

Strategic Asset Allocation for Pension Funds

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Summary

Strategic Asset Allocation is the most important decision for any pension fund. It remains, however, the least understood.

There is no right or wrong way of determining the Strategic Asset Allocation and in the end it is a question of finding the best solution to a set of constraints, some implicit (fund structure) and some explicit (legislation). This solution will also be heavily influenced by the personal philosophies of the investor.

An agreed Strategic Asset Allocation Benchmark is the vital way in which the choice that has been made can be communicated to all parties. Only in this way can the investment process be understood and the results measured to ensure the fund achieves its ultimate objective of providing benefits to its members.

This paper is written by an investment manager (who is also an Actuary) and it tries to take a practical approach to the development of Strategic Asset Allocation structures.

Résumé

Répartition Stratégique des Actifs pour les Fonds de Retraite

La répartition stratégique des actifs est la décision la plus importante pour tout fonds de retraite. Elle reste cependant la plus méconnue.

Il n'y a pas de bonne ou de mauvaise façon de déterminer une répartition stratégique d'actifs et en fin de compte, cela se résume à trouver la meilleure solution à un ensemble de contraintes, certaines implicites (structure du fonds) d'autres explicites (léislation). Cette solution sera également fortement influencée par les philosophies personnelles de l'investisseur.

Un repère convenu de répartition stratégique d'actifs est la façon essentielle de communiquer le choix effectué à toutes les parties. Ce n'est que de cette façon que le processus d'investissement peut être compris et les résultats mesurés pour garantir que le fonds atteigne son objectif ultime qui est de fournir des allocations à ses membres.

Cet article est écrit par un gestionnaire de placement (qui est également actuaire) et tente d'adopter une approche pratique au développement des structures de répartition stratégique d'actifs.

1 Introduction

- 1.1** The average age of the population in most countries continues to increase at a time of improving healthcare, with today's workers looking forward to a greater number of retirement years. This is happening at a time when Governments are unable to fund the aspirations of this growing population of pensioners.
- 1.2** The establishment of investment funds from which benefits can be drawn is a vital way of ensuring that pensioners can achieve a better quality of life. It is therefore surprising that both individuals and corporate bodies have limited understanding of how to invest such funds.
- 1.3** A basic principle of investment is that enough funds should be available to fulfil the liabilities when they arise and within this requirement to seek the maximum accumulation. The challenge provided by pension funds is in understanding the nature of the liabilities and the mix of assets that best enable them to be met.
- 1.4** There are two principal types of pension fund. There are those that provide "Defined Benefits" ie where the benefits payable are calculated from a pre-determined formula. Alternatively, there are "Defined Contribution" funds where each member effectively has their own fund and from which they receive the total accumulation.
- 1.5** Whilst in Defined Benefit funds the liabilities are more precisely known because of actuarial techniques, in essence both types of funds are seeking to satisfy the same need: that is to provide benefits which will be payable in real (ie inflation adjusted) terms at some time in the future.
- 1.6** The principal subject of this paper is how those responsible for pension funds should choose between the many asset types available: eg. Equities, Bonds, Real Estate and Cash.

- 1.7** The asset structure of any long-term fund, like a pension fund, needs to be decided using long-term time horizons. This long-term target for the fund is generally known as the Strategic Asset Allocation structure. It should take account of the liabilities of the fund and actuarial skills have an important part to play in determining the Strategic Asset Allocation structure.
- 1.8** Equities hold a clear advantage in matching the attributes of long-term inflation linked liabilities. It is therefore accepted wisdom in the UK that the natural position for a pension fund is to be heavily invested in equities. However, short-term returns from equities are highly volatile and therefore a proportion of other assets should be held to diversify this risk and ensure that liabilities can be met.
- 1.9** This leads to the crucial question for all investors:

“How much of the fund should be in equities?”

There is no simple answer to this question and views will be held by both the investment manager who “looks after” the assets and the actuary who “looks after” the liabilities. This paper is written by an investment manager (who is also an Actuary) and it tries to take a practical approach to the development of the Strategic Asset Allocation structure.

- 1.10** Deviations from the long-term asset structure can often be considered desirable because of short-term expectations about the return from the different asset types. This is Tactical Asset Allocation, which is not a subject for this paper and should normally be delegated to the day to day investment manager of the funds.

