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Via Facsimile and Mail

James McDonald, Esq.  
Director Division of Enforcement  
Commodity Futures Trading Commission  
Three Lafayette Centre  
1155 21st Street, NW  
Washington, DC 20581

Stephanie Akavian, Esq. and Steven Peikin, Esq.  
Co-Directors, Division of Enforcement  
Securities and Exchange Commission  
100 F Street, NE  
Washington, DC 20549

Dear Ms. Akavian, Mr. McDonald, and Mr. Peikin:

We represent an anonymous whistleblower who has held senior positions at some of the largest investment firms in the world, and have previously disclosed to the SEC and CFTC on his behalf a market manipulation scheme that is causing nearly \$2 billion in annual gains/losses.<sup>1</sup> The recent market turmoil further confirms the fraud and exposes its systemic risk to the entire equity market. **We urge the SEC and CFTC to promptly investigate the matter before investors suffer additional losses due to this fraud.**

Though the whistleblower wishes to remain anonymous to protect his career, the whistleblower would be willing to speak with SEC or CFTC Enforcement staff anytime. For additional information, please contact me at (202) 262-8959 or Matt Stock at (202) 930-5901.

Our client's TCR submission disclosed market manipulation scheme that takes advantage of a pervasive flaw in the Chicago Board Options Exchange (CBOE) Volatility Index (VIX). The flaw allows trading firms with sophisticated algorithms to move the VIX up or down by simply posting quotes on S&P options and without needing to physically engage in any trading or deploying any capital. This market manipulation has

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<sup>1</sup> On behalf of our client, we filed a TCR disclosing ongoing market manipulation of the VIX, which costs investors hundreds of millions of dollars each month.

led to multiple billions in profits effectively taken away from institutional and retail investors and cashed in by unethical electronic option market makers.

Last week, the CBOE issued a statement and hosted a call to assure investors that the massive losses were limited to a small number of exchange-traded products (ETPs) that were flawed by design. Consistent with our TCR submission, we contend that the liquidation of the VIX ETPs last week was not due solely to flaws in the design of these products, but instead was driven largely by a rampant manipulation of the VIX index.

Although it is not surprising that an inverse exchange-traded fund would lose nearly all its value should the underlying security appreciate over 100% rapidly, we contend that market manipulation is playing a significant role in driving the price of VIX ETPs. And as described below in an excerpt from a widely circulated note by hedge fund Artemis capital in Q3 2015, regulators arguably should have taken action to address the reflexive self-fulfilling danger created by inverse VIX ETPs which require the ETP managers to purchase large amounts of VIX futures around market close when the futures rise rapidly, thereby accelerating their own demise. Knowing that there is such danger created by these products, why did the CME Group not implement circuit breakers on the VIX futures just like it exists for S&P futures for example? Given the high correlation between VIX and S&P, by not placing any safeguards around an unstable market structure for VIX products, the exchange exposes the entire equity market to unnecessary systemic risk. **The turmoil in financial markets, which cost American and foreign investors several trillions this week, originated from a known flaw in the market structure by most sophisticated practitioners in the field, and the magnitude of losses experienced calls for accountability from both the exchange and market actors who engage in the manipulation of the VIX.**

As described in detail in our TCR filing, the VIX is highly subject to manipulation by market participants with the ability to rapidly post quotes in the market for S&P option. That is because the VIX is a theoretical index, which does not rely on trading activity but mid-prices, that can be moved up or down by posting quotes without any physical trading taking place.

The chart below shows an overlay of the VIX index and the first VIX future contract, which inverse VIX ETPs eventually had to buy as they were forced into a rebalancing that became a liquidation. Note how the VIX index led the way higher, bringing with it the price of VIX futures. Ultimately the VIX reached 50 and futures surged above 30 as the ETPs settled. When stating the VIX led the futures higher, we are stressing the causality effect -- VIX futures at expiry do not settle based on the last trading price, but instead based on where the VIX index opens the morning after the last trading day.

It is crucial to bear in mind that the VIX is not a tradable instrument, but instead a derived index calculated using a complex formula that relies on mid-prices for S&P options. Should the VIX index computation result in price movements that are totally disconnected from any economic reality, VIX futures would have to trade so as to reflect

these abnormal VIX levels because they settle based on the value of the VIX index and not trading activity.

