Volatility Managed Portfolios

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Executive Summary

Managed portfolios that take less risk when volatility is high produce large risk-adjusted returns ("alphas") and substantially increase the ratio of expected excess return to risk (the Sharpe ratio) because changes in factor volatilities are not offset by proportional changes in expected returns. This translates into large potential utility gains for mean-variance investors. Alan Moreira and Tyler Muir document these findings for the market, value, momentum, profitability, return on equity, and investment factors in equities, as well as for the currency carry trade. The volatility-managed strategy they consider is contrary to conventional wisdom because it takes relatively less risk in recessions and crises yet still earns high average returns.

The researchers motivate their analysis from the vantage point of mean-variance investors who adjust their allocations according to the attractiveness of the tradeoff between the mean expected return and the variance of returns. Because variance is highly forecastable at short horizons, and variance forecasts are only weakly related to future returns at these horizons, their volatility-managed portfolios produce significant risk-adjusted returns. From a portfolio choice perspective, this pattern implies that a standard mean-variance investor should time volatility by taking more risk when the mean-variance trade-off is attractive (volatility is low), and taking less risk when the mean-variance trade-off is unattractive (volatility is high). Annualized alphas and Sharpe ratios with respect to the original factors are substantial. For the market portfolio, their strategy produces an annualized alpha of 4.9 percent and a 25 percent increase in the buy-and-hold Sharpe ratio.

The pattern of volatility and returns that they observe presents a challenge to research that seeks to explain the dynamics of risk premia using representative agent models. In contrast to the prediction of most standard models, their results suggest that investors' willingness to take stock market risk must be higher in periods of high stock market volatility. Sharpening the puzzle is the fact that volatility is typically high during recessions, financial crises, and in the aftermath of market crashes, when theory generally suggests investors should, if anything, be more risk averse relative to normal times.

The researchers' volatility-managed portfolios reduce risk taking during these bad times, when many financial advisers suggest increasing risk-taking. Their simple strategy turned out to work well throughout several crisis episodes, including the Great Depression, the Great Recession, and the 1987 stock market crash. More broadly, they show that their volatility-managed portfolios take substantially less risk during recessions, so that exposure to standard business cycle risks is not likely to explain the findings.

Once they establish that the profitability of their volatility-managed portfolios is a robust feature of the data, they study the economic interpretation of their results in terms of utility gains, the behavior of the

aggregate price of risk, and equilibrium models. They find that mean-variance utility gains from their volatility-managed strategy are large, about 65 percent of lifetime utility. This compares favorably with many estimates of the mean-variance utility benefits of timing expected returns.