



Understanding tail-risk hedges and funds – part three

Bailey McCann, Opalesque, New York :

In our [previous installment](#) of this series, we examined how risk experts define tail risk and if certain tail events can be predicted. Now we will turn to how tail risk hedges are structured relative to the rest of the portfolio.

Evolution

Traditional portfolio construction typically had large clients at a 60/40 split between stocks and bonds. For institutional investors, this split also gave itself to being long-only, and operating on a "buy and hold" approach. With the rise of alternative investments, portfolio construction evolved to offer investors more options for their allocations including strategies that go both long and short, and offer access to a broader asset class mix.

Over the course of this evolution, the risk profile of a given portfolio has also changed often to reflect increased risk as a result of pursuing higher returns. In response to this, investors have seen the rise of a variety of risk mitigation measures, with some notable failures. Leland and Rubinstein's [portfolio insurance](#), which was designed to replicate the performance of a put option systematically, was one approach, and is now generally acknowledged to have exacerbated the 1987 crash.

Other, synthetic instruments, originally created for one purpose and then broadly utilized by people who handle them poorly, can have similar consequences. Take for example, the [multi-billion dollar write-downs](#) during the credit crisis resulting from collateralized debt obligations (CDOs), that were poorly constructed, underwritten and rated, yet used writ large by banks and hedge funds alike. CDOs are a type of asset-backed security (ABS) that have multiple tranches and are collateralized by debt obligations including loans. The poor use and misuse of these types of instruments can help precipitate tail events when used as broadly as these were, even though they are typically used because of their reputation to have low risk or act as a risk mitigator to the broader portfolio.

As such, left tail risk hedges have become more popular recently, as a means of protecting the portfolio from an event several standard deviations outside of its normal risk profile. Some of the most well-known research on left tail risk hedges has been done by Dr. Nassim Taleb, who has authored several books explaining in detail the underpinnings of tail events and their impact. He is also a principal at Universa Investments LP an investment management firm that specializes in convex tail-hedging and tail-investing, ranging from hedging stock market crashes and inflation to macro and equity options strategies. Universa runs tail-hedging and tail-investing strategies for institutional investors, and manages the world's first tail-protected ETFs launched in May 2012 and traded on the TSX via Horizons ETFs.

"Nassim Taleb is really the grandfather of the tail-hedging field. What he is doing in terms of work on tail risk and its influence on the financial industry is not unlike Markowitz's impact on portfolio management back in the 1950's, and in fact counterbalances the mistakes of Markowitz's followers that created flawed models like Value at Risk," explains Claude Bovet, Founder and Managing Director of Lionscrest Capital, which acts as the conduit for institutional investors seeking to invest in Universa's tail-hedging and tail-investing strategies through its own TailPro series of comingled funds.

Universa, is the dominant player in the tail risk space, managing approximately \$6bn in assets and providing much of the research basis for understanding how to hedge these events. According to Bovet, following Lehman's collapse in September 2008 (a Black Swan event) until the end of the year, the S&P 500 lost -30% whereas a tail-protected S&P 500 using Universa's tail-hedging strategy would have been up +15%. The Universa strategy's stand-alone gain notionally was more than 130% for that period and on a cash basis using a typical funding rate of 5% was over +2,600%. The key driver of these returns is how the hedge is structured.

Structure

"If your objectives are to keep beta near zero, mute volatility, and catch the upside of your trades, you have to have a tail hedge plan in place to meet all three of those conditions," says Warren Wright, CIO of Diversified Global Asset Management (DGAM), a Canadian fund of hedge funds. DGAM implemented a proprietary, direct tail risk hedging strategy in 2007. According to the firm, when the 2008 crisis hit, their approach to left tail risk generated 600-800bps of positive return across all portfolios.

Left tail risk hedges are dependant on size and capturing convexity. "Sizing a hedge in a portfolio is a function of the perceived level of market risk, the amount of risk embedded in the portfolio, the cost of hedges, and an investor's utility or objective function," explains David Hay, Managing Director, DGAM. A significant tail event, is usually a minimum of 2 or 3 standard deviations outside of the normal risk profile, or a loss of 20% or more. Investors considering left tail risk hedges will then determine what they are willing to pay in premium now to keep the portfolio flat or cover that 20%.

Once the size is clear, buying convexity when it is cheap in order to achieve that size, is a way to keep costs low when putting on a tail risk hedge. Convexity is a measure of how sensitive the duration of a bond is to changes in interest rates. If the convexity and duration of a trading book is too high, so is the risk – effective hedges bring this down. This is especially important for institutional portfolios, like pension funds, which are mandated to generate low-risk returns. The most common structure for a left tail risk hedge is to buy out-of-the-money put options, essentially taking a position contrary to the current upside. DGAM has also used synthetic credit instruments including equity market calls, super senior tranches, single name credit protection, and CMBX – a group of indexes made up of 25 tranches of commercial mortgage-backed securities (CMBS). "We use a range of instruments across all asset classes. We consider the cost of a hedge versus its potential upside while remaining cognizant of the basis risk between that instrument and our underlying portfolio," Hay says.

"At times we have held entirely credit based hedges, while at other times we have held exchange traded equity options. The relative cheapness of equity options, a reduction in counterparty risk and enhanced liquidity were key drivers of the decision to exit credit hedges in favor of equity hedges in the spring of 2008, as one example. The point of DGAM's tail hedge is to capture the asymmetry between a well diversified portfolio of high Sharpe ratio assets and lower Sharpe ratio market factors."

According to Wright, tail risk hedges should be discretionary, and cannot be market timed, "acting on an ex-ante basis is critical." Both men note that making tail risk hedges discretionary is also tied to the need for dynamic hedge sizing, in order to remain ahead of changes in the market. Hay offers two examples of how this works for investors, "in August 2011, underlying fund managers were cutting back on risk so we pulled back on our hedges, generating material gains during that time.

We also often look at the steepness of the volatility curve, monitoring the shape of that curve and the price of VIX options against the shape of the curve, in some instances we have been paid to put on hedges."

Bovet notes that liquidity is also an important structural component, "tail-hedging strategies (particularly pooled funds) that require long lock-ups have extreme liquidity risks and cannot be relied upon when mitigating tail-risk."

In addition to these instruments, others including swaptions and volatility plays are controversially included in tail-risk plans. Next Monday, we will look at these structures, their risk, and whether they can realistically be included as a tail risk hedge.

Full article link (subscription required): http://www.opalesque.com/642958/Understanding_hedges_and_funds_part295.html