2 *Asset Structures*

2.1 The actual asset structures of pension funds differ significantly between one country and another. For example:

Table 1

Break down of pension fund assets by type - 1989

	UK	Netherlands	Germany	France	Japan	USA
	%	%	%	%	%	%
Equities	78	38	15	26	27	47
Real Estate	10	16	10	-	1	4
Bonds & Cash	12	46	75	74	72	49

Source : Various

2.2 Care needs to be exercised in comparing the data, not least because of very different valuation methods in different countries. However, the differences are sufficiently large for us to try and find out why they exist when the funds are seeking to achieve the same aim.

2.3 UK Pension Funds

UK pension funds have traditionally had higher weightings in equities than pension funds in any other country. The importance of equity investment has existed for many years as can be seen from the following table.

Table 2
Asset Distribution - UK Pension Funds

	1965	1970	1980	1990
	%	%	%	%
UK Equities	50	56	44	53
Overseas Equities	-	-	6	21
Real Estate	5	10	22	10
Bonds	42	32	23	10
Cash	3	2	5	6

Source : Central Statistical Office

2.4 One of the main reasons for this equity bias is the inflationary expectations in the economy. The UK has had a high rate of inflation relative to many other countries and real assets, such as equities, have been important in achieving real (ie inflation adjusted) returns. Bonds on the other hand tend to fare badly in times of high inflation. See below :

Table 3

Period	UK Assets - Real Rates of Return		Average Rate of Inflation
	Bonds	Equities	
	%	%	%
1950 to 1959	-2.5	+13.8	+4.1
1960 to 1969	-1.9	+4.2	+3.8
1970 to 1979	-4.9	+1.8	+13.3
1980 to 1989	+6.9	+15.3	+6.8

Source : BZW Equity-Gilt Study

2.5 In the UK attitudes towards inflation have clearly influenced Strategic Asset Allocation. Whilst this is true in other countries, there are also many other factors.

2.6 Statutory Controls

All countries have their own particular control mechanisms for the management of pension funds. In the UK there has been considerable freedom to invest, whereas many other countries have tended to apply investment restrictions to pension funds eg setting a maximum on the percentage invested in equities or the minimum that must be invested in Government bonds.

2.7 In the US, pension funds have been heavily influenced by the ERISA legislation and in Japan the Ministry of Finance has influenced asset allocation. All Governments will use their influence to a lesser or greater degree to ensure that benefit promises are met and the investment activity fits in with other economic and political objectives.

2.8 Governments need to raise capital and the nature of that capital will itself impact upon pension funds as they are one of the main sources of such funding: For example, in the UK pension funds were investing more in Government Bonds in the 1970s because of the Government's substantial borrowing programme. In the 1980s, the British Government raised capital through the disposal of shares in privatised companies. This was one of the reasons for the 1980s being a decade of increased equity weightings.

3 Attitudes

3.1 Strategic Asset Allocation should produce a target long-term distribution of assets. It is therefore natural to seek expert advice to formulate the "right" answer. However, comparison of the different approaches taken around the world shows that there clearly is no single "right" answer.

3.2 Strategic Asset Allocation is not purely a mathematical process and involves many intangible considerations. In fact, the investor's attitudes can have the most significant impact upon Strategic Asset Allocation. For example :

- Is high or low inflation expected?
- Is international investment to be encouraged or should the investor remain loyal to his countrymen and invest in the home market?
- Should the investments be linked directly to market values or be placed with an institution which shelters the pension fund from fluctuations in market values (ie an insurance scheme)?
- Is investment in the employer's business to be encouraged or avoided?

3.3 Framework

Having answered these questions, it is possible to develop the framework in which the Strategic Asset Allocation structure will be developed. The starting point is to establish a set of philosophies which will form the basis of the structure. These may include :

"We believe in the long term that equities will provide a return in excess of bonds."

"We believe that international investment provides diversification and thereby reduces the fluctuations in the total return from the portfolio and provides the opportunity to invest in different economies."

3.4 Such a framework seems at first sight to be a very flimsy framework for such an important decision as a Strategic Asset Allocation of pension fund assets. It is, however, the reality of how such decisions are made. There can be no certainty that equities will out-perform bonds but an investor must believe it if the asset allocation is to have a high weighting in equities.

