

**UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION**

Robert Etten, on behalf of himself and all others
similarly situated,

Plaintiff,

v.

Cboe Global Markets, Inc.; Cboe Exchange,
Inc.; Cboe Futures Exchange, LLC; and John
Does,

Defendants.

Case No: 18-cv-03069

CLASS ACTION COMPLAINT

JURY TRIAL DEMANDED

1. Robert Etten (“Plaintiff”), by his undersigned counsel, for himself and all others similarly situated, hereby commences this class action suit against Defendants Cboe Global Markets, Inc., Cboe Exchange, Inc.; Cboe Futures Exchange, LLC (“Cboe Defendants”), as well as the John Doe Defendants (“Doe Defendants”). Plaintiff’s allegations are based upon his personal knowledge as to his own acts, and upon information and belief as to all other matters alleged herein. Plaintiff alleges as follows:

I. NATURE OF ACTION

2. The Cboe Volatility Index (“VIX”) is a popular, widely-used measure of market volatility that is calculated and published by the Chicago Board Options Exchange (“Cboe”).

3. The VIX purportedly measures thirty-day market volatility based on the pricing of the S&P 500 Index option contracts (“SPX Options”) that are listed for trading on the Cboe.

4. The VIX is often referred to as a “fear gauge” because the volatility it attempts to measure is a product of investor uncertainty. As investor uncertainty increases, the VIX typically rises, and inversely, when the market is more stable, the VIX often falls.

5. The VIX is not a financial instrument itself that can be directly invested in. However, its existence prompted the creation of VIX-Linked Futures (“VIX Futures”), traded on the Cboe Futures Exchange (“CFE”); and VIX-Linked Options (“VIX Options”), which are traded on the Cboe. There are also billions of dollars in exchange-traded funds and exchange-traded notes that are linked to the pricing of VIX Futures (“VIX-Linked ETFs & ETNs”).

6. The VIX-Linked ETFs and ETNs—including the VelocityShare Daily Inverse VIX Short-Term ETN (“XIV”), VelocityShares Daily 2x VIX Short-Term (“TVIX”), ProShares Short VIX Short-Term Futures ETF (“SVXY”); ProShares Ultra VIX Short-Term Futures ETF (“UVXY”); and iPath S&P 500 VIX Short-Term Futures ETN (“VXX”)—provide investors with access to financial instruments related to expected market volatility and allow investors to bet on the upward or downward price movement of VIX Futures. VIX Futures, VIX Options, and VIX-Linked ETFs and ETNs are collectively referred to herein as “VIX-Linked Instruments.”

7. VIX price is calculated according to the real time bid/ask quotes for SPX Options, and in certain instances the actual prices of SPX Options. Therefore, the pricing of VIX-Linked Instruments is subject to market manipulation by investors who target the SPX Options market and the calculation of VIX.

8. The connection between the pricing of the VIX and the SPX Options market is illustrated in market experts’ observations. During the settlement period of the VIX, in which prices used to settle expiring VIX Futures and VIX Options are calculated, researchers observe “highly statistically and economically significant trading volume spikes” in SPX Options, and

specifically those SPX Options which are otherwise rarely traded. Researchers have concluded that the most likely candidate for these patterns is market manipulation.¹

9. On February 12, 2018, an anonymous whistleblower submitted a letter (the “Whistleblower Letter”) to the Securities and Exchange Commission (“SEC”) and the Commodity Futures Trading Commission (“CFTC”) alerting the agencies to manipulative activity in the VIX market. The whistleblower alleged that a “pervasive flaw [in the calculation of VIX] . . . 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.”² The same letter indicated that this manipulative behavior by trading firms “led to multiple billions in profits effectively taken away from institutional and retail investors and cashed in by unethical electronic option market makers.”³

10. Upon Plaintiff’s information and belief, the John Doe Defendants—likely a group of financial institutions and/or traders on the Cboe—manipulated prices of VIX-Linked Instruments since at least 2004.

