Tail Hedging Strategies

Many investors insure against tail risk directly, often by purchasing puts or structuring collars. Unfortunately, experience and financial theory suggest that the long-term cost of such insurance strategies will be larger than the payouts.

We describe an alternative approach to hedging a portfolio’s equity tails.
Tail Hedging Strategies

Executive Summary

- We believe tail hedging strategies can have a role in portfolios, but traditional approaches leave room for improvement.
- We describe three strategies that have empirically shown a tendency to provide protection against large losses in equity markets, and more attractive returns than passive exposure to equity put options.
- Finally, we argue diversification should have a role in a tail hedging strategies.

Why Tail Hedges?

Tail hedges are one way to potentially limit losses in adverse markets. They may better enable investors to stick with their positions through bad times and thus be long-term. Tail hedges may even create potential for investors to opportunistically pick up risky assets in times of market distress (often at fire-sale prices).¹

An Alternative Tail Risk Strategy

An alternative approach should be more cost-effective and provide protection against the dominant risk in a portfolio – typically, equities. Trend-following strategies are one example: They cannot give as reliable downside protection as index puts, but they have provided surprisingly consistent safe-haven services when most needed, while delivering positive long-run returns. A recent AQR white paper shows that a simulated trend-following composite earned positive returns impressively in nine of the ten worst drawdowns of a 60/40

Exhibit 1 | Hypothetical Cumulative Growth of $100 into 1-Year OTM Puts on the S&P, 1996 - 2012

Source AQR. Notes: The put portfolio buys one-year SPX 10% out-of-the-money (OTM) index puts (constant notional sizing, combining March, June, September and December options with equal weights). Chart is provided for illustrative purposes only and is not based on an actual portfolio AQR manages. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix hereto. Past performance is not a guarantee of future performance.

¹ See our white paper “Chasing Your Own Tail (Risk)” for more on pitfalls and potential solutions to tail risk hedging.
Alternative Thinking | Tail Hedging Strategies

Exhibit 2 | Total Returns of a U.S. 60/40 Portfolio, 10 Year US Bonds, Gold, and a Hypothetical Trend-Following Strategy in the Ten Worst Drawdowns for 60/40, Simulated Data, 1903–2012

stock/bond portfolio since 1903 (see Exhibit 2). More-typical safe haven assets – gold and Treasuries – did not provide as consistent downside protection.

We believe in diversification also when it comes to cost-effective tail hedges, so we look at multiple strategies. Because equity markets can suffer for different reasons, tail risk strategies should be diversified to benefit across a range of weak macroeconomic environments. We think core components of cost-effective approach to tail hedging should include:

- Customized Trend Following – strategies designed to profit from persistent trends in equity, fixed-income, currencies and commodities markets. These strategies can be customized with the goal of protecting investors from sudden losses in equity markets; for example, they can be constrained against taking net long positions in equities.
- Defensive Equities – a stock selection strategy based on company fundamentals. Such a strategy may seek to capture the relative outperformance of high-quality companies during weak equity markets. We find that a long/short stock selection strategy based on measures of companies’ quality and risk delivers negative beta to the market with zero-to-positive long-term expected returns.
- Global Macro – a diversified set of dynamic strategies that deliver tactical exposures to safe-haven assets (long), risk premia (short), and volatility (long). For example, the strategy may seek long exposures to safe-haven assets such as sovereign bonds when bonds are perceived to be
attractive, and may seek short exposure to risk premia such as the credit risk (by purchasing credit default protection) when credit is perceived to be expensive.

All these strategies are designed to perform especially well through weak equity markets when most investments suffer. **Exhibit 3A** illustrates the average performance of three investment styles from extremely weak through extremely strong equity markets. Even though each of these approaches exhibited smaller “tails” than a 60/40 portfolio, a risk parity portfolio of market risk premia and a hedge fund index still lost money in the worst equity market episodes since 1990, and a portfolio of hedge fund risk premia was barely flat.

In contrast, **Exhibit 3B** shows that the three tail-risk strategies described above performed well in negative tail events – exhibiting appealing convexity overall, as they were designed to do.²

---

² One can link the patterns in Exhibits 3A-B to equity market correlations. Hedge fund indices and market risk premia have equity market correlations above 0.5. Hedge fund risk premia, when properly designed to target market-neutrality, have a market correlation below 0.2. They are better diversifiers but still not tail hedges for the downside scenarios.
A diversified composite of these three strategies would have provided clearly more cost-effective tail protection than the put option buying approach shown in Exhibit 1. Regressing the simulated composite on the 1-year 10% OTM put strategy between 1997 and 2011 would have provided significant alpha, with a beta of one and correlation 0.74 between the two series.

In all, we believe cost-effective, proactive tail hedging strategies, together with drawdown control rules, can offer valuable downside protection for portfolios when most needed.
Important Disclosures

This document has been provided to you solely for information purposes and does not constitute an offer or solicitation of an offer or any advice or recommendation to purchase any securities or other financial instruments and may not be construed as such. The factual information set forth herein has been obtained or derived from sources believed by the author and AQR Capital Management, LLC (“AQR”) to be reliable but it is not necessarily all-inclusive and is not guaranteed as to its accuracy and is not to be regarded as a representation or warranty, express or implied, as to the information’s accuracy or completeness, nor should the attached information serve as the basis of any investment decision. This document is intended exclusively for the use of the person to whom it has been delivered by AQR, and it is not to be reproduced or redistributed to any other person. The information set forth herein has been provided to you as secondary information and should not be the primary source for any investment or allocation decision. This document is subject to further review and revision. Past performance is not a guarantee of future performance.

Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. Investments cannot be made directly in an index.

This document is not research and should not be treated as such. This document does not represent valuation judgments with respect to any financial instrument, issuer, security or sector that may be described or referenced herein and does not represent a formal or official view of AQR.

The views expressed reflect the current views as of the date hereof and neither the author nor AQR undertakes to advise you of any changes in the views expressed herein. It should not be assumed that the author or AQR will make investment recommendations in the future that are consistent with the views expressed herein, or use any or all of the techniques or methods of analysis described herein in managing client accounts. AQR and its affiliates may have positions (long or short) or engage in securities transactions that are not consistent with the information and view s expressed in this document.

The information contained herein is only as current as of the date indicated, and may be superseded by subsequent market events or for other reasons. Charts and graphs provided herein are for illustrative purposes only. The information in this document has been developed internally and/or obtained from sources believed to be reliable; however, neither AQR nor the author guarantees the accuracy, adequacy or completeness of such information. Nothing contained herein constitutes investment, legal, tax or other advice nor is it to be relied upon in making an investment or other decision.

There can be no assurance that an investment strategy will be successful. Historic market trends are not reliable indicators of actual future market behavior or future performance of any particular investment which may differ materially, and should not be relied upon as such. Target allocations contained herein are subject to change. There is no assurance that the target allocations will be achieved, and actual allocations may be significantly different than that shown here. This document should not be viewed as a current or past recommendation or a solicitation of a n offer to buy or sell any securities or to adopt any investment strategy.

The information in this document may contain projections or other forward-looking statements regarding future events, targets, forecasts or expectations regarding the strategies described herein, and is only current as of the date indicated. There is no assurance that such events or targets will be achieved, and may be significantly different from that shown here. The information in this document, including statements concerning financial market trends, is based on current market conditions, which will fluctuate and may be superseded by subsequent market events or for other reasons. Performance of all cited indices is calculated on a total return basis with dividends reinvested.

The investment strategy and themes discussed herein may be unsuitable for investors depending on their specific investment objectives and financial situation. Please note that changes in the rate of exchange of a currency may affect the value, price or income of an investment adversely.

Neither AQR nor the author assumes any duty to, nor undertakes to update forward looking statements. No representation or warranty, express or implied, is made or given by or on behalf of AQR, the author or any other person as to the accuracy and completeness or fairness of the information contained in this document, and no responsibility or liability is accepted for any such information. By accepting this document in its entirety, the recipient acknowledges its understanding and acceptance of the foregoing statement.

Hypothetical performance results (e.g., quantitative backtests) have many inherent limitations, some of which, but not all, are described herein. No representation is being made that any fund or account will or is likely to achieve profits or losses similar to those shown herein. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently realized by any particular trading program. One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical trading does not involve financial risk, and no hypothetical trading record can completely account for the impact of financial risk in actual trading. For example, the ability to withstand losses or adhere to a particular trading program in spite of trading losses is material points which can adversely affect actual trading results. The hypothetical performance results contained herein represent the application of the quantitative models as currently in effect on the date first written above and there can be no assurance that the models will remain the same in the future or that an application of the current models in the future will produce similar results because the relevant market and economic conditions that prevailed during the hypothetical performance period will not necessarily recur. There are numerous other factors related to the markets in general or to the implementation of any specific trading program which cannot be fully accounted for in the preparation of hypothetical performance results, all of which can adversely affect actual trading results. Discounting factors may be applied to reduce suspected anomalies. This backtest’s return, for this period, may vary depending on the date it is run. Hypothetical performance results are presented for illustrative purposes only. In addition, our transaction cost assumptions utilized in backtests , where noted, are based on AQR’s historical realized transaction costs and market data. Certain of the assumptions have been made for modeling purposes and are unlikely to be realized. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered. Changes in the assumptions may have a material impact on the hypothetical returns presented. Hypothetical performance is gross of advisory fees, net of transaction costs, and includes the reinvestment of dividends. If the expenses were reflected, the performance shown would be lower. Where noted, the hypothetical net performance data presented reflects the deduction of a model advisory fee and does not account for administrative expenses a fund or managed account may incur. Actual advisory fees for products offering this strategy may vary.

There is a risk of substantial loss associated with trading commodities, futures, options, derivatives and other financial instruments. Before trading, investors should carefully consider their financial position and risk tolerance to determine if the proposed trading style is appropriate. Investors should realize that when trading futures, commodities, options, derivatives and other financial instruments one could lose the full balance of their account. It is also possible to lose more than the initial deposit when trading derivatives or using leverage. All funds committed to such a trading strategy should be purely risk capital.

The white papers discussed herein can be obtained or derived from January 1903 to June 2012. Since not all markets have return data going back to 1903, we construct the strategies using the largest number of assets for which return data exist at each point in time. We use futures returns when they are available. Prior to the availability of futures data, we rely on cash index returns financed at local short rates for each country. Please refer to the A Century Evidence on Trend Following Investing white paper for additional information. Please inquire at AQR for a copy of this paper.