The second chart below shows the values of the VIX index for the trading session of February 6, 2018. The VIX index surged to 50 in the early morning, staying constant above that level for over two hours, before collapsing to nearly 22 within 30 minutes (or approximately 9:30 a.m.) around the time of the market open, and then surged to 46 by 11:00 a.m. In theory, the VIX represents a measure of the volatility for one-month options on the S&P 500. But in the absence of any major economic development, this estimate of volatility fell by over 50% and rallied back close to its initial value within 3 hours. It is in our view very clear that the VIX index calculation is not only just subject to manipulation, but is in fact actively being manipulated. On this point, and as referenced in our initial filing, the CME documentation itself states unambiguously in its technical documentation on the calculation that the index is quite vulnerable to price manipulation. The document is highly technical and several hundred pages long. This disclosure is woefully inadequate in that most institutional investors, let alone retail investors, would neither be able to find nor comprehend this warning, and are unlikely to heed the warning in the context of the relentless promotion of VIX-related products by the exchange in the past few years, including a barrage of press releases citing ever increasing volume records. The CBOE derives an estimated 20% to 25% of its revenues from VIX-related products. We allege a breach of fiduciary responsibility driven by the motive to increase trading revenues for the exchange.

**Significant systemic risk remains.** VIX ETPs need to rebalance daily based on price changes. A rapid move higher into the close of the VIX, which drives VIX futures higher, could easily exacerbate a large rebalancing need which did, as we witnessed last week, trigger a self-fulfilling forced liquidation of inverse VIX ETPs. A simple detail in the VIX calculation that is rarely discussed is that S&P option prices included for the calculation take into account all option strikes – no matter how far from current level they are – so long as there are no two consecutive S&P options for which there are no bids.

The screenshot below shows how the 1000 put expiring on March 16, 2018 (an option standing to benefit if the S&P loses over 60% of its value within just over month) had zero bids until shortly after 4:00 p.m. on February 5, 2018. The S&P futures close for trading between 4:00 p.m. and 4:15 p.m., and this is usually the time when ETPs finalize their rebalancing. Market participants bidding for these rarely traded options, which have a very high implied volatility (due to the lack of likelihood they would ever result in a profit), cause these options to be included in the VIX calculation, whereas they were not included prior to the bids being inserted. These bids also result in an increase in the VIX index value due to the high volatility implied by the mid-price of these options. As such, the manipulation we have observed for months in the settlement of VIX futures and options played a role as a catalyst to precipitate the collapse of inverse VIX ETPs.

| SPX US 03/16/18 P1000 I |             | 1 Actions         |      | 97 Settings |            | Page 25 Trade/Quote Recap |  |
|-------------------------|-------------|-------------------|------|-------------|------------|---------------------------|--|
| Range 02/05/18 11:00:00 |             | 02/05/18 16:30:00 |      |             |            |                           |  |
| Trade Recap             |             | Quote Recap       |      |             |            |                           |  |
| Cond Code Definitions   |             |                   |      |             |            |                           |  |
| High                    | 0.40        | Low               | 0.05 |             |            |                           |  |
| Time                    | Bid/Trd/Ask | Size              | Cond | Volatility  | Und. Price |                           |  |
| 16:02:49                | 0.15 / 1.40 | <min size>        |      | 96.83       | 2636.95    |                           |  |
| 16:02:48                | 0.15 / 1.40 | 200 x 200         |      | 96.83       | 2636.95    |                           |  |
| 16:02:48                | 0.05 / 9.80 | 35 x 1            |      | 88.92       | 2636.95    |                           |  |
| 16:02:38                | 0.15 / 1.35 | 200 x 200         |      | 96.83       | 2636.95    |                           |  |
| 16:02:38                | 0.05 / 3.70 | 35 x 593          |      | 88.92       | 2636.95    |                           |  |
| 16:02:37                | 0.05 / 9.80 | 35 x 1            |      | 88.92       | 2636.95    |                           |  |
| 16:02:21                | 0.10 / 1.35 | 200 x 200         |      | 93.85       | 2641.70    |                           |  |
| 16:02:21                | 0.10 / 1.35 | 200 x 220         |      | 93.85       | 2641.70    |                           |  |
| 16:02:20                | 0.05 / 9.80 | 35 x 1            |      | 89.07       | 2641.70    |                           |  |
| 16:02:20                | 0.05 / 3.70 | 35 x 593          |      | 89.07       | 2641.70    |                           |  |
| 16:02:20                | 0.05 / 9.80 | 35 x 1            |      | 89.07       | 2641.70    |                           |  |
| 16:01:55                | 0.05 / 1.30 | 235 x 200         |      | 89.07       | 2641.70    |                           |  |
| 16:01:53                | / 3.70      | x 591             |      | -           | -          |                           |  |
| 16:01:46                | / 3.70      | x 592             |      | -           | -          |                           |  |
| 16:01:35                | / 3.70      | x 591             |      | -           | -          |                           |  |
| 16:01:31                | / 3.70      | x 590             |      | -           | -          |                           |  |
| 16:01:29                | / 3.70      | x 589             |      | -           | -          |                           |  |
| 16:01:22                | / 3.70      | x 590             |      | -           | -          |                           |  |
| 16:01:21                | / 3.70      | x 591             |      | -           | -          |                           |  |