11. The Doe Defendants’ manipulative conduct has injured and continues to injure investors in VIX-Linked Instruments. Plaintiff and members of the proposed class defined *infra* have been harmed by Doe Defendants’ conduct in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1, as well as the Commodity Exchange Act, 17 U.S.C. § 1, *et seq.*, and seek damages

¹ John M. Griffin & Amin Shams, *Manipulation in the VIX?*, The Review of Financial Studies (Aug. 2, 2017), available at http://www.jgriffin.info/wp-content/uploads/2017/12/vix_pub.pdf [hereinafter *Griffin & Shams*].

² Letter from Jason Zuckerman & Matt Stock to James McDonald, Esq., Director of Division of Enforcement, Commodity Futures Trading Commission & Stephanie Akavian, Esq. & Steven Peikin, Esq., Co-Directors, Division of Enforcement, Securities and Exchange Commission (Feb. 12, 2018), <https://assets.bwbx.io/documents/users/ijjWHBFdfxIU/r8LCxXQ4CfqU/v0> [hereinafter *Whistleblower Letter*].

³ *Id.*

arising from Doe Defendants' conduct, including injunctive relief to enjoin the alleged manipulation, and trebled damages as provided by law.

12. The Cboe Defendants are also culpable for the Doe Defendants' manipulation. Cboe Defendants have long known, or should have known, that the VIX was vulnerable to manipulation and that it was in fact being manipulated. The Cboe Defendants willfully ignored such manipulation because of the status of VIX as Cboe's premier product. Because the Cboe Defendants earn a fee when VIX transactions are made, the VIX and its related markets make the Cboe Defendants millions of dollars in annual revenue. The Cboe Defendants were strongly disincentivized to crack down on VIX manipulation, as it would have spooked their investors and hurt their bottom line.

13. Cboe Defendants violated their obligations under the Commodity Exchange Act through their failure to "prohibit[] abusive trade practices", "prevent manipulation", and not allow trading in instruments "readily susceptible to manipulation." 7 U.S.C. §§ 7(d), 25(b).

II. JURISDICTION AND VENUE

14. The Court has jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1337(a), and Section 16 of the Clayton Act, 15 U.S.C. § 26, to recover equitable and injunctive relief for violations of Section 1 of the Sherman Act, 15 U.S.C. § 1.

15. Venue is proper in the Northern District of Illinois pursuant to Sections 4(a) and 12 of the Clayton Act, 15 U.S.C. §§ 15(a) and 22, and 28 U.S.C. § 1391(b), (c), and (d), because Defendants are believed to have transacted business in this District, a substantial part of the events giving rise to the claims occurred within this District, and a substantial portion of the affected interstate trade and commerce discussed herein has been carried out in this District.

16. This Court has personal jurisdiction over each Defendant, because each Defendant is believed to have transacted business throughout the United States, including in this District and Division through Cboe Global Markets, Inc.; each Defendant is believed to have substantial contacts with the United States, including in this District; and each Defendant is believed to have committed to overt acts in furtherance of an illegal scheme and conspiracy in the United States, including the manipulation of prices of VIX-Linked Instruments traded in this District. In addition, the Doe Defendants' conspiracy was directed at, and had the intended effect of, causing injury to persons residing in, located in, or doing business in the United States, including in this District and Division, and Plaintiff's claims arise out of Defendants' conduct.

17. The activities of Defendants were within the flow of, were intended to, and did have a substantial effect on the interstate commerce of the United States.

III. PARTIES

A. Plaintiff

18. Plaintiff Robert Etten is an individual who resides in Roseville, Minnesota and was a citizen of the State of Minnesota during the relevant time frame. Mr. Etten transacted in VIX-Linked Instruments, specifically the iPath S&P 500 VIX Short-Term Futures ETN ("VXX"), during the Class Period. Defendants' conduct caused Plaintiff injury and damages.