- 3.5** Some investors will regard substantial equity investment as too “risky” for their pension fund. If so, then the Strategic Asset Allocation structure must reflect this desire for caution by including a much higher weighting in bonds or other diversifying assets.

4 Models

- 4.1** The weakness of basing the Strategic Asset Allocation decision upon a collection of philosophies can be overcome to some extent by using computer simulation techniques. However, it is important to remember that a model can only illustrate the outcome of different asset structures. This is because the output is highly dependent upon the input which in the case of investment models always includes subjective judgement.
- 4.2** Asset Allocation models using the optimisation techniques developed under Modern Portfolio Theory can be used to simulate different asset structures. Many such models can be bought cheaply to run on a personal computer. They tend to take the form :

Inputs

- Expected rates of return from the different asset type.
- Expected risks (as defined as the standard deviation of returns).
- Expected correlations amongst the assets.

Outputs

- Efficient Portfolios for different levels of risk (as defined).
- Illustrations of the probability of the fund obtaining a negative return in a particular year.

- 4.3 Such models can be used as a tool for maximising returns for Defined Contribution funds given the chosen level of risk but they do suffer from the weakness of not taking account of the liabilities when used for a Defined Benefit pension fund. This weakness can be overcome to a large extent by the use of Asset/Liability models.
- 4.4 Asset/Liability models can help in developing a Strategic Asset Allocation structure which is the most efficient portfolio given both the actual and expected liability profile of the fund and the preferences of the investor. They can take account of the fund's surplus position and the nature of future contributions.
- 4.5 It is not a purpose of this paper to develop further the detail in respect of Asset/Liability models. Most consulting actuaries offer services in this field and, in my view, they represent a significant step forward in the contribution that actuaries can make to the Strategic Asset Allocation decision. The results will always be very sensitive to the assumptions made, many of which are highly subjective. However, if the assumptions used are consistent with those used in calculating the contribution rates then much insight is gained.

5 *Economic Trends*

- 5.1 The Strategic Asset Allocation decision should only be influenced by the expected long-term trends such as inflation and the yield from bonds and equities. Shorter term views should be taken into account by the investment manager in his Tactical Asset Allocation.
- 5.2 The global shortage of capital arising from funding Perestroika, the US budget deficit and the banking system's reserve ratio requirements is one long-term trend which is likely to increase the return from bond investments. My own

philosophy for the 1990s is that equities will continue to provide greater returns than bonds over the long term but that the difference between the return from these two asset types will be smaller than existed in the 1980s.

- 5.3** In Europe, the economic convergence triggered off by the 1992 initiative will also impact upon the relative attractiveness of equities and bonds. From a UK investor's perspective this could also lead to an increased weighting of bonds, particularly if the UK's entry into the Exchange Rate Mechanism is effective and there is a sustainable lowering of inflationary expectations in the economy. There is also likely to be a greater supply of bonds as the UK Government resumes its funding of a new budget deficit.

6 Strategic Asset Allocation - Whose decision is it?

- 6.1** There are a number of parties to the Strategic Asset Allocation decision :
- The governing body of the pension fund (trustees in the UK)
 - The finance director of the company sponsoring the fund
 - The investment manager charged with day to day fund management
 - Any Consultants including the Actuary.
- 6.2** Strategic Asset Allocation cannot be delegated to any one of these parties alone since the asset allocation decision needs to take account of all "risks" - although the "risks" are different for the various parties.

- 6.3** To the chairman of the governing body, the risk is that the fund fails to fulfil the benefit expectations of the membership. To the finance director, the risk is that poor asset allocation may cause a need to increase funding and hence cause a drain on the resources of the company. To the investment manager, and the consultant, the risk is that they will lose business if the fund is not managed correctly.
- 6.4** Some of these risks can be quantified but many are qualitative in their nature. As pension funds grow in monetary value, it is natural to seek more and more sophisticated quantification of the risks.
- 6.5** Most people would agree that the medical profession are the experts on medical issues. For investment issues, however, everyone considers themselves to be an expert on the investment of funds of limited size. A poor man will decide on his investment of \$100 in a savings account, whereas an expert is needed to decide how to invest \$1,000 million.
- 6.6** The question remains, who is the expert on Strategic Asset Allocation? I would argue that the expert does not exist and Strategic Asset Allocation should be viewed as an agreement between all parties, each of which has their expertise to add to the final decision. The importance being that the issues are discussed and agreement is reached from the different perspectives.

