

The investment method for a 'Defined Outcome Portfolio'

fowlerdrew

LOGIN

1 Start

2 Time

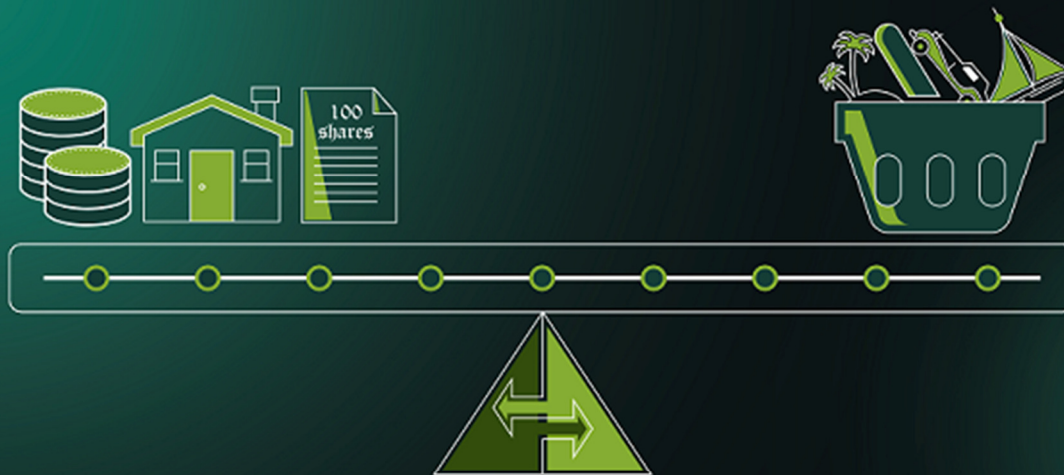
3 Resources

4 Outcomes

5 Results

THE NAME OF THE GAME IS BALANCE

Based on your personal time line, the planner will help you identify the level of resources and the correct approach to risk to generate the outcomes (probable real spending levels) that would give you most satisfaction.



Let's start by identifying which of these four variables you don't know, or can't approximate. This is what you want the planner to give you an answer for ⓘ

- ☐ How soon I can stop working ⓘ
- ☒ How much I might be able to spend
- ☐ How much I need to add to the money I have now

NEXT STEP

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The investment method for a 'Defined Outcome Portfolio'

Fowler Drew is unique in private wealth management in applying the institutional techniques of Asset/Liability Modelling (ALM) and Liability Driven Investing (LDI). Applied to individuals, a more intuitive term is Goal-based Wealth Management.

Within these general techniques, our approach is differentiated by making the modelling of a goal-based plan specific to a particular, dynamic, risk-management approach. It is dynamic because the exposure to risks constantly alters with the time horizons of a goal-based plan but also with changing market conditions. This means that when we jointly plan with a client a 'workable' balance of resources, risk and outcomes for their goal we are using outputs from simulations of a particular portfolio approach.

Even if clients doing their initial planning with us do not go on to retain us to deliver the plan under a discretionary management agreement, understanding how the portfolio approach itself works, and why, may be helpful to their confidence in the outputs used in planning, such as why a particular level of risk tolerance is more appropriate than another, or what level of resources is required to fund tolerable outcomes with a defined confidence. And any interaction with the model teaches the fundamental principle of investment planning: *the name of the game is 'balance'*.

Fowler Drew's approach in a nutshell

Foundation in collaborative planning

- Goal-based wealth management seeks to be more relevant and intuitive than conventional portfolio management by tying investment choices directly to whatever outcomes the owner defines as those providing 'satisfaction'
- Fully-customised portfolios are organised and managed dynamically to meet explicit target outcomes for each goal, within quantified tolerances. Outcomes are expressed as real (after-inflation) cash flows, or real wealth levels, at specified dates
- For a spending goal, drawdown from the portfolio is aggregated with any State and Defined Benefit pension income so all planning can be done 'holistically' at the level of total spending, after allowing for tax on the cash flows
- All resources assigned to the goal by all parties contributing to it, whatever 'accounts' they actually exist in, are managed (and reported) as a single 'virtual' portfolio
- Where money is required at multiple dates, such as drawdown in retirement, a goal will be organised as a schedule of date-stamped 'time slice' mini-portfolios, aggregated for reporting purposes
- The risk approach is determined (also when planning) as a function of the ranges of outcome (by reference to visualised personal consequences) rather than simply attitudes towards the portfolio's volatility

