

Asset Allocation Policy: the Third Age

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1 What goes around comes around

Dateline 1980:

Robert Elliott, Chief Financial Officer at Interbiz Corp, was troubled by their pension fund's performance. Their managers had made their target of 6% real return and the fund's solvency had strengthened. But he felt that this was more due to luck than judgement. They had not done that well, after all any manager probably would have got more than 6% in recent markets. The problem seemed to be that the managers had lots of responsibility but not enough accountability. "We rely too much on the decisions of our managers" he had said recently to the Trustee Board. He thought it was time to decide on a fund-specific policy position and to give the managers a target relative to that benchmark. That would give their managers more scope for their skill to show through.

Dateline 2000:

Ellie Roberts, Pensions Head at Interbiz Corp, was troubled by their pension fund's performance. Their benchmark had done well and the fund's solvency had strengthened. But she felt this was more due to luck than judgement; they had found the process of setting the benchmark unsatisfactory. The problem with their managers was that while they had lots of clear accountabilities, they did not have much responsibility – they just hugged the benchmark. "We rely too much on the decisions of the MSCI Index Committee" she had told the Trustee Board recently. She thought it was time to forget

their policy position and give the managers an absolute return target that would give their managers more scope for their skill to show through.

Overview

- 2 There is substantial agreement that the most important investment decision is that of asset allocation policy. This paper considers the 'efficiency' with which this decision is taken at the three levels commonly identified:
 - _ the equity/bond split
 - _ the breakdown of equities and bonds by geography and asset sub-class
 - _ the inclusion of alternative investments; notably private equity, hedge funds and real estate.

- 3 This paper sets out descriptions of how each of these decisions has been taken in the past:
 - _ The 'First Age' approach in which funds delegated the asset allocation policy decision to investment managers who operated to *absolute return mandates*
 - _ The 'Second Age' approach in which funds decided asset allocation policy and gave managers *relative return mandates*.

- 4 Evaluation of the effectiveness of these processes suggests the importance of incorporating the broader non-financial goals of decision-makers in assessing efficient policies. We describe in this paper how to include such an improved approach to asset allocation policy which incorporates both relative return and absolute return mandates. I show how the mix of these two mandates is best determined with regard to the skills of the investment managers employed.

- 5 This change in framework of asset allocation policy is provocatively termed 'the Third Age'.

Governance and decision-taking

- 6 As advisors to pension funds, insurance companies, charities and endowments, actuaries and other investment consultants have an increasing challenge to develop 'efficient' asset allocation policies for fiduciaries and sponsors of such funds.
- 7 Investment efficiency is clearly related to the risk, return and total cost of the investment arrangements. But efficiency must be considered in the context within which investors must operate. Constraints include non-financial elements such as an investor's time available to manage the investment arrangements, accountability as a fiduciary, or legislative requirements.
- 8 The success of an investment management structure is important to a number of different parties. The generalised structure of governance can be represented as follows for the four major categories of funds that make up the majority of investors:

Entity	Stewardship	Executive	Source of Funds	Beneficiaries
Defined Benefit Pension Fund	Trustee or Board	Pensions Manager	Employer, potentially the Employees	Pensioners, Members, Employer
Foundation, Endowment, Charity	Management Board	CEO, Investment Director	Benefactor	Grantees
Insurance Company	Investment Committee	CIO or Secretariat	Policyholders	Policyholders
Personal or DC	Provider	Family Office, Individuals	Individuals	Individuals

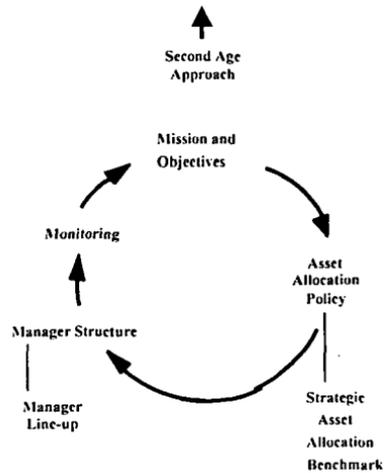
- 9 Only in the case of the personal investor is the same person providing capital, making strategy decisions and receiving financial benefits. These investors have the best

opportunity to customise structures to their individual requirements and have the least difficulty with agency conflicts.