7 ***Benchmarks***

- 7.1** One of the best ways of confirming this agreement is to establish a Benchmark asset structure which is the normal structure for the fund. Such a Benchmark can be used to monitor the progress of the fund and be the neutral portfolio from which to determine whether the actual investment outcome has been successful or not.

- 7.2 The poor man mentioned previously will consider his investment successful if his capital of \$100 is secure and will probably regard any interest on the money as a bonus. His implicit Benchmark is 100% in cash.
- 7.3 For those responsible for the management of pension fund assets, then clearly a Benchmark of 100% in cash is almost always inappropriate, not least because the pension fund needs to obtain real rates of return. Too often, however, investors of pension funds do not have an agreed Benchmark and are also unaware of the implicit Benchmark being used by the investment manager of the fund. This greatly increases the chance that the investment outcome will disappoint because the objectives are not clear at outset.
- 7.4 A Benchmark for a pension fund can typically be expressed in the form of long-term target distribution or range of distribution of assets. For example :

Table 4
Illustrative Benchmark for a UK Pension Fund

Asset	Target %	or	Range %
UK Equities	55		50 - 60
Non-UK Equities	25		15 - 30
Real Estate	5		0 - 10
Bonds	15		10 - 20
Cash	0		0 - 10
	<hr/> 100		

7.5 Benchmarks can remain as fixed percentages or be automatically updated for the relative movements between asset types. As described above, the Benchmark can be derived from a detailed technical analysis, such as Asset/Liability modelling, or alternatively it can be derived by choosing an investment strategy with an Implicit Benchmark.

8 *Implicit Benchmarks*

8.1 Many pension fund trustees and consultants in the UK continue to regard performance relative to the average pension fund as a measure of the success of their investment managers. In my view such a belief means that by default they are using the average pension fund as an Implicit Benchmark. This Benchmark may still be an appropriate way of determining Strategic Asset Allocation for average pension funds but care needs to be exercised for Defined Benefit funds to ensure that the liability profile does not require a different approach to be taken.

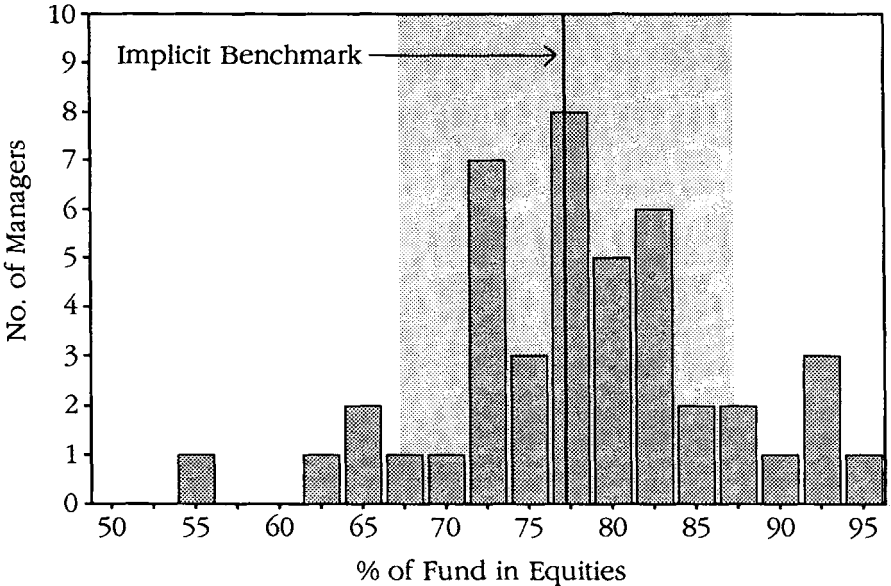
8.2 Data is readily available on the actual asset structure of the average fund and the total return achieved from such a fund. For example :

Table 5
WM Universe of UK Pension Funds

	% Asset Type				
	1985	1986	1987	1988	1989
Equities	66	71	68	69	74
Real Estate	11	9	10	11	10
Bonds & Cash	23	20	22	20	16
	100	100	100	100	100
Annual Rate of Return	14.5%	22.5%	3.4%	13.8%	30.3%

8.3 Trustees may feel that by setting an objective for the fund to out-perform the average fund then there is no need to consider the Strategic Asset Allocation decision because this has been delegated to the investment manager. In practice, most investment managers who take on the Strategic Asset Allocation decision for the client do in fact ensure that the asset structure does not deviate too far from the average as can be seen from the following table.