How portfolios are managed to deliver clients' defined outcomes

- Asset allocation (which asset types and markets and in what proportions) dominates all other decision levels and is driven by risk considerations as much as return considerations
- A separation between risk free and risky assets is the main form of risk management. It is intuitive in terms of the relationship between equity exposure and the time horizon: risk free assets to match near-term needs and equities to fund more distant needs
- The high-level mix will adjust to changes in risk free rates relative to the distribution (in each time slice) of expected real equity returns. It will also adjust to shortening time horizons such that ultimately, at all levels of risk tolerance and whatever the expected returns, equity holdings will be replaced by risk free assets
- Equity exposure is geographically diversified between a set of markets with long evidence of past real returns, with the weights dynamically adjusted through time to maximise expected risk-adjusted returns. Exposure to each is gained via index-tracking funds
- Currency exposure is embraced as part of the mechanics by which foreign markets generate real returns to a UK-resident investor, after UK inflation
- Portfolio managers have limited discretion in following the model and focus that discretion on marginal gains in portfolio efficiency, after-tax returns and costs - not on personal judgements about market timing or second-guessing the model

How clients stay involved

- New model runs are also used to generate forward-looking projections of outcomes and hence to measure continuing resource adequacy, or the 'funding position'. This approach means the portfolio management process may also be thought of as a continuous financial planning process.
- Both initial planning and portfolio progress reviews make use of the same web-based user interface, guided by an adviser or investment manager, either in person or remotely using screen sharing.

1. Understanding outcomes-driven, goal-based portfolios

The 'factory' model of private client investment

Private clients of either advisory or discretionary management firms have a remarkably clear idea of what general approach to expect, whoever they approach.

- Money will be organised and reported by legal owner (eg each spouse) and by different accounts with a different set of fiscal rules (eg pension and ISA accounts)
- An appropriate level of risk for each will be defined by reference partly to the client's broad time horizon and partly to personality (as self-diagnosed by the client or discovered by means of psychometric profiling)
- Personal risk will be matched in an auditable way to a product or portfolio solution that shares the same level of risk, so that both person and product occupy the 'same' location on some notional, linear 'risk spectrum' (say from 'cautious' to 'aggressive')
- Risk in each case will be defined by 'volatility': the degree of bumpiness in the short-term path of the portfolio.

What results is that all clients are shoe-horned into one of about 3 or 5 standardised portfolio solutions offered by the firm, relying on versions of a 'balanced' asset mix to locate them on the volatility spectrum. Some discretionary managers manage only to a single risk location (although the firm still owes a duty of care covering suitability that theoretically excludes them from taking on clients that do not match it).

It is constructive to identify what beliefs are implied, both about investment markets and about individuals, by such a heavily standardised, 'factory' approach.

- Volatility of monetary returns dominates (for the client) all other measures of risk including inflation and shortfalls relative to individual target outcomes in the future, possibly decades away
- A single measure of 'normal' risk is valid as a proxy for the entire distribution of possibilities
- Utility, or the concept of 'satisfaction', is uniform between all clients with the same risk tolerance.

All three are either wrong or a massive over-simplification of what is in fact a rich and complex array of attributes to wealth, highly idiosyncratic or individual rather than homogenous. This over-simplification benefits the industry, because scaling of standardised solutions maximises profits and competition for assets can then be conducted on the basis of track records. But it is not in its clients' best interests, because really important life goals are rendered 'hit or miss' and because it requires them to be engaged by investment rather than by their goals and outcomes.

Liability Driven Investing

It was in the occupational pension fund industry that the shortcomings of heavily standardised balanced management were first challenged, initially by accountants, consulting actuaries and academics, and then by investment firms competing to offer better solutions.

