Mass customisation of dynamic goal-based portfolios

FT /ABN Amro 'financial product of the future' Challenge
Entry submitted jointly by Stuart Fowler and Chris Drew *July 2006*

Why the product meets universal needs

Individually, people need the luxury of customised, dynamic and tightly-managed goal-based portfolios for their long-term savings. Collectively, the country needs easy access to very low-cost products and cannot afford the luxury of a separate advice industry. These conflicting needs are met by bringing together quantitative decision-making techniques, consumer-friendly application design and large-scale IT for aggregating and disaggregating individual holdings and managing information. The product takes the debased term 'plan' and makes that the external face of the product, both at the outset and in the way progress towards defined personal objectives is presented. Because it is a service delivered as a product and because all types of decision have already been modelled, it can deal with any type of personal goal or risk preference.

The customer experience

Most long-term savings have a defined purpose. Giving the money a job to do makes it relevant to the customer but also determines how it should be managed, for as long as the job lasts. A goal-based plan is defined by targeted outcomes, time horizons, risk preferences and resources required or applied. When planned jointly in a quantitative setting, targets, time and resources exhibit personal risk preferences.

A target is always an outcome but can be expressed as a real capital sum, a stream of real income (actual or drawdown from either total return or capital) or any combination. Time horizons are a function of the goal and may be one date or a sequence of dates. In the absence of a specific goal, ranges of outcome at rolling horizons can be used. Risk aversion is the feature that brings acceptable outcome ranges into line with resources required or available. Different people will decide differently how to use risk to bring their plan into some workable and acceptable 'balance'.

Making the plan balance gives it game characteristics. Being quantitative, the game can be played interactively using on-screen applications, linked to the financial modelling 'engine', or at the pace of written iterations. It designs education about the decision-making principles into the rules of the game. It therefore does not require highly skilled (or tightly regulated) advisory or sales staff and may require no third-party interaction at all.

Progress of the plan is reported looking forward, using outcome probabilities. Because the projected returns of the customer's existing investment and any planned contributions are continuously dependent on market conditions, as well as specific to the defined plan parameters (including tightening up the outcome ranges as the horizon shortens), probability-based reports will make progress appear more stable. Stability in the reported integrity of the plan (eg contributions required, chance of achieving objective, not breaching the worst-case outcome) is critical to consumer confidence in long-term investing. This is the opposite

direction to ‘fair-value accounting’ but volatile reporting of funding requirements will kill confidence in personal investment plans stone dead.

Constructing the product

The component parts are asset modelling (requiring some innovation relative to widely used models), quantitative decision rules (standard applications of theoretical approaches) and a set of implementation building blocks (available even without any innovative design features).

The building blocks fall into one of two high-level categories: risk free and risky. A risk free asset can be used to dilute the risk of whatever set of risky assets are held. Dilution dominates diversification as a way of controlling the portfolio risk. Because target outcomes are expressed in purchasing power terms, horizon-matched inflation-linked bonds (preferably stripped) are the natural risk-free asset. The risk aversion setting exhibited at the planning stage, unless altered later, can systematically drive all high-level asset allocation decisions throughout the plan. Because of the importance of reliable projections, the optimal risky-asset portfolio, also dynamically managed, should probably be restricted to the major equity markets whose behaviour is evidenced by long data histories: UK, Europe, US and Japan. A richer asset mix loses more in confidence in assumptions than is gained from diversification. The requirement for continuous projections of real returns calls for modelling directly from the real return time series for these markets but need not exclude more complex multi-factor models.

It is the job of enterprise-scale IT to aggregate individual customer exposures so that total exposures can be managed (probably outsourced) cost-effectively in large pools. The delivery technologies and applications design call for both IT and creative skills.

It can be packaged as any type of wrapper, combine different wrappers (or even associated individuals) in one plan or act as a wrap account.