Tail Risk Hedges: Do We Need Them?

Faisal AlJasir
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I am sure many of you have heard about tail risk hedging, and I wouldn't be surprised if you have wondered with skepticism about their true merit to our day-to-day business operations. We all know that extreme market shocks are rare; however, it is vital for entities to adequately prepare for these extreme events since they can prove to be very costly.

In financial risk management, the term "tail" in tail risk refers to the far-left hand side of the bell-shaped curve that demonstrates the probability distribution of events. In the context of your business, this could be a significant increase (decrease) in interest rates, material volatility in your foreign exchange and commodities exposure, or a substantial decline in your equity portfolio. No matter what the risk factors your entity is exposed to, it is important to understand that at times of crises, the benefit of diversification usually diminishes, historical relationships between many asset classes tend to break down, and correlations to likely rise. This, in turn, would magnify an already tricky situation.

Tail-risk hedging is defined here by the desire to avoid, or at least mitigate, large unfavorable market movements and a potential material increase in an entity risk profile. Thus, tail risk hedging strategies aim to protect against extreme market moves at the expense of giving up a little bit of return to purchase protection against a market breakdown. This type of hedging is similar to the concept of insurance. Generally, an entity's focus should be on identifying its key risk factors, their effect on the balance sheet, and understanding their risk tolerance to determine the cost-effective way to protect against these risks. Hence, tail risk hedging is considered a bespoke risk management strategy.

MARKET SHOCKS & RISK TOLERANCES

Extreme market shocks, although uncommon, are observable facts that are happening and will continue to happen as long as the world has had financial markets. They come in many forms, market crashes, failure of major institutions, geopolitical unrest, and the outbreak of a pandemic disease like the one we have witnessed lately. All of which have had a profound effect on market risk factors one way or the other depending on the nature of the crises.

The challenge with extreme events comes in the form of being able to model them, and therefore, predict their effects on relevant asset classes. This is because extreme events are typically rare, making the number of observations for which one could use to forecast such events limited. Besides, asset classes differ in their behavior under market shocks. For instance, as implied by the volatilities of their options, foreign exchange (FX) rates changes tend to be more extreme since their volatilities are not constant and often jump from one level to another, which paves the way for extreme currency rate levels. On the other hand, interest rates (IR) tend to witness drastic shifts but eventually revert to their mean even if they exhibit time-varying volatilities. Unlike FX and IR, equities have had empirically a left-skewed volatility distribution which translates to a higher probability of sizeable downward price shocks as opposed to upward ones.

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Proper modeling of asset classes is crucial in many domains of financial risk management. Moreover, since tail risk play an instrumental role in identifying financial institutions' economic capital, models need to be able to capture tail events properly. Nevertheless, in the context of non-financial organizations, the ability to model such risk could end up being a cumbersome exercise and, realistically speaking, may not be a required one. Hence, the question we ask here, how can an organization properly prepare for extreme market shocks? And I believe the answer could be by understanding its own and unique tail risk. As mentioned earlier, each organization's balance sheet is exposed uniquely to different risk factors. By identifying such exposure, and being able to quantify their impact, an entity would be much better positioned to manage its tail risk.

Of course, an organization's tail risk is a function of its risk tolerance. Risk tolerances are the quantitative thresholds that relate an organization's risk appetite to a specific risk factor. Certain risk tolerances are hard limits that should not be exceeded except under exceptional circumstances, while other risk tolerances are soft limits such as guidelines or triggers for risk reviews and mitigation. Hence, risk tolerance can be viewed as a strategic readiness to bear a specific risk within established parameters. For instance, living in an ultra-low interest rate environment, an organization that is highly leveraged might determine that if rates breached the threshold of 3%, then its ability to service its debt will be put to the test. Although breaching this threshold is relatively a remote possibility, yet it constitutes a tail risk for this organization. One more form of organizational tail risk could be if an organization is budgeting all its EURUSD procurements at an exchange rate of 1.35, a relatively far off market rate, but are still concerned with an extreme exchange rate shock that would materially impact their cash flow forecast and profitability.

HEDGING YOUR TAIL RISK

The idea of hedging against rare events seems counter-intuitive, yet unexpected events are more common than most people think, as argued by Nassim Taleb in his bestseller book, The Black Swan. The pandemic had imposed upon us a shock like no other; in recent months, we noticed how more of our clients have been asking about tail risk hedging strategies that address their specific exposure.

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Depending on the nature of the exposure, tail risk hedging can be achieved via different approaches including the use of financial derivatives. One basic approach to tail risk hedging, referring to our first example above, is purchasing an out-of-the-money Cap or Swaption to hedge the tail event of breaching the interest rate level of 3%. Respectively, a series of European call options or Collars would provide protection above and beyond the EURUSD exchange rate of 1.35. Naturally, tail risk hedgers expect to bear a cost for this insurance, at least in stable times. It will primarily depend on how far out-of-the-money these options are and the level of implied volatilities at the time of executing the strategy.

Utilizing derivatives to hedge tail risk could come in endless forms, and the above approaches are merely a basic example. Sensible organizations would pay careful attention to the relative cost of various protective solutions to enhance their net-of-cost protection. Given these hedges are way out-of-the-money, applying hedge accounting would present a challenge that should be considered at the outset. As a best practice, any tail risk hedging should be clearly defined within a prescribed policy that optimizes the organization risk management initiatives.

For more information, please contact Faisal AlJasir, Co-Managing Partner at Ehata Financial, ***faisal.aljasir@ehata.com.sa***

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