Central Issue of the Paper

With equity and bond market valuations near all-time highs, defaults on the rise, and central banks around the world set to drain liquidity from the financial system, the risk of a major decline in asset prices over the next couple of years has increased significantly. At the same time, valuations have given investors few good choices to earn returns without taking much more risk and exposing themselves to large losses. A possible solution to this dilemma, and the subject of Michael Ning and Michael Depalma’s paper “Investing in an Overvalued Market and Tail-Risk Hedging”, is to incorporate a tail-risk hedging strategy into the portfolio. By incorporating a tail hedge strategy, investors can increase their allocation to risky assets to add returns while protecting against the “black swan” events that result in large losses.

Approach Employed by Paper

What is Tail Risk?

Tail risk is a form of portfolio risk that arises when the possibility that an investment will move more than some extreme threshold, say three standard deviations from the mean, is greater than what is implied by a normal distribution. Tail risk defined this way includes both extreme positive and negative outcomes. For purposes of this paper, the authors focus on the left side of the distribution. Left-tail events, with extreme drawdowns and volatility, occur more frequently than assumed using traditional models of risk and asset allocation. Not just limited to stocks, almost all asset classes exhibit fatter tails than implied by a normal distribution.

Tail-Risk Hedging Strategies

A simple purchase of put options can span multiple asset classes, e.g. S&P 500 put, VIX call, receiver on US 10YR Rates, CDX Index payer, and put options on high beta currencies. While the buyer of an option gets a hedge, the seller requires a risk premium to compensate for the risk transfer. The value of an option is driven by price movements of the underlying asset and its volatility, among other things. A fall in asset prices or a rise in volatility would increase the value of the option; likewise, when volatility is low, options often trade at relatively lower prices.
Today’s overstretched asset prices and low volatility should mean historic opportunities to buy options. However, this traditional hedging strategy can still be expensive and may have limited benefit, even when tail events occur. It’s also important to recall that both the slope of volatility curve and volatility skew are affected by sentiment and supply and demand, and they provide information on whether investors prefer to write calls or puts. At today’s extreme levels it seems investors believe today’s extraordinary calm won’t last much longer.

A Disciplined All Asset Approach to Tail Risk Hedging

All asset classes share exposure to a small set of common fundamental risk factors that explain their risk and return. Under normal circumstances, different asset classes are driven by a different set of factors, such as inflation and GDP growth, which can, and usually do, diversify each other. In a crisis, the usual drivers of performance may be superseded by a different set of factors that affect all asset classes in a similar way, such as volatility, correlation, and liquidity. These factors act as a common link between asset classes, and returns on different assets can be highly correlated in times of crisis. As a result of these relationships, left-tail events often expose many strategies as having a “short” position in volatility, correlation or liquidity, each of which tend to suffer. Therefore, we believe one of the keys to the success of tail-risk hedging is to identify cost effective ways in which an investor can seek exposure to “long volatility,” “long correlation,” and “long liquidity.”

To implement tail-risk hedging strategies that are volatility-, correlation-, and liquidity-centric in an efficient manner, the tail hedge universe should span all assets and include derivatives in the global equity, credit, FX, rates, and commodities markets.

Direct tail hedges typically involve assets that carry a risk premium, such as emerging market currencies or high-yield debt—we think of them as being “short-tail risk” because when volatility rises and/or liquidity dries up, they are likely to lose money. A few examples of such strategies include:

- **In equities**, put options benefit when equity prices fall, and volatility rises.

- **In currencies**, options can be used to construct hedging strategies. One example is an “anti-carry” trade that takes a long position in low yield currencies, like the Japanese yen and a short position in a high-yield currency, like the Australian dollar. The idea is that higher yielding currencies typically underperform safe haven currencies when market participants become more risk averse.

- **Volatility dispersion trading** exploits relative value differences in implied volatilities between an index and a basket of its component stocks. The strategy typically involves a long option position on an index, against which short option positions are taken on a subset of index constituents. A dispersion trade is a type of a correlation trade as it usually losses money when the individual stocks are not strongly correlated (i.e., dispersion is high) and is profitable during stress periods when correlations rise (i.e., dispersion decreases) among the index members.

Other factors worth taking into consideration include whether a trade can be used to balance tail-risk exposures and allow for executable monetization of gains during calmer markets. More
importantly, a tail hedge may only work in certain macro regimes. Many tail hedges are proxy hedges bearing macroeconomic or idiosyncratic risk and rarely surface with any consistency.

**Obtaining Tail Protection at a Reasonable Cost**

One way to obtain tail protection at a reasonable cost is by making an exchange in which one can trade off (sell) insurance against higher-frequency/low-impact events in order to fund the purchase of insurance against the much more damaging lower-frequency/high-impact events. This opportunity presents itself in many different markets. A classic example is that one can sell protection on riskier credit tranches and buy protection on the least risky credit tranches in a structured Collateralized Debt Obligation (CDO). Protection on riskier tranches is expensive (and selling it is lucrative) because the market expects a few defaults even under normal conditions. Conversely, protection on the least risky tranches is cheaper because the market doesn’t expect many defaults unless an extreme scenario unfolds. Put options on these “super senior” tranches become more valuable during times of market stress because investors start worrying about the potential for a much higher number of correlated defaults.

**Findings of the Paper**

We have witnessed one of the longest expansions in modern US history. If conventional wisdom holds, we should expect an economic slowdown in the next 12–24 months, and stocks are likely to struggle in the years that follow. One option investors should consider in order to remain invested with fear is to add a tail-risk hedging component to their portfolios. We believe a successful tail-risk hedging strategy needs to cover the following aspects:

- A macro framework to identify the current macro regime, assets that benefited disproportionately, and the ability to evaluate the regime migration path and its impact on markets
- Seek opportunities across multiple asset classes
- Seek cost-effective strategies to reduce premium spend
- Disciplined rebalancing and monetization process

In an environment where valuations are high, volatility is low, and the performance of CTAs and other defensive strategies has been lackluster, tail-hedging strategies can help meet the needs of investors who seek to achieve return targets while preserving capital.