



TWO SIGMA

# Street View

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## EXECUTIVE SUMMARY

Despite Commodity Trading Advisors' reputation as portfolio diversifiers, a decomposition of the most prominent factor exposures in the SG CTA Index suggests that just four factors collectively explain an outsized fraction of the index's risk. Additionally, average current long exposures to both equities and bonds are elevated, potentially compromising the amount of diversification CTAs truly offer.

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Inside:  
CTA Market and  
Portfolio Diversification

**Institutional investors typically view Commodity Trading Advisors (CTAs) as an alternative investment** that allows them to participate in multiple global markets as well as to better diversify and improve the risk-adjusted performance of their overall portfolio. Over the past few decades, that has generally proved true. The correlations between CTAs and equity and bond indices has historically fallen below 30 percent.<sup>1</sup> However, long term averages may mask current risks. The recent, sharp fall in the SG CTA Index—a frequently used proxy for the CTA universe<sup>2</sup>—seems to have focused the minds of institutional investors on those risks. This performance, and the risk decomposition analysis below, highlights two important considerations for CTA investors. First, CTAs may invest in numerous instruments and markets globally, but the CTA market seems to have only four major bets right now. Second, the average CTA's current long exposure to both equities and bonds would seem to offer very little diversification for the typical institutional investor, making the asset class less "alternative" right now than some might hope.

## DECOMPOSING RECENT CTA PERFORMANCE

The SG CTA Index dropped sharply by about 4.36 percent the last week of June 2017. Although it soon recovered some of those losses, performance has remained negative year to date (Figure 1).

A factor-based approach to analyze CTA performance may put some more color on the recent trend as it helps decompose it in the main driving risk factors. Four factors, representing the global fixed-income and U.S. stock markets, currency (EUR-USD), and crude oil collectively appears to explain about 60 percent of its weekly performance over the last year.<sup>3</sup> During the last week of June and the first week of July, the simultaneous declines in US equity prices, global bond returns, and a weakening of the USD proved especially painful to CTAs.

This is not a short-term trend. As Figure 2 illustrates, index loadings over the past year show elevated long exposure to both the Barclays Capital Global

Aggregate Bond Index and the S&P 500 Index—the latter measure being near its highest level of all time. Meanwhile, CTAs exhibit significant short exposure to the EUR-USD and to crude oil prices. The fraction of risk that these four factors appear to collectively explain has increased since 2015 and is the highest since the global financial crisis that started a decade ago.

FIGURE 1: SG CTA INDEX PERFORMANCE, JANUARY 1, 2017-AUGUST 4, 2017

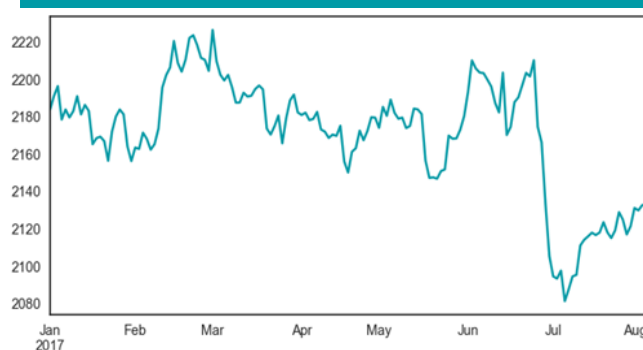


Figure 1 - SG CTA Index (ticker: NEIXCTA Index). Source: Bloomberg

1 See, for example, Schneeweis, Sprugin, and Szado (2013): [link](#)

2 Managed by Société Générale, the SG CTA Index tracks the daily rate of return for a pool of CTAs that are open to new investment, and whose assets under management are above a certain threshold.

3 Risk exposures in Figure 2 are loadings estimated from a regression of the SG CTA Index weekly returns on the four risk factor returns, using a rolling window of 52 weeks.

