ACHIEVE YOUR GOALS MORE OFTEN:
A CASE FOR ACTIVE ALLOCATION

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ABSTRACT

We propose a dynamic portfolio optimization procedure which uses markets to predict asset returns as well as risks. Differing from other approaches to outperformance, we couch this approach firmly in the concept of efficient markets. In effect *using* the efficiency of markets to outperform alternate buy-and-hold strategies. We also incorporate goals-based portfolio theory in an effort to create a strategy which can be used to help investors achieve their goals more often, as this is why most investors interact with public markets in the first place.

To build the optimization strategy, we use option market implied volatility to forecast the standard deviation of an asset in the coming month. To forecast returns in the coming month, we utilize the US Treasury yield curve spread (10-Year minus 3-month) as a probability indicator of coming recessions, then use the probability-weighted sum of returns as the expected portfolio return in the coming month. This information is then used in place of historical return and variance expectations in the optimization model, and the asset allocation is re-optimized (and thus updated) each month. We tested 108 months (9 years), spanning the years 2007 through 2015.

When compared against a historically mean-variance optimized, passively-allocated portfolio, the active allocation approach presented and tested here delivers significant alpha, generally lower beta, and considerably higher probabilities of goal achievement. We find that the monthly increase in return over the passive portfolio (+10.25 basis points,

+52.15 basis points, and +64.05 basis points) generated by this strategy is statistically significant at the 5% significance level, though in one test we could not reject the null hypothesis at that level of significance.

We further find that, when compared to a simple "buy-and-hold the S&P 500" strategy, the active allocation strategy delivers alpha of 9.70, average excess monthly returns of +62 basis points (statistically significant at the 5% level), lower beta ($\beta = 0.57$), and considerably better risk/return efficiency (165% higher Sharpe Ratio).

These results are robust even after accounting for the effects of diversification, which leads us to conclude that the superiority of the approach can be attributed to the information content of market-based forecasts.
