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## Trend Following with Managed Futures: A Beta Strategy for a Crisis Alpha

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The dominant theme in June was the UK referendum on EU membership, or ‘Brexit’. The unexpected outcome led to a surge in volatility that resulted in a positive performance for trend-following Commodity Trading Advisors (CTAs). Was that a surprise? The answer is no. Was it by design or was it luck? More likely the latter. Trend-following CTAs are systematic diversified managers. Using mostly futures, they are canvassing various markets around the globe and making small bets everywhere in the hope of capturing big moves. The gains are made by making sure the losses from the bets that don’t work out are limited and are less than the gains when those large moves occur. Trend-following CTAs benefited positively in June with the Brexit event due in large part to *an increase in market volatility and sufficient directionality across markets and time frames*, in particular within the bond market.

When the market declines, trend-following with managed futures as a strategy has done well acting as an insurance provider. For an introduction to trend-following with managed futures we refer the reader to the books in Ref. [1] and [2], and for a historical perspective, to the papers from AQR [3] and FCM [4]. Both works concluded that trend-following investing has performed consistently over more than a century and that trends are pervasive features of global markets. To explain why markets have tended to trend more often the main reasons invoked were investors’ behavioral biases, market frictions, hedging demands, and market interventions by central banks and governments [3]. Since such market interventions and hedging programs are still prevalent, and investors are likely to continue to suffer from the same behavioral biases that have influenced price behavior over the past, trend-following investing will continue to benefit the investors going forward [3]. In the analysis of recent period, no sign of a statistical degradation of long-term trends was found, whereas shorter-term trends have significantly withered [4].

The Brexit event was an additional illustration of the “crisis alpha” [2] that trend following provides the market investors. The year 2008 and the Financial Crisis is a great example that CTAs reference to highlight the benefits of an exposure to their strategies for a diversified portfolio, which includes alternatives beyond the stocks and bonds. Table-1 summarizes, for comparison, the yearly return, for the S&P500 index and the SG CTA Trend Index. The SG CTA Trend Index tracks a portfolio of a group of 10 trend following CTAs, selected from the largest managers open to new investment, equally weighted and reconstituted annually. When the equity markets declined substantially in 2008, with the S&P500 down close to -40%, trend-following with managed futures have done well: the SG CTA Trend index closed the year 2008 with over +20% gains.

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>S&amp;P500</b>	3.5%	-38.4%	23.4%	12.8%	0.0%	13.4%	29.5%	11.5%	-0.6%
<b>SG CTA Trend Index</b>	8.6%	20.9%	-4.8%	13.1%	-7.9%	-3.5%	2.7%	19.7%	0.0%

**Table 1.** Yearly returns for the S&P500 Index and the SG CTA Trend Index based on a group of 10 CTAs selected from the largest trend-followers managers.

During 2009-2014 period, the equity markets recovered substantially with the exception of some hiccups such as the European debt and the US debt ceiling crisis around 2011. The central banks around the globe engaged in Quantitative Easing, or QE, by buying financial assets, a set quantity of bonds or other financial assets, from commercial banks and other financial institutions, thus raising the prices of those financial assets and lowering their yield, while simultaneously increasing the money supply. This expansionary monetary policy to stimulate the economy typically involved the central banks buying short-term government bonds to lower short-term market interest rates. When short-term interest rates reached “zero”, the monetary authorities used QE to further stimulate the economy by buying assets of longer maturity than short-term government bonds, thereby lowering longer-term interest rates further out on the yield curve.

Among the major consequences of the QE policy are a very low interest and a muted volatility environment which has led to sub-par performance of the managed futures trend following strategies, as seen in Table-1 for the period of 2009-2013. This is also illustrated in Chart-1 which displays the weekly chart for the VIX and MOVE volatility indices (white and purple lines respectively) as well as the SG CTA Trend index (symbol NEIXCTAT, green line). The VIX index is the CBOE Volatility Index, a popular key measure of market expectations of near-term volatility conveyed by S&P 500 stock index option prices. MOVE, the bond market equivalent of the VIX, is the Merrill Lynch Option Volatility Estimate index, a yield curve weighted index of the normalized implied volatility on 1-month Treasury options on the 2, 5, 10 and 30 years contracts. Going into the Financial Crisis in 2007 and throughout 2008, the equity and bond markets volatilities increased substantially and the trend following CTAs have done well. With the recovery and subsequent decline in the volatilities, the CTAs performance also declined until the most recent period of 2014 discussed below.