**FIGURE 2: 52-WEEK ROLLING CTA LOADINGS ON FOUR RISK AND STYLE FACTORS**

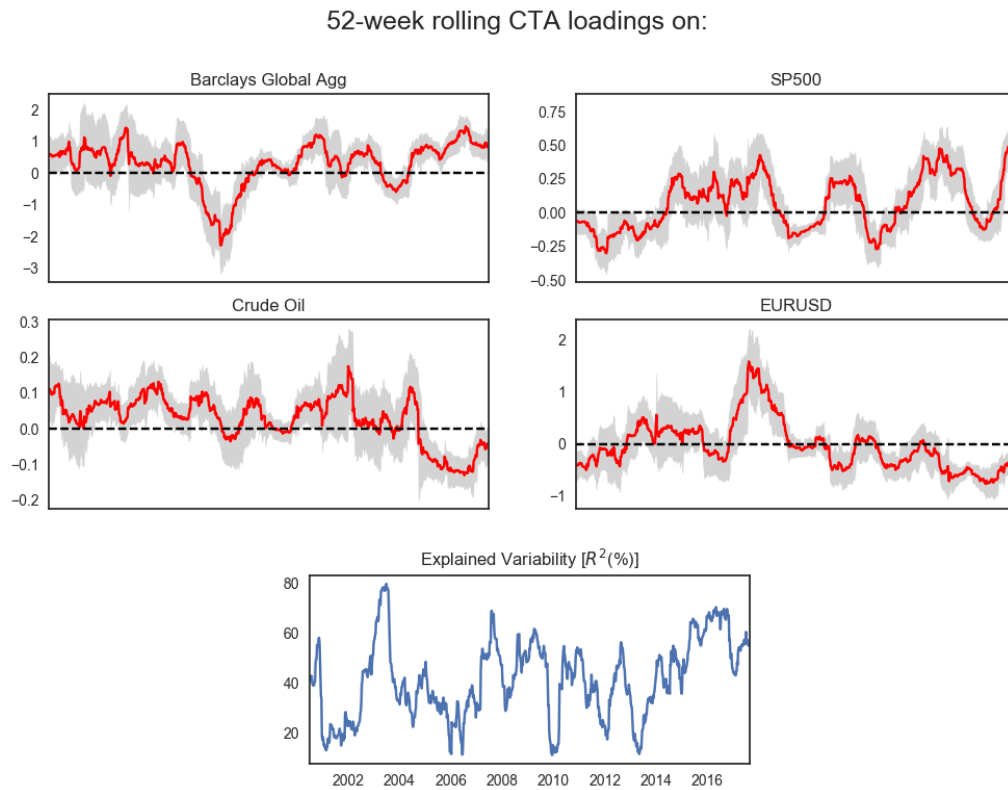


Figure 2 - Loadings (beta) from 52-week rolling regressions of SG CTS Index return on each risk factor. Newey-West standard errors and 95%-confidence intervals in gray. Bottom-right graph is the rolling r-squared of the multivariate regression. Source: Bloomberg and authors' computation.

## POTENTIAL IMPLICATIONS

Although the recent performance of the aggregated CTA market seems to point towards reduced diversification benefits for institutional investors, individual CTAs may have different exposures. However, asset allocators seeking diversification through CTA exposure cannot safely assume that such programs necessarily deliver uncorrelated returns at a given point in time. Institutional investors might find it more helpful to consistently and regularly conduct factor decompositions of their overall portfolio and their investment managers, instead of just relying on long-term trends.

## INTERESTING TECHNOLOGY-RELATED ARTICLES

Two Sigma views itself as a technology company that applies a rigorous, scientific method-based approach to investment management. Our technology is inspired by a diverse set of fields including artificial intelligence and distributed computing. Occasionally, we read articles in the popular press that describe applications of technology that we find interesting, thought-provoking, and relevant for people thinking about improving the investment management process. Below is a subset of the articles we read this month. Please do not view the inclusion of these articles as an endorsement by Two Sigma of their viewpoints or the companies discussed therein. Two Sigma welcomes discussions (and contributions) about these and other such technology-related articles.

**“The Incredible Shrinking Transistor Just Got Smaller ”** by Emily Conover

<https://www.sciencenews.org/article/incredible-shrinking-transistor-just-got-smaller?mode=topic&context=96>

Moore's Law has been a key driver of computing performance improvement since its first expression in 1965. The “law”—really, a projection—holds that the number of transistors able to fit on an integrated circuit doubles roughly every 18 months. Although silicon transistor counts on ICs have indeed grown at an exponential rate for decades, many have wondered how much longer Moore's Law can hold before succumbing to the physical limits of miniaturization. Reports of its imminent demise have often been greatly exaggerated, thanks to continuous innovation. In the latest example, IBM researchers recently reported the creation of carbon-nanotube transistors that outperform the best silicon transistors—but are only half the size. For now, it seems, Moore's Law is still alive and kicking.

**“Your Instagram Posts May Hold Clues to Your Mental Health ”** by Niraj Chokshiaug

[https://www.nytimes.com/2017/08/10/science/instagram-mental-health-depression.html?rref=collection%2Fsectioncollection%2Fscience&\\_r=0](https://www.nytimes.com/2017/08/10/science/instagram-mental-health-depression.html?rref=collection%2Fsectioncollection%2Fscience&_r=0)

Instagram users currently post almost 100 million photos every day, providing an interesting (albeit filtered and edited) window into the lives of its hundreds of millions of users. The social media service's repository of tens of billions of photos and short videos also provides a rich vein for researchers. In a recent study, scientists from Harvard University and the University of Vermont designed a machine-learning algorithm to extract and analyze 43,950 photos by 166 Instagram users, successfully identifying markers of depression—even prior to human diagnosis—based on factors like filter color choices, metadata, post frequency, and more. Although the study was limited in scope, it raises the possibility that machine learning may soon be able to help supplement human diagnosis of psychological disorders.

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