Table 6
Distribution of Discretionary UK Pension Fund Assets
Proportion in Equities (as at 30.6.90)



Source : Mercer Fraser

- 8.4** The average proportion in equities of this sample of UK based investment managers of pension funds was 77% as at 30 June 1990. These managers had full discretion over both the Strategic and Tactical Asset Allocation decisions. Those managers who are within say + or - 10% of the average equity exposure (shaded portion) are likely to be using this average as an Implicit Benchmark.
- 8.5** Those investment managers whose asset distribution is very different from the average are taking substantial business risks in that the investment outcome is likely to be significantly different from that of the average fund. In such cases it is difficult to identify the approach being taken towards Strategic Asset Allocation.
- 8.6** During the last 10 years in the UK the highest returns have almost always been achieved from equities and a Strategic Asset Allocation of 100% in equities has produced the best fund performance. However, during the 1990s it is expected that returns will be far more volatile and to allow the investment manager to invest up to 100% in equities is a high risk strategy, even for a rapidly growing fund.
- 8.7** Therefore where the investment decision is delegated to an investment manager there is still a need to agree on the Strategic Asset Allocation Benchmark in order that there is agreement between all parties on the investment objectives of the fund. Put another way, if the fund does not have an Explicit Benchmark then there should be an understanding of the Implicit Benchmark and the degree to which the investment manager will deviate from that Benchmark.
- 8.8** It can be said that using the average fund as a Benchmark is simply "following the herd". I would argue that a skilled manager can still produce superior returns from Tactical Asset Allocation by being "the right distance from the herd at the right time" ie he will be overweight in equities in rising markets and underweight in falling markets relative to an agreed Benchmark.

9 *Defined Contribution Pension Funds*

- 9.1** Since a Defined Contribution pension fund does not promise to provide specific retirement benefits then the Strategic Asset Allocation decision does not need to take specific account of the liabilities. However, it is still necessary to determine an Explicit Benchmark or choose an investment type with an Implicit Benchmark.
- 9.2** In a Defined Contribution fund the member will usually receive the investment returns added to his account ie the member is taking the investment risk and not the fund or his employer. It is therefore still an important question as to how much equity content should be within the Benchmark, particularly as the member nears retirement age when adverse market fluctuations can adversely affect benefits.
- 9.3** One solution is for the Benchmark to include a high weighting in cash or short-term bonds although this is likely to lead to lower returns. Alternatively, the investment could be made with an institution which itself has a high exposure to equities and offers investments that smooth the fluctuations in the returns to the members.
- 9.4** In the UK the long established “With Profit” funds of the Life Insurance companies are an ideal example of such an asset type. In developing the Strategic Asset Allocation Benchmark for a Defined Contribution pension fund one should consider including such investments.

10 Conclusion

- 10.1** All those involved with the investment management of Pension Funds should understand the Strategic Asset Allocation Benchmark being used for the fund. This should form a major part of the agreement amongst those responsible for the fund.
- 10.2** The type of Benchmark chosen should take account of the liabilities of the fund but will differ considerably from one country to the next. This is because of differing attitudes, investment expectations and a variety of investment constraints.
- 10.3** Simulation techniques can be used to determine the array of possible outcomes of a particular investment strategy. Wherever possible Explicit Benchmarks can then be set.
- 10.4** If the strategic Asset Allocation decision is delegated to an investment manager then it remains necessary to understand the Implicit Benchmark. If this cannot be established and the manager's strategy is significantly different from the average then performance results can be erratic.
- 10.5** Finally, for Defined Contribution funds it should be remembered that it is often the case that the member is bearing the investment risk. Some form of risk sharing investment from insurance companies should be considered as part of the investments for such funds.