During the second half of 2014 and early 2015, the trend following CTAs experienced a resurgence in performance although the volatility environment remained relatively low. For a qualitative interpretation of the CTAs performance let’s refer to Chart-2. The chart covers the Jan 2013-June 2016 period. The SG CTA Trend Index (symbol NEIXCTAT, red line) performance is shown together for a selection of indices: the S&P500 index (symbol SPX, white line); the US dollar index (symbol DXY, yellow line), which is a measure of the value of the United States dollar relative to a basket of foreign currencies; the yield index of US government bonds with a 10-year maturity (symbol USGG10YR, green line); the Commodity Research Bureau BLS/US Spot All Commodities Index (symbol CRB CMDT, purple line). As the “tapering” talk started around May 2013, when the US Federal Reserve began to mention the possibility of the U.S. central bank reducing its securities purchasing program, or QE, the 10-year yield jumped substantially. The market interpreted this tapering as intent to increase interest rates, and had a sharp negative impact on economic and financial conditions in emerging markets which in turn had an impact on commodities. Although the US Fed made it clear the low interest rate environment was there to stay, the markets

behaved with the expectation of a “great divergence” in terms of monetary policy between the US and the rest of the world, in particular Europe. While the US was expected to move towards a policy of normalization, the rest of the world was still in a QE mode or about to start one as in Europe. A divergence trade developed and led to the emergence of clear trends highlighted in Chart-2, as indicated within the blue box: bonds rallied as yields declined, the US dollar strengthened as the US was viewed as the closest candidate for a future rate increase, commodities declined led by oil and that was in part due to the strength of the US dollar, equities markets continued their rally. *This sufficient directionality across markets for an extended period is the main driver for the positive performance of the trend following CTAs in the second half of 2014 and early 2015.* As the trends faded later in 2015 and 2016 the trend following CTAs performance also declined, as seen on Chart-2.