B. Defendants

19. Cboe Global Markets, Inc. ("Cboe Global Markets") is a publicly-traded Delaware company headquartered in Chicago, Illinois. Cboe Futures Exchange, LLC is a wholly-owned subsidiary of Cboe Global Markets, Inc. Cboe Futures Exchange, LLC is a contract market approved by the Commodities Futures Trading Commission that offers futures on the VIX Index for trading. Based upon Plaintiff's belief, Cboe Global Markets possesses the

information necessary to identify specific Doe Defendants. Plaintiff will be able to identify the Doe Defendants through expedited jurisdictional discovery and will request leave to amend this complaint upon learning the identity of Doe Defendants.

20. At this time, Plaintiff does not know the specific identities of John Doe Defendants because the identities of those who traded SPX Options on the Cboe are anonymous. Although the exact number and nature of the John Does is not currently known to Plaintiff, the nature of the manipulative conduct alleged leads Plaintiff to believe that the John Does are a group of financial institutions and/or traders on the Cboe. John Doe Defendants conspired to manipulate prices of VIX-Linked Instruments through manipulation of the prices or bid/ask quotes of SPX Options traded through Cboe and the prices of VIX.

IV. FACTUAL ALLEGATIONS

A. Background

21. The VIX is often referred to simply as the market's "fear gauge." It was originally created in 1993, but in 2003 was redesigned by Cboe and Goldman Sachs to operate as a barometer for real-time estimates of market volatility, as measured by the midpoint of various SPX Option bid/ask quotes. The VIX is intended to be a real-time indicator of market expectations for volatility in the S&P 500 Index in the thirty-day span following its measurement.

22. The VIX uses pricing of SPX Options in its calculation because the price valuation of SPX Options is one component of determining volatility expectations for the S&P 500 between the option's purchase date and the option's expiry date. If expected volatility is high—i.e., the S&P 500 is expected to swing dramatically—then the prices of SPX Options often purchased to hedge against uncertainty increases. And conversely, if the S&P 500 is expected to

be relatively stable, the prices of those options will decrease because there is less need for hedging.

23. Because the VIX is calculated based on a fluctuating group of SPX Options, investors do not directly invest in VIX itself. Instead, there are several derivative investments that are linked to VIX, which include VIX Futures and VIX Options that are traded on the CFE and Cboe.

24. Derivative VIX markets allow investors to transact in instruments that are tied to market volatility. For example, the price of VIX Futures increase if the market expectations for volatility increase above certain expectations, which is reflected in the contemporaneous VIX price. On the other end, the price of VIX Futures drop if the market expectations of volatility sink below current expectations reflected in the VIX price.

25. VIX Futures and VIX Options that are expiring are usually settled on the third or fourth Wednesday of each month. The final settlement value for VIX Futures and Options are determined on the morning of their expiry date.

26. The final settlement values of VIX Futures and Options (“VIX Settlement Price”) are calculated with a special, modified VIX calculation. The VIX settlement process consists of an auction of SPX Options that close at 8:30 A.M. CST on the expiry date and only takes into consideration out-of-the-money (“OTM”) SPX Options with non-zero bids, whereas the ordinary VIX calculation includes both OTM and “in-the-money” (“ITM”) SPX Options.

27. Due to significant investor interest, several institutions such as Credit Suisse AG (connected to VelocityShares), Barclays Bank PLC (under the “iPath” name), and ProShares issue an assortment of exchange-traded funds and exchanged-traded notes that are linked to the pricing of VIX Futures.

28. The VIX-Linked ETFs and ETNs give investors opportunity to take long and short positions based upon the pricing of short- or medium-term VIX Futures. Credit Suisse AG, for example, offers an inverse VIX-Linked ETN that is traded on the NASDAQ that lets investors bet that the prices of VIX Futures will drop, in other words, wagering that the market will have an increased expectation subsiding volatility.

29. Similarly, ProShares offers UVXY, a VIX-Linked ETF traded on the NYSE, which allows investors to bet that the prices of VIX Futures will increase, in other words, that the market will increasingly expect intensifying volatility.