UK pension funds had for a long time defined and specified the nature, maturity and quantity of their liabilities (as streams of future pension payments owed to beneficiaries) and consulting actuaries used models to try to match these to an asset allocation. However, this Asset/Liability modelling approach lacked the tools on the asset side to design investment approaches that reflected the idiosyncratic preferences of different funds, such as between maximising stability of contributions or maximising returns. Changes in accounting treatment of pension funds also gave additional urgency to making the

asset solution fit more closely the individual fund utility and an agreed risk budget. These all made common balanced solutions, driven by firms not their clients, look blatantly inappropriate.

The point about the LDI solution was that it was customisable and driven by clients and so could be organised less as an investment solution and more as a risk-management solution. One essential feature of the resulting portfolio approach is that it relies less on balance or diversification of the assets and more on the *separation* of 'hedges' and return-seeking, risky assets.

In an LDI context, a hedge is a *perfect match*, so both the accounting value at any time and the cash flows are exactly equal to the accounting value and size and date of the cash-flow liabilities, in exactly the same terms (eg 'in money terms' or 'in real terms', depending on the amount of contractual inflation uplift the scheme has to provide to pensions). Separation allows a clearer risk budget to be formed, with a fully-hedged set of liabilities incurring no risk of either variance in funding position or shortfall in the eventual capacity to pay pensions and any unhedged, risky proportion introducing a quantifiable shortfall risk.

This approach logically cuts across conventional approaches to diversification, as the number and mix of asset types is driven by the liabilities not some independent set of objectives for risk management, such as maximising return for a given level of variance in returns, or shoehorning all clients into factory asset allocations.

General application of LDI to private wealth

Several advantages should be readily apparent.

- 1 LDI forces clients to think about their needs and wants as if liabilities, having particular forms, dates and quantities – specific to a goal rather just to personality
- 2 For most clients, focusing on goals and the visualisation of their own future is much more engaging than investment can ever be
- 3 It can be used to articulate how they plan to derive benefits from total wealth, as between a set of different goals with their own priorities and dependencies
- 4 It helps reveal the different forms of risk that are relevant to the investment solution, which are in fact unlikely to be dominated by volatility whereas inflation risk will be more important
- 5 Hedges are easily and cheaply put in place using Index Linked Gilts
- 6 A risk budget can be quantified and agreed in terms of ranges of tolerable outcome (which for a spending goal, for instance, will be expressed as a distribution of possible real spending in year x, and a range of y in year z). As a measure of risk this is more relevant and engaging but also more intuitive for clients.

Fowler Drew application: a 'Defined Outcome Portfolio'

As an LDI-type solution, a Fowler Drew Defined Outcome Portfolio is organised to be managed throughout the life of the plan to deliver a set of defined target outcomes, within agreed ranges, for a specific goal developed with the client in an initial planning phase of the relationship. This collaborative planning relies on guided interaction with a model via a shared interface.

Clearly, the approach is most valuable where the outcomes are both more richly defined and more important to the client. The most important type of goal is retirement spending. This is because the errors that arise from poor definition of the cash flows or risk approach when drawing down from

capital are likely to have important consequences. It is also because they are more complex to define, as between (say) nominal liabilities a few years out and real liabilities perhaps decades out.

Goals with less explicit purposes and time horizons still benefit from the form of benefit and utility being defined by planning. However, the investment solution may then use (for example) a rolling time horizon with a defined range of real wealth outcomes (ie expressed as wealth levels rather than as cash flow levels). An example would be a trust fund designed to benefit future generations with no specified cash outflows in the foreseeable future.

To be able to set up and then maintain a portfolio consistent with the agreed parameters for the plan, we need to be able to generate new outputs at any point reflecting actual portfolio values, these being the resources then available. The impact is that we can then use the same model:

- to plan a goal
- to manage the goal-based portfolio
- to prompt consideration of changes in plan parameters in the light of the progress of the portfolio.

Because all plans have their own target outcomes with their own dates and time profile, as well as their own risk preferences, all goal-based portfolios are fully customised. Only very young people with common long-term horizons will hold the same investment strategy. Even if the asset-allocation strategy is the same, the individual holdings may differ.

Differences between planning and managing

The portfolio approach applies *in practice*, as market conditions change and time passes, the portfolio construction and portfolio dynamics which were *simulated* to generate the outputs used in the development of the plan.

The differences between a 'notional' portfolio underlying the development of the plan and an actual portfolio include the following.