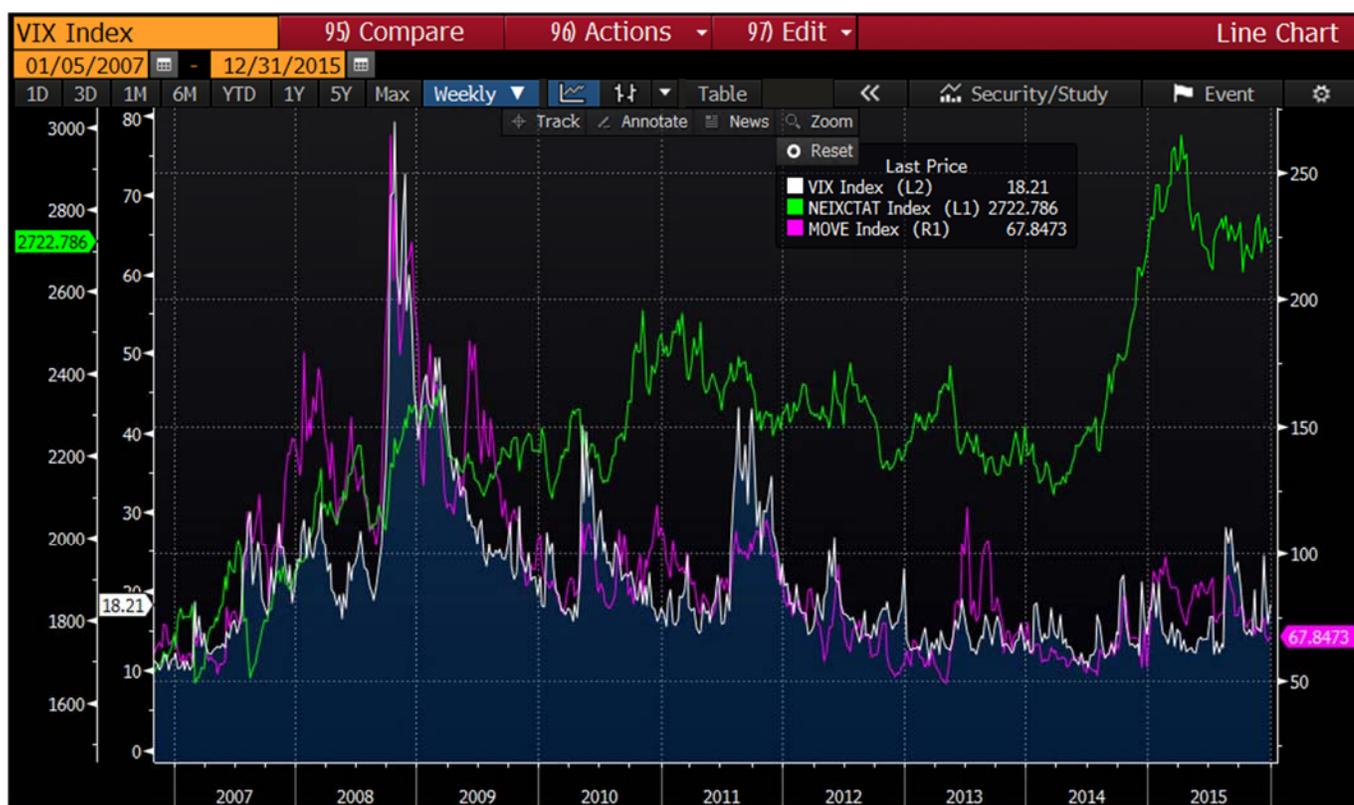


Chart-1: SG Trend Index performance over time (symbol NEIXCTAT, green line) during the various volatility regimes in the equity market (VIX, white line) and in the bond market (MOVE, purple line).

These qualitative observations are also confirmed using a regression model for the SG CTA Trend Index daily returns (SG Trend). For illustration purposes, a simple four factor model was considered using: the Bloomberg Global Developed Sovereign Bond Index (BGSV), representing the bond markets; the Commodity Research Bureau BLS/US Spot All Commodities Index (CRB CMTD), representing the commodities markets; the US dollar Index relative to a basket of foreign currencies (DXY), representing the currency markets; the MSCI World Index (MSCI World), representing the developed world equity markets. As seen on the bottom of Chart-3, while the model is fairly simple the R2 is reasonably high. The time series for the regression coefficients are

shown at the top of Chart-3 for the Jan 2014 - Mar 2016 period. The results indicate that the CTAs performance was simply obtained by being long bonds, long the USD, mostly long equities and short commodities.



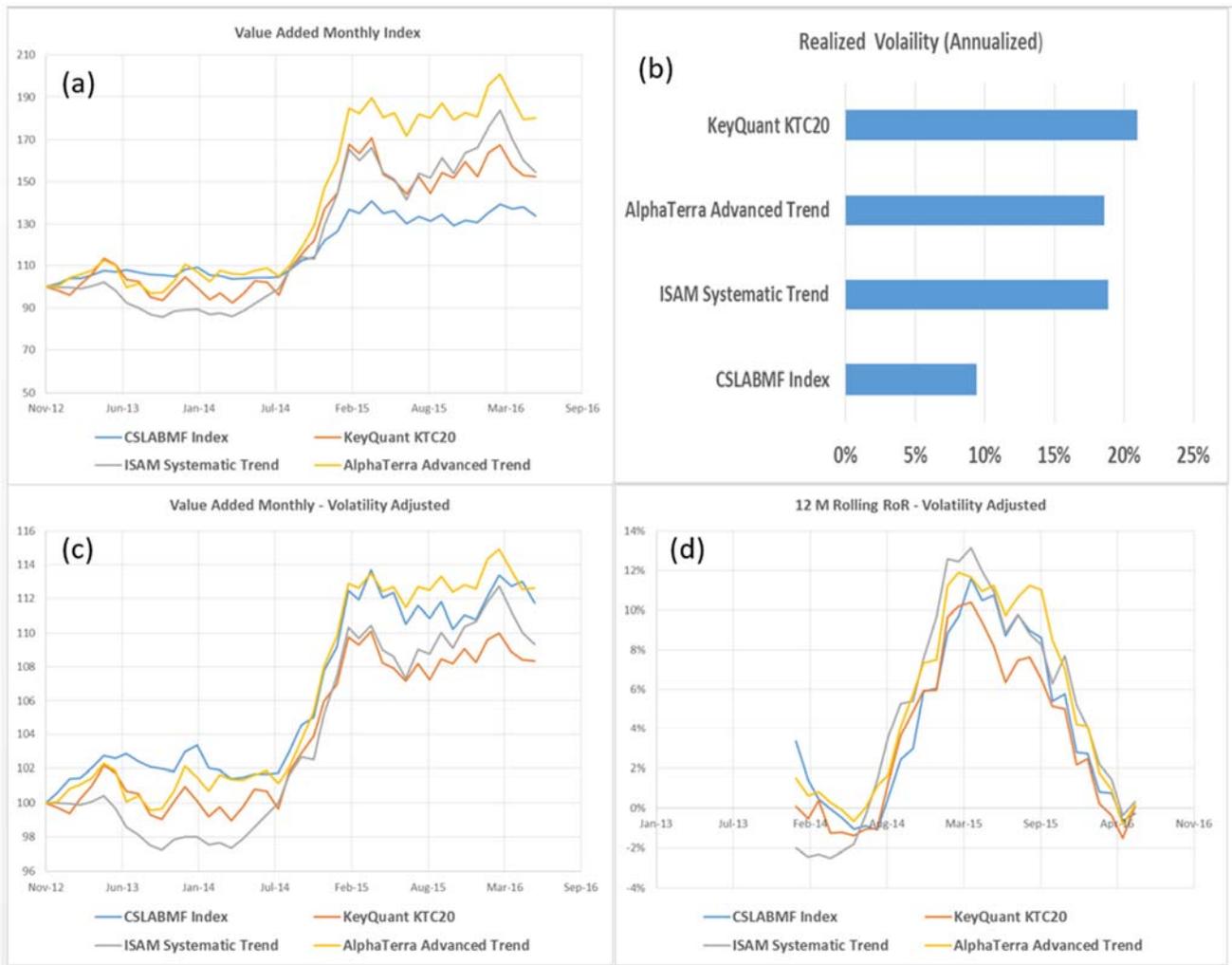
Chart-2: A comparison of various indices for the Jan 1, 2013 to June 30, 2016 period. SPX (white line): the S&P500 index; DXY (yellow line) the US dollar index, a measure of the value of the United States dollar relative to a basket of foreign currencies; USGG10YR (green line): The yield index of US government bonds with a 10-year maturity (10-year bonds or in general 10-year treasuries); CRB CMTD (purple line): Commodity Research Bureau BLS/US Spot All Commodities Index; NEIXCTAT (red line): SG Trend Index. The blue rectangle highlights a recent period known to be very profitable for the trend-following CTAs.

