rate of return), and therefore can only ever act as a drag on the performance of the rest of the portfolio.

5. Putting it Together

So now we have all the elements of the TFM that we need. We know what our liabilities are likely to be over a given period, increased where necessary by a prudent uncertainty factor, and we know what additional rate of return is likely to be needed to ensure that the relative purchasing power of our fund at the end of the period is no less than it is now.

All we need to do, then, is to combine the algebra we have been looking at so far:

$$\mathrm{FV} = \mathrm{PV}\left[\left(\frac{100+O+E}{100}\right)^{2} \cdots \left(\frac{100+O+E}{100}\right)^{n}\right]$$

where O is the net outflow of each year, increased where appropriate by the uncertainty factor, and E is the escalator factor. The Target Rate of Return (TRR) will be the IRR that will increase PV to FV over the number of years in question.

Finally we have the output of the first part of our planning process: working out what it is that we need to achieve. The next step is to check that the objective is realistic. This is of course a circular process, and it may be a little unfair to introduce it at this stage since we have not yet started to look at the returns of different asset classes, but clearly if the TFM throws out a TRR of 25% then we need to look very carefully at ways of reducing the objective to more manageable proportions. These issues fall outside the scope of this book, but would obviously include such things as increasing the rate of employer and/or employee contributions and deferring the retirement age. None of these is likely to be an easy discussion to have, but initiating and pursuing all of them as quickly as possible is likely to be a better option than setting off on a quest for an unattainable objective.

CONCLUSIONS

We have covered a lot of ground in this chapter, beginning with the very general and descending fairly quickly to the very specific. It may be considered that I have laboured some of the specific issues unnecessarily, but I felt this to be crucial in the light of the surprising insight that I gained, while preparing for this book, into the way in which investors actually approach this area in practice.

I can think of no logical way in which one can embark upon a strategic planning exercise without knowing exactly what it is one seeks to achieve, and I can think of no logical way of assessing the long-term financial obligations of a pension fund other than by a process such as Total Funding. It is therefore very disturbing to find that in practice exactly the opposite actually occurs.

In reality, investment policy is often set in a vacuum. In the world of institutions there is a supply side and a demand side. The demand side is clearly the need to meet all future liabilities. The supply side is the investment performance of the fund that will hopefully provide the necessary money to satisfy the demand side. Why, then, should one's thinking keep these issues separate rather than connecting them? How can one embark on any sort of planning exercise if one regards the supply side as something over which one has no control, and has no idea of the true size of the demand side?

Total Funding offers a simple and logical way of at least attempting to put some sort of number on the demand side. For the remainder of the book we will be focusing on the supply side, but at the risk of boring my readers to death I must emphasise again and again that there is no point at all in embarking on an asset allocation exercise (the supply side) unless one knows the size of the demand that must be met. The calculation of a Target Rate of Return (the size of the demand) is an essential pre-requisite and it is staggering to me that most investors are not going through this process, but simply plucking a figure out of the air in some arbitrary way. We will be looking at the Yale Endowment in the next chapter as a model of best practice on the supply side, and I would also commend their approach on the demand side. They undertake regular and continuing assessment of their future funding needs, including modelling all sorts of 'what if' scenarios. How many investors can say the same?

I hope you will have noticed one other important point. In looking at how we should plan investment strategy we have been concerned

with long periods and with compound returns over long periods. To me this seems an obvious approach since it gels perfectly with the real life situation in which investors such as pension funds find themselves; they have future liabilities for which they need to plan over long periods. I will be developing this thinking in more detail in later chapters, but for the moment suffice it to say that what actually happens in the real world is usually exactly the opposite, with most investors and analysts being obsessed with the short term and, in particular, with annual returns. I trust that, from our brief look at Total Funding, it will already be obvious that annual returns as such are irrelevant for any institution that plans its investment strategy over a long period. Why should I be concerned with how much any particular investment returns in any given year? All I am concerned with is that my portfolio as a whole should achieve the TRR over the whole period in question. This has profound implications not only for asset allocation but also for traditional concepts of financial risk, and later I will be devoting two chapters to this latter issue.

One final point on Total Funding: I am not suggesting that this is an exercise under which one models, say, the next 20 years or so and then sits back and concentrates on investment management. On the contrary, it should be an ongoing process, undertaken at least once a year and preferably quarterly. Assumptions will change, as will the present value of the fund. Each year another group of projected cashflows will be added onto the model. Our thinking should never stand still, and nor should our analysis.

Thus we embark upon what many will probably, and quite properly, regard as the 'real' subject of this book: a Multi Asset Class approach to investment strategy. Please remember, however, that no investment strategy exists in isolation, but only in regard to the environment in which one operates and the objective which one seeks to achieve. Unless both of these are known and understood, then any attempt at investment strategy is meaningless.

I will be summarising the key points at the end of each chapter, as I have personally found this to be a helpful practice when reading other books.

SUMMARY

- Strategy should be thought of as a plan of action designed to achieve a specific objective.
- The steps set out in the action plan are tactics, not strategy. Strategy is essentially long term in nature, and refers to the totality of the process. Tactics are typically short term and deal with specific parts of the whole.
- The first essential of any strategic planning exercise is to identify and specify exactly the objective that is to be achieved.
- The only logical objective of any investor should be to meet whatever the funding requirements may be. In the case of a pension fund this may be expressed as meeting all its future pension liabilities.
- There is great danger in pension funds adopting the discounted, artificial liabilities of the sponsor, expressed for accounting purposes. What is needed for planning purposes are the real, undiscounted liabilities of the pension fund itself, increased by an uncertainty factor if desired.
- Planning cannot ignore the effects of inflation or demographic change. Assumptions in respect of these are incorporated into an escalator factor.
- The liabilities and the escalator factor together form the Total Funding Model. The Total Funding concept states the obligation of any pension fund to be to put itself in a position to be able to discharge all its future liabilities as they fall due, while at the same time preserving the relative purchasing power of the fund.
- The Total Funding Model produces a Target Rate of Return which, once subjected to a reality check, becomes the strategic objective to be achieved. Investment strategy can now be planned in a logical and meaningful way with reference to this specific objective.
- It is essential that the TRR is calculated in this, or some similar, manner. If it is not, then no attempt at investment strategy can be meaningful.