
PRACTITIONER'S DIGEST

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FORECASTING AND MANAGING VOLATILITY: AN S&P 500 CASE STUDY **PAGE 4**

Wei Dai, Xing Hong, Robert C. Merton and Mathieu Pellerin

Investors often hold portfolios with constant target weights, with the 60/40 portfolio being the quintessential example. This choice may reflect the amount of volatility exposure an investor desires to maintain. However, while asset class weights may be constant, the volatility of the portfolio is not. The disconnect arises because volatility is time-varying. Therefore, the volatilities of different assets can take long-lasting swings away from their long-run values. However, because volatility is persistent, it can be forecasted with a reasonable degree of accuracy. This predictability opens the door to target volatility (TV) strategies that dynamically change weights to stabilize volatility around a target.

TV strategies require a volatility forecast. The key aim of our paper is to study the link between different volatility forecasts and the effectiveness of volatility control via a simple TV strategy that increases exposure to the S&P 500 when forecasted volatility is low and increases exposure to cash when forecasted volatility is high. We find that forecasts with low prediction errors do not necessarily lead to the best volatility stabilization when applied to TV strategies, highlighting the need to evaluate volatility stabilization separately. We also find that simple forecasts, especially when combined with implied volatility (such as the VIX), stabilize volatility as well as more complex methods. Finally, we find that TV strategies are viable in the presence of realistic trading costs and constraints around the timing and frequency of rebalancing.

Overall, our findings suggest that TV strategies can help stabilize volatility much more effectively than conventional, fixed-weights portfolios. TV indices are already widely used in structured products and annuities because volatility control reduces hedging costs for the issuing entity, potentially resulting in better payoffs for the end investor. Our research shows that the scope of application may be significantly broader, and that TV strategies may be viable alternatives to the venerable 60/40 and similar portfolios. Indeed, our findings provide guidance on real-world implementation by showing which forecasts strike a balance between complexity, trading costs, and volatility stabilization.

CAN UNDER-DIVERSIFICATION EXPLAIN THE SIZE EFFECT?**PAGE 22***Moshe Levy*

Small company stocks yield average returns in excess of those expected by the CAPM, given their betas. This well-known “size effect” or “small firm effect” is one of the most central and long-lasting anomalies in finance. What is the reason for the size effect? Can it be exploited to achieve abnormal returns, or is size a proxy for some risk factor that is not captured by the CAPM?

This paper suggests an explanation for the size effect, which is based on the empirical observation that most investors concentrate sizeable proportions of their investments in a few stocks. When the portfolio weight of a stock is non-negligible, the stock’s variance is priced. Small stocks are much more volatile than large stocks, and thus they command a premium. The paper derives the relation between under-diversification and the size premium, and shows that the analytically predicted premium is in close agreement with the empirically measured size effect.

In an equilibrium with both under-diversified and well-diversified investors, the size effect represents a risk-premium for the under-diversified investors, while representing an opportunity for the well-diversified investors to achieve abnormal performance.

THE CAPM, APT, AND PAPM**PAGE 39***Thomas M. Idzorek, Paul D. Kaplan and Roger G. Ibbotson*

Asset pricing models are central to almost every aspect of finance. They are used in estimating expected returns, valuation, portfolio formation, and cost of capital analysis. Unfortunately, from a practitioner’s perspective there has arguably been little progress in asset pricing models over the last half a century. In this paper, we compare the CAPM (Capital Asset Pricing Model) and the APT (Arbitrage Pricing Theory) with a new asset pricing model, the PAPM (Popularity Asset Pricing Model).

The PAPM is a multi-factor asset pricing model rooted in the idea of “popularity” with less restrictive assumptions than the CAPM and more realistic assumptions than the APT. The main idea behind popularity is that if enough investors like or dislike a given characteristic, it will impact asset prices. Investments with liked characteristics, such as low risk, high liquidity, short duration, high growth, glamorous businesses, and green are in high demand (popular) and thus more expensive, with lower expected returns. Conversely, investments with disliked characteristics are in low demand (unpopular) and thus less expensive, with higher expected returns. From a backward-looking perspective, we believe many of the most notable realized premiums can be linked to an explanation related to popularity.

Fama and French (2007) identify ‘tastes’ and ‘disagreement’ as two ingredients that impact asset prices that are missing from the CAPM, but stopped short of developing an asset pricing model that incorporates either. The PAPM incorporates both. The APT assumes a linear structure of multiple factors, while the linear structure of the PAPM is not an assumption, rather it flows from the underlying utility functions of the investors linking portfolio formation to equilibrium asset prices. Practitioners will find most, if not all, of the key aspects of the PAPM more realistic than those of the CAPM and APT. The PAPM leads to powerful conclusions and important real-world implications for practitioners.

By allowing for a variety of investor preferences/tastes and incorporating diverse opinions, the PAPM takes two major steps towards a more realistic asset pricing model, with a theoretically driven multi-factor linear structure. The PAPM helps practitioners to better value assets, estimate cost of capital, and form personalized portfolios.

FIXED INCOME INDEX FUNDS: DEMYSTIFYING PORTFOLIO CONSTRUCTION AND REBALANCING

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Stephen Laipply, Ananth Madhavan, James Mauro and Nogie Udevbulu

The paper “Fixed Income Index Funds: Demystifying Portfolio Construction and Rebalancing” examines the dynamics around the significant growth in assets in fixed income index funds, including mutual funds and ETFs, and explores important questions about their portfolio construction and rebalancing strategies.

In the paper, the authors develop a methodology to assess the value added by portfolio managers and their methods in the management of fixed income index funds. One of the key highlights of the paper is the detailed explanation of the differentiated techniques that portfolio managers can utilize through the rebalancing process, owing to the unique features of fixed income markets. For example, fixed income index fund managers can allow bonds deleted from an index to mature naturally rather than being forced to immediately sell at potentially suboptimal prices. Managers may also strategically position in anticipation of known forthcoming index additions and benefit from quantity discounts when sourcing bonds through channels such as primary market bond issuance. These strategies enhance the operational efficiency of fixed income index funds and may provide significant cost savings for fund investors.

The empirical analysis presented in the paper demonstrates that fixed income index portfolio management techniques add substantial value and considerably mitigate the impacts of fund rebalancing. The analysis provides valuable insights for investors, other fund managers, and researchers who seek to further understand the rebalancing processes of index funds in general, as aspects of this methodology can apply more broadly to index fund portfolio management in other asset classes.