The above observations provide indications that trend-following CTAs follow time-series momentum strategies. A more detailed and rigorous analysis of this relationship can be found in the research paper by Baltas & Kosowski [5]. The question from an investor point of view is: are the trend-following CTAs worth the performance fees they command for providing a beta exposure to the various markets? Are they providing a differentiated performance? In the last section of this note we highlight and compare three successful CTAs namely: KeyQuant KTC20, ISAM Systematic Trend and AlphaTerra Advanced Trend funds. The results of the comparison are summarized on Chart-4. Panel (a) displays the value added monthly indices (VAMIs) for the CTAs and, for comparison purposes, that of the Credit Suisse Managed Futures Liquid Index (symbol CSLABMF). The Credit Suisse index aims to reproduce the exposure to trend-following strategies and is constructed using objective and transparent rules-based methodology [6]. On the Panel (a) we note the similar trends among the CTAs and the index, and the characteristic performance, discussed earlier, for the trend-following CTAs index around the end of 2014 and early 2015. On an absolute basis this sample of CTAs is outperforming the index however one should factor in the targeted volatility of these funds. Panel (b) summarizes the realized volatility (annualized) for

the funds and the index. Once adjusted for the volatility, the CTAs funds and the index exhibit similar value added monthly curves (Panel (c)), and 12 months rolling RoR (Panel (d)), i.e. the CTAs funds are not much different from the liquid index. The variance in terms of absolute performance among the funds is essentially related to the level of leverage used by each fund. Each fund offers an exposure to a similar “beta” that hardly justifies a hedge fund “alpha” fee.



**Chart-3:** Top: Regression coefficients for the SG Trend Index with a 60 days moving window, using four factors: BGSV Index, the Bloomberg Global Developed Sovereign Bond Index; CRB CMDT Index, Commodity Research Bureau BLS/US Spot All Commodities Index; DXY, the US dollar Index relative to a basket of foreign currencies; MSCI World Index, representing the developed world equity markets. Bottom: the associated coefficient of determination.



**Chart-4:** Performance summary for a sample of Trend-following CTAs. For comparison, the performance of the Credit Suisse Managed Futures Liquid Index is also shown. Panel (a): Value added monthly Index. Panel (b): Annualized realized volatility based on the monthly returns. . Panel (c): Value added monthly using the volatility adjusted returns. Panel (d): 12 months rolling RoR using the volatility adjusted returns.

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