- Planning only needs a total resource figure plus an asset allocation (as percentage weights making up the resources)
- The actual portfolio needs specific accounts (or part of), with explicit legal owners, to be assigned to each goal-based portfolio
- They add up to the explicit asset allocation derived from the latest model run
- The asset allocation strategy calls to be implemented via particular holdings (securities in the case of ILGs and collective investment funds in the case of unit trusts or Exchange Traded Funds). Holdings may change because of changes in allocation or because a preferred implementation vehicle within the same asset becomes available, such as a new fund or a change in cost-competitiveness.

2. The asset allocation approach

a) The opportunity set

To fit the Fowler Drew approach, an asset has to meet both of two criteria:

- 1 We must be able to model the real (after inflation) returns and risks with reasonable confidence to produce probability ranges clients can rely on
- 2 It must belong within either the risk free (hedged) allocation or the risky (return-seeking) allocation

There are three types of asset we want to use and they map approximately to time horizons as follows.

	Risk Free	Risky
<i>Short-duration liabilities:</i>	Cash and cash equivalents	
<i>Medium-duration liabilities:</i>	Index linked gilts and NS&I	
<i>Long-duration liabilities:</i>		Globally diversified equities

- Because risk is controlled at the level of the mix between risky and risk free, it is no longer necessary to rely on diversification by adding as many risky assets as possible. The greater predictability of real returns from equities trumps the attraction of adding equity 'derivatives' like commercial property, private equity and hedge funds
- Because conventional medium or long-dated bonds and bond funds are not inflation-protected, they belong in the risky category; yet they serve no purpose there, as there is no historical evidence inflation risk is remunerated by a risk premium
- Government securities with inflation indexation normally trump cash for horizons beyond about 3 years (though tax may also be a factor)
- Equity risk and returns are only predictable because of evidenced systematic behavior for the listed companies in an economy as represented by an index; the same does not apply to individual companies
- The individual markets that meet our criteria are UK, USA, Japan and Australia; we take a regional indexed approach to Europe (ex UK); we take a global indexed approach to emerging markets.

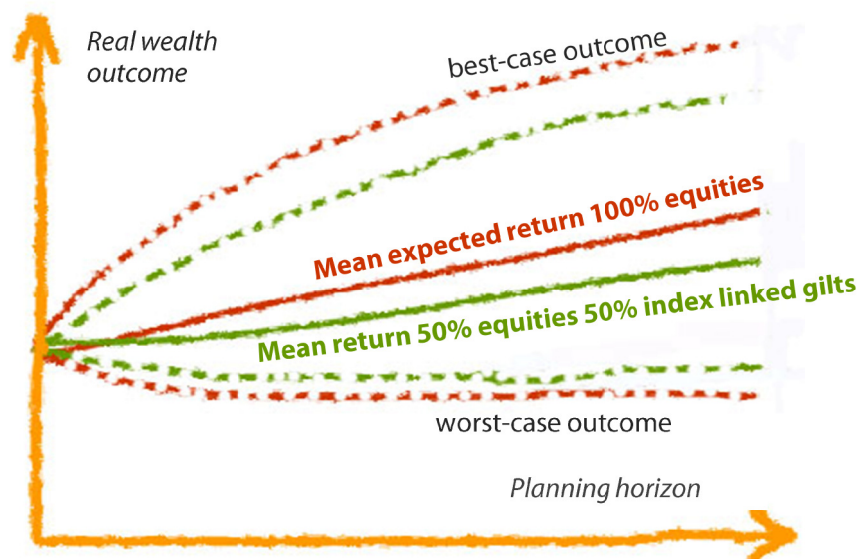
b) Portfolio construction

High level: risky / risk free

In a 'separation' context, the mix of risky and risk free determines the range of probable outcomes and so is crucial as a form of risk control.

In the schematic explanation on the following page, Fig. 1, the nature of real equity returns is represented through time as an expanding range of possible outcomes – sometimes referred to as an 'expanding funnel of doubt'. It is similar to 'fan charts' for projections such as used by the Bank of England and other statisticians. The fan or funnel has a 'slope' as a function of the mean real return expected. For 'evidenced' markets we take the best estimate of the trend to be the observed actual trend for as much time as we can observe, ranging between nearly 50 years to over 100 years. This is generally between 5 and 7% pa.