- 10 For the other funds there is a stewardship group (fiduciary) that has to make decisions on behalf of other people. The fiduciary has to answer to other parties - the source of funds and the beneficiaries - who have shared but not necessarily symmetric interests in the fund's performance. This paper concentrates on the decisions of these fiduciaries.
- 11 Fiduciaries have to operate within the constraints and legal rules of their entity. They are also aware of potential criticism from external sources as to how well they achieve the fund's mission. The final investment policy that the fiduciary chooses for the fund will therefore be influenced by the wishes and perceptions of the other interested parties.

The Asset Planning Process

- 12 The asset planning cycle is the process by which investment management arrangements are developed and maintained. This is an important process which has evolved over time.



- 13 The cycle starts with the fund's mission. This reflects the underlying purpose of the fund and will determine how the fund is managed. The fund's mission forms the backdrop for investment planning and, importantly, provides a guide as to whether the fund's emphasis is on return or risk.
- 14 This mission will be shaped by the interests of the source of funds in addition to those of the beneficiaries. In a defined benefit pension fund, consideration of claims on future surplus may make the true mission difficult to resolve. We return to this subject later.
- 15 The fund's mission should typically result in some set of investment objectives. For a pension fund, the primary objective will usually be to meet the liabilities as they fall due and to meet certain levels of adequate funding or solvency.
- 16 The original approach to meeting these objectives was to give this responsibility directly and in full to the chosen investment manager(s). In effect the role they take is an

absolute return mandate. As this was the first method in the chronology of fund management we refer to this as the 'First Age' approach.

- 17 This method does give considerable responsibility to investment managers and allowed their skills to be applied without too many constraints.
- 18 However, the method also has major drawbacks. First, how can a manager correctly interpret the inexplicit and non-quantifiable aspects of the objectives. For example, guides to appropriate risk are absent. Secondly, how can managers be appropriately judged on their performance. It may be possible to say the manager fulfilled the objectives but it is quite impossible in this framework to determine the extent to which the achievement was due to favourable market conditions or the quality of the managers' investment decisions.
- 19 A new framework, the 'Second Age' method, grew from this difficulty. Basically, funds' decision-takers took responsibility for *strategic asset allocation*: the policy that best fulfilled certain financial criteria. This policy was then taken to represent a neutral non-tactical starting point for managers for their tactical decisions. This was a major step forward involving not only a major opportunity for greater investment success but also one of greater challenge for fiduciaries.
- 20 Two related types of *benchmark* were born:
- *benchmark portfolios* guided the managers' decisions; the managers overweighted and underweighted stock and asset positions relative to the portfolio
 - *performance benchmarks*, derived from these benchmark portfolios, allowed funds to judge the added value from their managers' decisions.

Investment managers in this approach are taking on *relative return mandates*.

- 21 The asset allocation policy and the associated benchmarks need to be determined.
Various processes have been used to do this.

Methods of Setting Asset Allocation Policy

- 22 The strategic asset allocation can be derived by
- adhoc methods
 - other simplified methods
 - or, more structured and quantitative approaches.

Adhoc methods are based on general reasoning. The principal examples of simplified methods would be determining the asset allocation by regard to the capitalisation weightings of various markets, or deciding to follow a peer group allocation that was deemed suitable for the achievement of the objectives.

- 23 Quantitative methods include asset modelling (AM) and asset liability modelling (ALM). Both AM and ALM are risk assessment techniques that involve making stochastic projections (ie probability based measures) of the future financial position of the fund. With ALM, both assets and liabilities are projected into the future, allowing insurance and pension funds to assess the risk and return trade-off of various strategic asset mixes in the context of their liabilities. AM allows funds without defined liabilities to trade-off return expectations against absolute volatility or other risk measures in any process. Constraints arising from legislative restrictions need to be considered directly.
- 24 The process of determining asset allocation using these methods breaks into two parts:

