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Janus Henderson
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Tail Risk Report

An outlook on asset classes based on potential tail gains and losses

As of 12/31/18

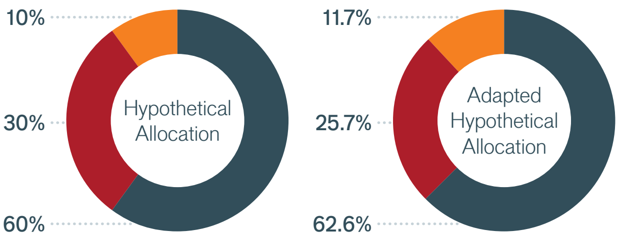
Uncertainty on the Rise ... Who Will Blink First – the Fed or the Market?

Myriad forces at play in markets and the global economy have left investors scratching their heads and searching for some signs of clarity. Conflicting economic readings about the strength of the U.S. economy appear to be pulling investors in opposite directions: on one hand, slowing manufacturing activity points to a slowing economy; on the other hand, a robust job market points to continued strength in the U.S. economy.

Ashwin Alankar, Ph.D.
Head of Global Asset Allocation | Portfolio Manager

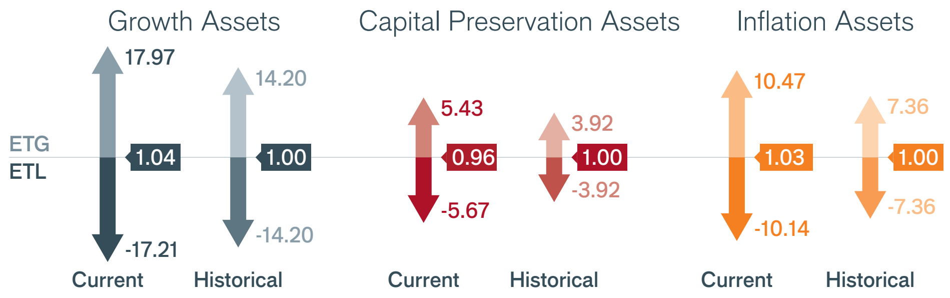
Impact of Tail Risk Signals on Hypothetical Asset Allocation

Using proprietary technology, Janus Henderson's Adaptive Multi-Asset Solutions Team derives tail risk signals from options market prices on three broad asset classes. Given our current estimates of tail risks, we illustrate how those signals would impact a 60/30/10 allocation.



- **Growth Assets**
  U.S. Equities, Non-U.S. Equities, EME, IG/HY Credit Spread
- **Capital Preservation Assets**
  G12 Sovereign Debt
- **Inflation Assets**
  Commodities, Linkers, Break-even Inflation

Current Tail-Based Sharpe Ratios (Expected Tail Gain/Expected Tail Loss*)



We arrive at our monthly outlook using options market prices to infer expected tail gains (ETG) and expected tail losses (ETL) for each asset class. The ratio of these two (ETG/ETL) provides signals about the risk-adjusted attractiveness of each asset class. We view this ratio as a "Tail-Based Sharpe Ratio." These tables summarize the current Tail-Based Sharpe Ratios of three broad asset classes.

Beginning in August 2016, the "Tail-Based Sharpe Ratios" have been normalized to 1.00 to allow for easier comparison across the three macroeconomic asset categories.
*We define ETG and ETL as the 1-in-10 expected best and worst two-month return for an asset class.

Tail Risk Report (as of 12/31/18)

The about-face in the Federal Reserve's (Fed) tone from hawkish to dovish contributed to uncertainty and thereby merited investor attention. Internationally, China's announcement of fiscal and monetary stimuli reined in investor optimism; likewise, a steadily weakening Chinese economy, hallmarked by December's manufacturing data, further fueled investors' fears. The political complexities presented by the U.S. government shutdown and U.S.-China trade negotiations – or lack thereof – have carried over into the new year. Ascertaining clarity about the future in this "conflicting" environment is no easy task – should one side with the "bears" or the "bulls?"