Fig. 1 Dilution of risky assets with a risk free asset



The range of probable outcomes for a 100% equity portfolio (red) can be narrowed by substituting risky assets with risk free assets (green), equivalent to replacing a bet with a hedge. This will also lower the slope or expected return.

Once risk tolerance has been defined in terms of tolerable outcomes, it makes sense that clients, whatever their personal preferences, will be less willing to trade uncertain outcomes for more certain ones the nearer they are to the point of using the money. They will not bet the next few years' spending on the possible path of the equity market whereas they might make the same bet for much longer horizons.

The asset exposures map to time horizons therefore in a general way, as follows.

<i>Short horizons</i>	<i>Medium horizons</i>	<i>Long horizons</i>
100% hedged	Part hedged, part risky assets	100% risky assets
Risky asset volatility would breach the agreed time slice outcome ranges	Risky asset volatility would breach agreed ranges unless partially diluted with risk free	Trend (and reversion to trend over long horizons) keeps outcomes in agreed ranges

An individual's own profile of time horizons for a goal requiring a stream of cash flows (like retirement spending) is usually divided into 'time slices' of one or more years. Each time slice has its own mini-portfolio with its own resources assigned and its own asset allocation, although for reporting purposes (and for us to know what changes in exposures to make at any time) these are aggregated as a single portfolio.

Risky portfolio: the equity mix

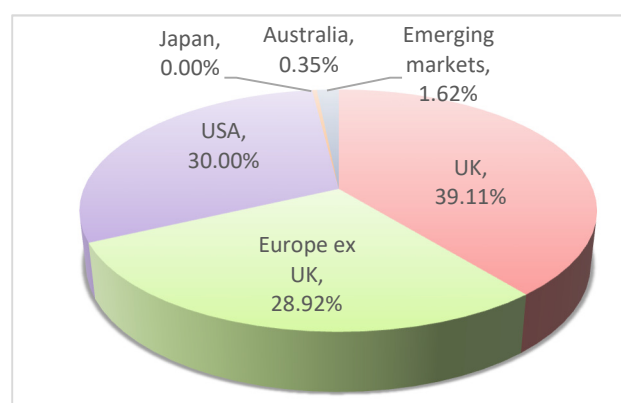
The next most important level of portfolio construction that will explain returns is the way the equity portfolio is constructed.

Conventionally, portfolios reflect a number of biases. UK portfolios historically were biased to the UK because of decades of exchange controls. But our economic performance has been so obviously poor for so long that the grass usually looked greener abroad and UK investors have since shed some, but not all, of a bias to the home market.

Yet when they invest abroad, UK investors' exposure has tended to be biased by *market size*, as are composite indices of markets like the MSCI World Index. This also has the unfortunate effect of allocating most to assets that are more highly-priced relative to their own trend and to other markets. For example, Japan at its peak in 1989 accounted for 48% of the MSCI World Index compared with less than 10% in recent years.

Our decision was to start by treating all markets as essentially equal. Any permanent construction bias then stems from the relatively stable differences in their observed real-return trend and the observed risks. In this context, risk means the possible error associated with our estimate and this reflects both the historical deviations from trend but also the length and quality of the data we are basing our trend on. These notional weights, effectively assuming all markets were priced exactly in line with their own trend (implying 'fair value'), are shown in Figure 2.

Fig. 2 Country weights assuming all markets are equally valued



Actual allocations at any time vary from these as a function of how we see each being priced relative to its own trend, so as to give a higher weight to the ones that have higher risk-adjusted real returns because they are priced below their trend and/or relative to the others.

Note that the observed risks are what mainly explains the low 'neutral' allocation to Japan and Emerging Markets, not their observed return trend.