- _ applying the model to describe future financial outcomes in probabilistic terms
 - _ optimising, either directly or indirectly, to identify candidate policies with attractive risk/return trade-offs.
- 25 The advantages of an AM or ALM approach are:
- _ the identification of fund-specific benchmarks that fiduciaries can readily agree upon
 - _ investment policies that are more aligned with a fund's risk/return tolerance
 - _ investment policies that more explicitly take account of objectives, liability profiles and legislative constraints
 - _ greater confidence for allocation to new asset classes.
- 26 This list of advantages is quite strong. In particular, these positive features are telling alongside the alternative of following adhoc or simplified methods. Take for example the question of risk: other methods fail to quantify risk in the meaningful context of what might go wrong in future. ALM and AM methods project the probability of poor outcomes. Therefore these methods can flexibly consider different measures of risk, indeed whatever definitions of risk matter to the decision-makers. In the complex multi-dimensional world of pension fund investment this has enormous appeal.
- 27 Unsurprisingly, the power of these methods has been recognised and large numbers of funds adopt ALM or AM as integral parts of their asset planning process. However, the limitations of the process must be clearly understood. In this area, there are four major problems:

- the projection of future financial outcomes is heavily dependent on the model and assumptions used (essentially a key problem for any forward looking financial model that considers volatile investment markets)
- assumptions for many new investment asset classes are subject to problems of mis-estimation given the limited amount of past data
- optimisation tends to result in policies which exploit implied investment inefficiencies which gives rise to a considerable data mining problem
- the monitoring feedback on whether the model and assumptions are accurate is very slow and very ineffective.

28 In addition, as highlighted earlier, solving the pension fund asset allocation policy puzzle involves considering multiple perspectives and measures. The fuzziness of the mission and the tension of the objectives of interested parties creates a difficult challenge.

29 Furthermore, behavioural influences are very powerful at all stages of the process:

- in the creation and agreement on this model and assumptions
- in the interpretation of the results
- in the decision itself.

These factors are so important, it is necessary to place them within the process and not to leave them as factors or constraints on the edge of the process.

Behavioural Finance applied to Fund Decision-makers

- 30 The growing field of behavioural finance theory illustrates how behavioural issues affect the management of investments. This body of knowledge reveals that there is more to investing than a simple risk and return trade-off.
- 31 Rational behaviour is more predictable than irrational behaviour. This is why irrational behaviour is often neglected from models, which instead assume participants act in a rational manner. It is therefore essential to consider these behavioural biases with the intention of strengthening and improving the existing investment process. This suggests some incorporation of utility theory.

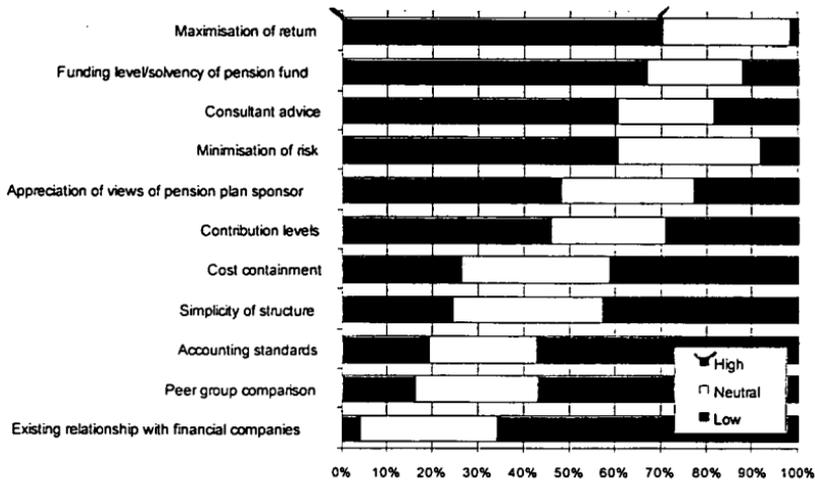
Definition of Utility

- 32 As used in economics, the term utility may be defined as the amount of satisfaction to be derived from a commodity or service at a particular time. There are two key points to note. First, that the utility of a commodity or service has nothing to do with its usefulness (it may or may not be useful, but must yield satisfaction). Second, that the utility derived from the commodity or service is time dependent. For example, risk control measures have a far higher utility in volatile conditions than when conditions are stable.
- 33 Utility depends on an individual's subjective estimation of the amount of satisfaction to be obtained from something. As a consequence there is no such thing as intrinsic value because the same commodity or service (at the same point in time) has different utilities for different people. Even for the same individual, the utility of something is not constant but differs at different times and in different circumstances.