Our options market signals are indicating a potential shift to a higher-risk, higher-volatility environment across bonds and equities. Both the expected tail loss and the expected tail gain implied by option prices have risen sharply. In such an environment, the amount of risk taken, first and foremost, must be scaled appropriately as a function of how much risk one is willing to take (i.e., how much capital one is willing to lose). A $100 investment in a 20% downside risk environment puts at risk the same amount of capital as a $200 investment in a 10% downside risk environment. As our options-based signals point to a higher-risk, higher-volatility regime going forward, notional allocations among growth, capital preservation and inflation-sensitive assets become very important and should represent the key investment theme going forward.

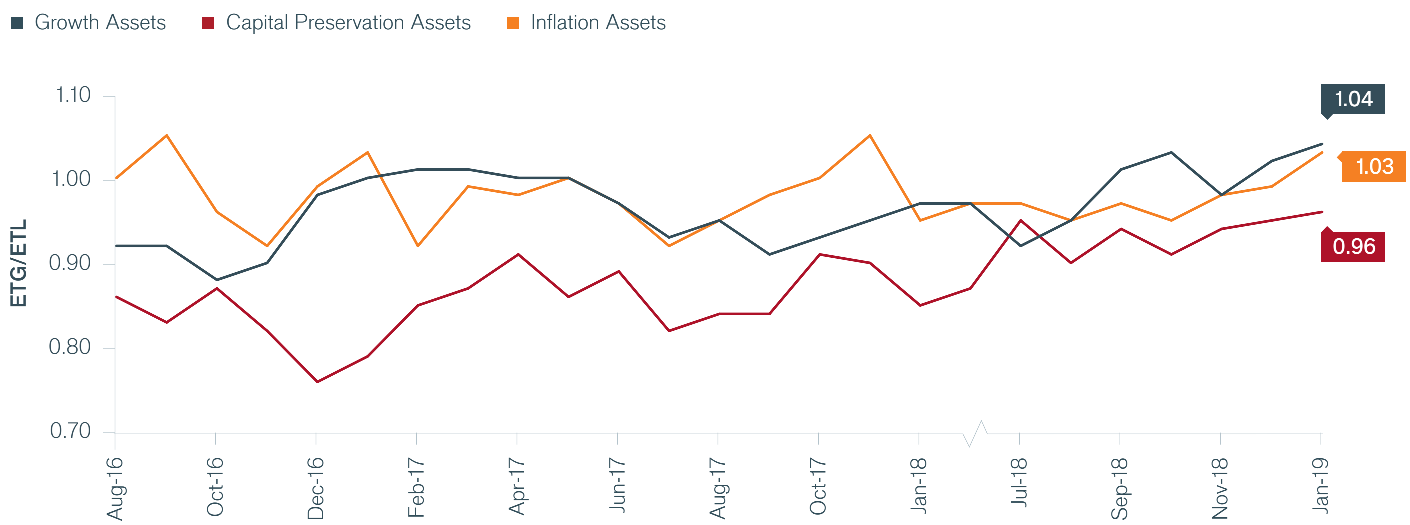
Turning to relative attractiveness across different assets, equities appear the most attractive, followed by commodities (inflation-sensitive assets).

In addition to our outlook on broad asset classes, Janus Henderson's Adaptive Multi-Asset Solutions Team relies on the options market to provide insights into specific equity, fixed income and commodity markets. The following developments have recently caught our attention:

- **Growth:** U.S. and emerging market (EM) equities are showing the highest tail-based, risk-adjusted attractiveness globally. U.S. small caps are now nearly as attractive as large caps.
- **Capital Preservation:** Our signals indicate the U.S. is the most attractive region to source duration.
- **Inflation Assets:** The options market is indicating a slightly weaker dollar going forward. Within the commodity space, energy and precious metals are leading the pack. A weaker dollar should bolster commodity prices in general.

Historical Monthly Tail-Based Sharpe Ratios

(ETG/ETL)



Data was not calculated for all months.

For more information, please visit **janushenderson.com.**

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