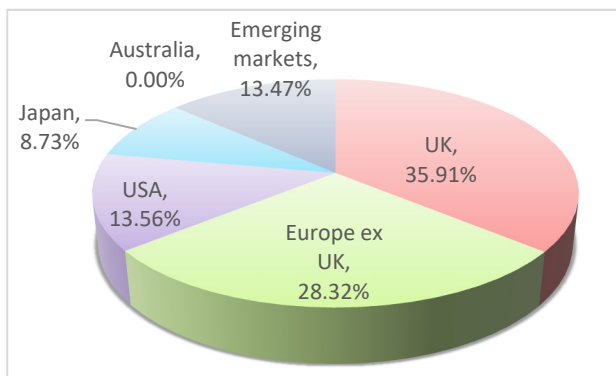
Currency in a real-return model

The best way of thinking about currency risk in a model of real returns and real future values is somewhat counter-intuitive but perfectly logical. If you think of the UK equity market as a 'machine' for generating real returns for a UK investor, exposure to currency risk becomes an essential part of the mechanism by which the foreign 'return-generating machines' are equivalent to the UK machine.

This follows from Purchasing Power Theory. If the Japanese machine is characterised at some point by much lower inflation than the UK, the yen will tend to rise (to maintain equilibrium in trade in goods). The foreign machines are therefore essentially similar to the UK machine but have a new source of risk: the movements in the real or inflation-adjusted exchange rates that are not explained by the actual differences in prior inflation. Once currency is included, the machine's output is in all cases sterling-adjusted real returns, after UK inflation.

Included in our risk estimates for the foreign markets is a value represented by the historical variance in exchange rates relative to sterling that could not be explained by differences in each country's inflation rates.

Fig. 3 Neutral country weights including currency



The neutral weights given by local-currency valuations relative to trend in Fig. 2 are here shown adjusted to reflect an optimal set of combined risk-adjusted returns in Sterling terms, rather than just in local-currency terms. This is on the basis each currency is in line with its real exchange rate with Sterling. Note the distribution of neutral weights is somewhat broader than for markets alone: currency increases diversification.

c) Portfolio dynamics through time

The explanation of the portfolio construction approach up to this point deals with the 'permanent' features based on a set of evidence-based views about what drives risk and return in the context of goal-based portfolios. However, a Fowler Drew discretionary portfolio will be actively managed to maximise its utility or the appropriateness of its expected outcomes given the way the goal was planned. The approach is 'systematic' or 'quantitative', that is to say decisions are driven by the outputs of model runs not by judgement.

Dynamic rebalancing is also hierarchical.

- Changes at the high level, between risky and risk free, are the main means of risk management and so these dominate changes in the country weights in the equity portfolio
- Changes in country weight reflect shifts in risk-adjusted expected returns and are usually based on monthly model runs (although we filter out small changes with marginal utility)
- Changes are tested against transaction costs and tax impacts.

In both types of rebalancing, our approach (consistent with the beliefs behind the model) is *contrarian* or counter-cyclical and so corresponds more to a value investment style than a growth or momentum style.

Projected outcomes, either at the planning stage when the model is being used to develop a goal-based plan or when managing the portfolio, include estimates for 'planning gain' arising from rebalancing the asset mix at the high level but no recognition is given to any expected gains arising from changing the country mix.

More importantly the projections need to reflect the risk reduction arising from tightening up the exposure to risk as a function of approaching the point at which money will be used. These projections of sterling-adjusted plan outcomes have significantly smaller distributions (narrower ranges) than the current portfolio if held to the maturity of the plan.

However, it is the current portfolio that will determine the amount of short-term volatility clients need to anticipate.

d) Portfolio reporting

Reporting is on a quarterly basis. In addition to accounting for cash movements and transactions account by account, Fowler Drew reports incorporate both backward- and forward-looking looking

progress at the level of the total resources assigned to the goal. Between quarterly reporting dates, daily valuations are available via a secure client portal.

Without a dynamic model for a simulated plan, we would not be able to report goal progress looking forward. At each valuation point, the outcome ranges that form the agreed targets are adjusted for UK RPI inflation in the period and the projected values resulting from a new model run are compared with the targets. Differences between actual and required resources to fund the targets fully are expressed as an 'interim projected surplus' or 'shortfall'. This is also expressed as both a change in probability of achieving the target outcomes and a change in the time horizons that would bring the actual and required resources back into balance.

These projections are not normally as variable as the portfolio value itself, for two reasons:

- Changes in prices of hedging assets (Index Linked Gilts) leave outcomes unaffected (as the real outcome was known at the point each was bought)
- The assumption that real equity returns revert to their mean over time results in equity price movements being negatively correlated with expected returns at long horizons.