- 34 Utility is also subject to the law of diminishing returns. There is diminishing marginal utility associated with increases in the quantity of a commodity or service. The attractiveness of a commodity, service or attribute at any given point in time therefore depends on how much is already possessed.
- 35 In the world of scarce resources and budget constraints, having more of one thing implies having less of another. A choice therefore has to be made, and this implies that each individual has a scale of preferences.
- 36 In the section below we apply these concepts of utility to the development of an investment policy by fiduciaries.

Determinants of Fiduciary Utility

- 37 We want to establish a utility function for fiduciaries regarding their chosen investment policy. To derive this we need to evaluate which factors provide them with satisfaction. The specific mix and balance of these factors will naturally change from group to group.



Factor importance in arriving at fiduciaries' current investment structure

Source: Watson Wyatt Global Asset Study Survey 1999.

38 An illustration of preferences amongst fiduciaries can be seen above. Fiduciaries were asked to rate the factors that they consider when arriving at investment management structures. Solvency and return maximisation were generally highly rated by most fiduciaries, while other factors such as risk, cost containment and simplicity of structures were given differing degrees of importance. In the section below we focus upon the most important elements of utility for deciding asset allocation policy: namely return, risk and non-financial factors.

Return

39 While consideration of the absolute return is natural, relative return is more important when viewed alongside the fund's objectives:

- _ Returns relative to the growth in liabilities matters most to pension funds and insurance funds
- _ Returns relative to the growth in some appropriate measure of inflation matters most to endowment funds or personal investors.

We can give a general statement of the key return as:

Relative-to-Objective Return =

Fund Return – Liability/Inflation Growth.

Strictly speaking the calculation should be compound. Furthermore, liability growth needs actuarial measurement which makes this process rather more problematic in practice. The principle though is clear. The key measure for pension and insurance funds is the pattern of a funding ratio; the key measure for endowment and personal investors is the pattern of a wealth ratio.

- 40 Holding other factors constant, fiduciaries experience increased utility the higher the relative-to-objective return achieved by their fund. Their utility is diminished to the extent that their expectations for this return are not met.

Risk

- 41 Fiduciaries do not want high returns to come at the expense of placing the fund at excessive levels of risk. Fiduciaries are custodians of their beneficiaries' wealth and are required to act in a prudent manner. They must act in full consciousness of risk, and this requires the incorporation of a measure of risk into the decision-making process.

- 42 A comprehensive discussion of risk is outside the scope of this paper. Basically, risk is multi-faceted and changes with timescales. However, to serve this paper I can put forward one central measure of the risk attaching to asset allocation policies as follows:
- Relative-to-Objective Volatility = Standard Deviation of Relative-to-Objective Return
- 43 Fiduciary satisfaction will, in general, be greater for lower levels of volatility.
- 44 Standard deviation (with an associated implication of normally distributed returns) as a measure of risk can be amply criticised. There is valid concern that returns are not distributed normally but instead have 'fat tails'. In addition, standard deviation is symmetric in that it assumes investors are equally concerned with gains and losses which does not adequately reflect fiduciaries' loss aversion. Nevertheless, standard deviation has the advantages of being widely recognised and easy to incorporate into a modelling process.
- 45 Fiduciary bodies may prefer to work with other measures of risk. Examples of other measures include semi-variance, other downside risk measures or Value at Risk (VaR). This would lead fiduciaries to require other risk targets in their utility function formulation and the proposed modelling process would be adjusted accordingly.
- 46 Risk and return measures can be combined to calculate efficiency statistics. These risk-adjusted measures capture the efficiency with which risk is 'converted into' return. One such efficiency measure is the information ratio (IR):

$$\text{Information Ratio (IR)} = \frac{\text{Relative-to-Objective Return}}{\text{Volatility}}$$

Non-financial Factors: Comfort and Compatibility

- 47 In addition to the financial factors discussed above there are also non-financial elements within the fiduciaries' utility function which influence decision-making.
- 48 There is a wide range of behavioural issues that can and do impact on the decisions made by fiduciaries. They can be classified into two groups based on the benefits as perceived by the decision-maker and the real benefits, if any, that they bring to the decision. The two categories of non-financial factors are:
- _ 'SleepWell' payoffs: the comfort level of fiduciaries in their asset allocation policy based on their control of regret risk; and
 - _ 'SeemsGood' payoffs: the behavioural payoffs that have no financial value.