Currency USD ( Price: Best Quote, MM Quote, Previous Quote )

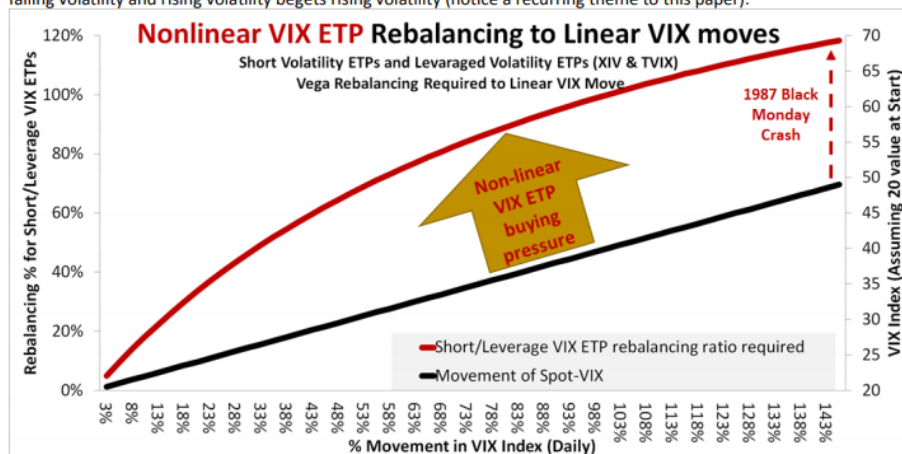
## From Artemis Capital, Q3 2015

### Short Volatility in the Prisoner's Dilemma

Global central banking has artificially incentivized bets on mean reversion resulting in tremendous demand to short volatility. The growth of short volatility exchange traded products ("ETPs") since 2012 is nothing short of extraordinary and at the end of August, total short volatility assets exceeded long for only the second time in history. The rise of this short complex is intrinsically linked to the recent schizophrenic behavior of the VIX and adds significant shadow convexity to markets. Velocity Shares Daily Inverse VIX ("XIV") is the largest of these short VIX ETPs and has a cult-like following among day traders. Although the product has gained **+111%** since 2012, when decomposed on a risk-adjusted basis, it basically resembles a 3x levered position in the S&P 500 index with more risk. As the short and leveraged volatility complex becomes more dominant it is contributing to dangerous self-reinforcing feedback loops with unknowable consequences.



Many retail investors simply do not understand that short and leveraged volatility ETPs **rebalance nonlinearly** (see below). To the casual observer it may appear that short and long assets counterbalance one another but this is not the case. For example if the first two VIX futures move 20% higher the short volatility ETP providers must buy an estimated 33% more volatility (vs. 25% for long) to balance that exposure. **The first rule of derivatives hedging is that you never hedge a nonlinear risk with a linear tool.** The mismatch means a large move in spot-volatility in either direction requires excessive buying or selling pressure whenever short volatility assets are dominant. Therein lies the problem. Falling volatility begets falling volatility and rising volatility begets rising volatility (notice a recurring theme to this paper).



**We urge a prompt investigation of this matter before the consequences of this market manipulation risk to threaten not only the stability of financial markets but also have dramatic economic consequences.**

Sincerely,

/s/Jason Zuckerman and Matt Stock

Jason Zuckerman and Matt Stock