The main sources of variance in the funding position, or surplus/shortfall, are therefore:

- Currency movements affecting equity holdings in every time slice
- Price movements for the equities in the medium-term slices (where there is insufficient time to assume full mean reversion, so changes in price are not fully offset by changes in future return).

These forward-looking projections form the basis of any adjustments to the plan in annual review meetings, or as required if and when personal circumstances change. These may be conducted in person or remotely using screen sharing.

Progress reports for a goal-based portfolio also include actual performance, adjusted for cash flows into or out of the goal-based portfolio in the period. It makes most sense to track the performance of a set of assets designed to meet a particular objective than to track the client's total financial assets.

Actual performance is contrasted with two types of benchmark:

- A Fowler Drew customised benchmark reflecting the asset mix given by the client's own combination of risk approach and the duration or time horizon of the cash flows (assuming the neutral equity weights in Fig.3 for risky assets)
- Our judgement of the nearest industry-standard benchmark if the same assets were being managed in a conventional way, given the same objectives and time horizons.

3. Implementing the asset allocation

Risk free assets

For a perfect hedge, real outcomes have to be funded by an asset with the same maturity, quantity and form.

Where the form is 'real terms' after inflation, the optimal asset is therefore a specific holding in an Index Linked Gilt maturing when a group of proximate cash flows is required (such as to meet a few years' spending).

Theoretically, each gilt holding could be held to maturity but there is typically a point a few years out at which the after-tax returns of a top-paying savings account will exceed the after-tax returns of the gilt by enough to warrant taking on some short-term inflation risk. (This arises because gilt yields are set by institutions but they cannot earn as much on their cash as individuals can.)

After-tax returns of short-dated index linked gilts also typically compare unfavourably with index linked National Savings certificates so we also substitute gilts by these if possible.

The risk free portion of the portfolio has a duration given by the resource-weighted term of the liabilities – for a client already drawing from a plan it is typically around 4-7 years. We match duration one of two ways depending on which maximises after-tax returns:

- a schedule of cash, NS&I and gilt holdings that match the amount and dates of the cash flows needed
- a combination of cash and one or more longer-maturity index linked gilts to provide the same duration.

We respond to changes in cash rates, NS&I rates and new issues and to changes in the gilt 'yield curve' or time profile of yields at different maturities as well as to new gilt issues.

Because of rapidly-changing monetary conditions, at different stages over recent years we have held cash in

- a money market fund
- insured deposits with individual banks (in the client's own name)
- the shortest-dated conventional gilt (during the banking crisis)
- insured 'income bonds' at NS&I.

Deposits outside ISA or pension accounts are best arranged by clients themselves, in which case they may be grouped with other money of the client, outside the goal, and so are recorded in the portfolio as a notional asset assigned to the goal.

Equity exposure

Our preferred implementation for the risky exposures is via index-tracking vehicles, not active management of securities within each equity market.

If we assumed active management, we would need to:

- reduce expected real returns by the amount of additional costs relative to trackers
- increase the band of probable outcomes to allow for the additional source of uncertainty relative to market returns (the possibility the payoffs of the active manager's bets relative to the market, or 'alpha', will be either positive or negative).

Because alpha is by definition uncorrelated with the payoffs from pure market exposure, or 'beta', it has an attraction to an investor as an *option*. There is a price worth paying to be 'in with a chance' of an active manager achieving sufficient outperformance of the market to make up the extra charges, compensate for any additional risk and provide a net return benefit, or positive payoff. So much for the theory. What about the evidence? The academic evidence of decent option payoffs across long histories of active management in many countries is very weak, even without a demanding payoff before the event. There are three explanations:

- the generally low level of skill
- the increasing efficiency of markets in distributing and reacting to information the skill depends on
- the high cost of providing active security selection, both in acquiring information and in implementing trades using that information.

Avoiding active bets also reduces the need for transactions to change fund managers when the evidence suggests they are no longer a good bet, either due to statistical assessment of returns or to an individual manager leaving. There is often a limited budget for tax-efficient rebalancing (unless all assets are 'wrapped' in ISAs and pension accounts) so the model asset allocation changes should have first claim on the tax budget.

We therefore prefer to implement our equity allocations using trackers for each of the markets and regions making up the risky asset portfolio at any time.