SleepWell Payoffs

- 49 The SleepWell payoff is defined as the utility that fiduciaries derive from minimising regret risk, where regret risk is the risk of investment outcomes being disappointing, and leading to the fiduciaries' subsequent regret. Fiduciaries' investment decisions are scrutinised and judged by others. There is external validation by the source of funds, beneficiaries, regulators and ultimately the wider public. Fiduciaries not only have to make a good decision, but they have to live with and justify the decision whatever the outcome.
- 50 Furthermore, if fiduciaries are negligent in their investment decision-making, then they face the risk of legal action being taken against them. Given that investment management results have a high element of noise, there is a risk that a bad outcome arising from chance could appear to be the result of a negligent decision. Not only will

the fiduciaries feel regret, but this regret will be intensified by the knowledge that other parties are relying on them (and judging them). When faced with the difficulty of making the best choice in a difficult situation fiduciaries act to limit regret.

51 We therefore conclude that not only is SleepWell a significant component of the fiduciary utility function but also that it is a valid component given the fiduciaries' role.

52 In the context of asset allocation policy, SleepWell payoffs are highest when decisions align with peer group practice.

SeemsGood payoffs

53 The SeemsGood payoff factor captures the biases of the group beyond the financial and rational non-financial dimensions. SeemsGood payoffs embody preference prejudices and are defined as having no financial value in aggregate, although they do provide the group of decision-makers with a measure of utility. Decisions made by fiduciaries because it 'seems good' are usually driven by this non-financial factor.

54 SeemsGood payoffs have their basis in expected financial benefit, which in aggregate does not materialise (but could through the influence of chance alone). Since SeemsGood payoffs provide no aggregate financial payoff, they are undesirable influences in deciding investment policy.

55 In the context of asset allocation policy, SeemsGood payoffs arise wherever fund decision-makers use simplified heuristics for deciding policy; a common example is the capitalisation weighted approach to setting policy, which relies on the efficiency of capital pricing to create benchmarks.

The Utility Function

- 56 The conclusion to this use of utility theory comes in two parts:
- a. Fiduciaries assess their view of asset allocation policy based principally on a combination of:
 - _ The financial payoff from relative-to-objective returns at certain levels of volatility
 - _ The non-financial payoffs from SleepWell and SeemsGood.

Investment efficiency is the sum of these factors. Financial efficiency should be the principal source of utility but non-financial efficiency does have an influence.

- b. For improved financial efficiency fiduciaries should endeavour to:
 - _ eliminate the SeemsGood biases
 - _ control the SleepWell biases.
- 57 Below the three levels of policy decision are considered to see how each can be optimised under the utility function.
- a. *The equity/bond split*

The equity/bond split critically influences the risk/reward profile of a fund. Deciding this profile requires assessment of the covenant between the source of funds and the future beneficiaries of such funds to meet all future liabilities under any future investment scenario. Each fund is different in this regard. This issue and others affecting the risk profile are so difficult to appraise without quantification that the use of a modelling study seems clearly to be the best method to adopt. There is no

other way to produce the necessary customisation of the risk profile. Consideration of non-financial factors like SleepWell seem to be much smaller influences.

b. *The geographical split*

Customisation is not the principal factor in the decision on geographical split. As a result efficiency gains may be of a lower order than (a). The key question is the extent to which quantitative modelling improves upon the simplified methods of using cap weighted or peer weighted benchmarks. Given the utility derived from SleepWell and SeemsGood payoffs, the available financial utilities are rather lower than for (a).

c. *The allocation to alternative asset classes*

Quantitative methods are less valuable where assumptions are subject to mis-estimation as in the alternatives area. So the financial utility to be gained from such processes seems again to be lower than (a) although probably higher than (b). The major financial factors supporting higher allocations to alternatives are expectations for greater returns and greater diversification than can be derived from equities and bonds alone. Such decisions may best be taken by more adhoc reasoning from highly skilled managers rather than by reference to peer group or capitalisation weights. Neither of the latter have financial utility in this decision, although they do have non-financial utility.

