An Alternative Rule for Asset Allocation

Paul Temperton, CFA* says the Kelly Optimisation model is useful both for appraising fund managers' decisions and choosing where to invest

The Capital Asset Pricing Model and the Markowitz approach to portfolio optimisation have become dominant influences on the investment management industry. An edifice of statistical measures of portfolio performance and asset allocation has been built on these approaches. As a result, those charged with the task of overseeing the asset allocation decisions and performance results of fund managers often find themselves overwhelmed by a barrage of data. Pity the poor pension fund trustee faced with sheets full of alpha, beta, tracking error, Sharpe and information ratios and constrained optimisation parameters. Understandably, the reaction to this has been to look for simpler methods of guiding asset allocation. Of course, no one would want simplicity to compromise performance. But one straightforward approach – the Kelly Optimisation model – has merit both as a method for appraising the asset allocation decisions of fund managers and deciding broad asset allocation guidelines.

The Kelly Optimisation model** links the proportion of a fund allocated to any particular asset to the conviction the fund manager has in the outperformance of that asset. The rule is that the proportion invested in any asset (x%) should be related to the probability of it outperformance (p):

X= (2p-1)

Take two examples. First, a UK fund manager is benchmarked against the FTSE All Share index. His concern is to beat that index so the proportion allocated to individual stocks will depend on their perceived probability of outperformance relative to that index. Suppose the fund manager thinks that Vodafone is likely to perform in line with the index - neither outperform nor underperform. It is a 50:50 bet. So p equals 50% and the proportion of the fund allocated to it is precisely zero. Note that the method explicitly rules out holding a stock that is expected to perform in line with the market or underperform. There is no room in this system for holding stocks just to reduce tracking error relative to a benchmark.

Take a stock with a better chance of outperforming, say BP. Suppose the odds of BP outperforming are judged as somewhat higher – say 55%. Then the allocation to BP should be 55% times 2 minus 1, so 10%.

The strength of the manager's conviction will determine his asset allocation. That conviction will itself depend on the fund manager's perception of a company's fundamental strengths and whether these are properly reflected in the market's current valuation. Only stocks which are undervalued relative to their fundamentals will have a place in the manager's portfolio.

This approach to asset allocation suggests that if a fund manager is extremely bullish on a large number of stocks then the total asset allocation could come to more than 100%. That suggests there should be scope for using leverage (borrowing to buy stock). Implicitly, it lends support to the case for the type of leveraged exposure used by, for example, hedge funds and private equity.

The approach can be also be used by asset allocation committees and pension fund trustees as a simple approach to guiding broad asset allocation – say between geographic regions and/or sectors. The issue then becomes which region is likely to produce better or worse performance than an appropriate benchmark. The approach can easily use a LDI-type benchmark as the benchmark and the issue then becomes the degree of conviction in outperforming that benchmark.

The approach is easy, simple and focuses attention on the really important issues in asset allocation: namely, the extent to which potential assets for inclusion in a portfolio are appropriately valued. It would help asset allocation decisions focus on the real fundamentals.

*Paul Temperton is Course Director of the FT Knowledge Portfolio Management Academy which runs in London from Monday 16th to Tuesday 24th July 2007.

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**The original source is J.L. Kelly "A New Interpretation of Information Rate" Bell System Technical Journal Vol 35 number 3 July 1956 but the approach was discussed, in particular, by Robert Hagstrom in "The Essential Buffet" (Wiley, 2001).

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Tel: +44 (0)20 7010 2508