58 If we map the three key decisions to utility payoffs we have the following pattern:

	<i>Adhoc</i>	<i>Peer or Cap Weighted</i>	<i>AM or ALM methods</i>
Level 1: Equity/Bond split			
Financial efficiency	<i>Poor</i> , too subjective	<i>Poor</i> , not customised	<i>Good</i> , can be fully customised
Non-financial efficiency	<i>Varied</i>	<i>Good</i> , high SleepWell	<i>Moderate</i> , potentially low SleepWell
Level 2: Geographical split			
Financial efficiency	<i>Varied</i> , reflects skill of managers	<i>Moderate</i> , reflects efficiency in markets	<i>Moderate to good</i> , but subject to assumption problems
Non-financial efficiency	<i>Varied</i>	<i>Good</i> , high SleepWell	<i>Poor</i> , potentially low SleepWell
Level 3: Alternatives split			
Financial efficiency	<i>Good</i> , dependent on manager skill	<i>Poor</i> , no projectable rationale	<i>Moderate</i> , assumption and data mining problems
Non-financial efficiency	<i>Varied</i>	<i>Good</i> , high SleepWell, some SeemsGood	<i>Poor</i> , potentially low SleepWell

59 The features of this evaluation are:

- _ No method delivers the complete answer
- _ Each method's effectiveness varies according to the three levels of decision.

60 Optimisation of the utility approach suggests this process may produce more efficient results.

a. *Apply ALM or AM to the equity/bond split. Take limited account of other factors.*

This method has a significant advantage in exploring risk in its multi-faceted context.

Reference to the peer group has little additional advantage to offer given the importance of optimising this mix for financial efficiency.

- b. *Apply ALM or AM to the geographical split. Allow the peer group or cap weighted approach to influence your decision.*

Modelling processes deal with capital market misalignments with lesser effectiveness. Given a lower confidence in this process, non-financial factors should play a greater part and some pull towards the peer group weights or global cap weights may well be appropriate.

- c. *Apply ALM or AM to the alternatives split. Allow manager inputs to influence your decision but limit peer group or cap weighted considerations.*

The decision on allocations to alternative asset classes is the hardest to make, so total reliance on quantitative methods is not desirable. In this area, the allocation decision should reflect the particular skills of the investment managers employed.

Relative Return and Absolute Return Mandates

- 61 Where policy decisions are made in respect of allocations to equities and bonds the natural step is to give to managers a relative return mandate. In these areas of the fund an absolute return mandate would mean that the policy decisions would not be adequately reflected in actual portfolios.
- 62 In the alternatives areas, the natural step is to give managers absolute return mandates. Such a mandate allows the managers' skills to be fully utilised. This is particularly relevant in the hedge fund areas where the brief to produce a positive absolute or real return gives wide scope for superior manager talent to be rewarded. An absolute mandate makes the principal benchmark a cash return. There are other subsidiary

comparators that would help the monitoring process, such as a relevant universe average or a global equity index.

- 63 The mix between relative return and absolute return is best determined with regard to:
- _ risk profile considerations (higher risk suggests higher alternatives)
 - _ SleepWell considerations (higher SleepWell requirement suggests lower alternatives).

The Link with Governance

- 64 Higher governance capacity allows greater financial orientation and efficiency. The governance capacity of fiduciaries is influenced by:
- _ the time and capability of the fund executive
 - _ the access to consulting and modelling
 - _ the inputs of investment managers.

In setting policy, the idea of the fiduciary consultant, actuary and managers all working as a team has considerable merit.

- 65 Better governed funds have these advantages:
- _ the opportunity to produce well constructed benchmarks that have the fiduciaries'
 - _ +. confidence
 - _ limited financial inefficiencies arising from non-financial payoffs
 - _ the opportunities to successfully exploit the benefits of alternative asset classes.

66 For a fuller treatment of non-financial factors see 'The Concept of investment efficiency and its applications to institutional funds'. I am grateful to my fellow authors for their work in this area.