30. The volume of trading activity in these VIX-Linked investments has sharply increased in recent years, with daily transactions in VIX-Linked ETFs and ETNs in the billions of dollars.

B. VIX Settlement Calculation Mechanics

31. Cboe’s formula for calculating the VIX Settlement Price is follows:

$$VIX = 100 * \sqrt{\frac{2}{T} \sum_i \frac{\Delta K_i}{K_i^2} e^{RT} Q(K_i) - \frac{1}{T} \left[\frac{F}{K_0} - 1 \right]^2}$$

32. The values used in the calculation include: (1) forward SPX level “F”; (2) time to expiration “T”; (3) risk-free interest rate “R”; (4) “K_i” representing the strike price for any given OTM SPX option “i”; (5) the price of that selected option “Q(K_i)”; and (6) the average distance between strike prices immediately above and below the forward index level, or “ΔK_i.”

33. As noted earlier, only “out-of-the-money” or “OTM” SPX options are included in the VIX Settlement Calculation. OTM SPX Options have, by definition, no intrinsic present

value. A “call” option, i.e., the right to buy an asset at a particular strike price, is OTM when the strike price of the option is higher than the market price of the underlying asset. In the case of an OTM call option, the person holding the option would not exercise it, as they can purchase the underlying asset more cheaply at market value.

34. A “put” option, i.e., the option to sell an asset at a particular strike price, is OTM when the price of the underlying asset is higher than the strike price. In that case, the person holding the OTM put option is better off selling at the market value, rather than exercising their option and selling at the strike price.

35. Even though OTM options are intrinsically worthless, they are often purchased as a hedging measure. If market prices are expected to remain steady, then there is less incentive to purchase OTM options, as the OTM options are likely to *stay* OTM and remain worthless at their expiration. On the other hand, if the market is expected to be volatile, purchasing OTM options can be an important protective strategy, as a shifting market can turn them into ITM options by the time of their expiry.

C. Market Manipulation of VIX-Linked Instruments

36. Recent research from the University of Texas indicates that, through the exploitation of the manner in which the VIX Settlement Price is calculated, parties have in turn manipulated the value of VIX-Linked Instruments.

37. John Griffin, a professor at the University of Texas and the author of this research, notes several observed market patterns that demonstrate the existence of VIX-Linked Instrument manipulation, including (1) statistically- and economically-significant trading volume spikes in underlying SPX options; (2) trading volume spikes which occur only in the OTM SPX options included in VIX Settlement calculations but not the excluded ITM SPX Options; (3) the

lack of a spike in volume for similar S&P 100 Index or S&P 500 ETF options, which are not connected to VIX derivatives; (4) the unusually high trade volume of deep OTM put options at settlement which are consistent with attempts to manipulate VIX settlement prices; and (5) certain options that have higher weight in the VIX formula and that “exhibit jumps in trading volume at settlement that are not present at normal times.”⁴

38. The spike in “deep” OTM SPX Options—those furthest away from the strike price and the least likely to hold any value absent a severe market swing— during the settlement window is particularly noteworthy. These deep OTM options are otherwise rarely traded but have a significant manipulative impact on the VIX Settlement Price.

39. Griffin concludes that “a manipulator can push the prices of illiquid SPX options, but reap the payoffs in the liquid VIX derivatives market”, a scenario that “aligns itself with what one would expect to see in the case of market manipulation.”⁵

40. After Dr. Griffin’s team “thoroughly investigated alternative explanations” for the odd VIX market behavior noted above, he and his team found that there was not an alternative explanation aside from deliberate market manipulation that adequately made sense of the data.⁶

D. Whistleblower Allegations

41. In addition to Dr. Griffin’s findings, the anonymous Whistleblower Letter sent February 12, 2018 to the SEC and CFTC alerted the agencies to overt manipulation of the VIX that has led “to multiple billions in profits effectively taken away from institutional and retail investors.”⁷

⁴ *Griffin & Shams, supra* note 1, at 35, 39–40.

⁵ *Id.* at 3.

⁶ *Id.* at 39.

⁷ *Whistleblower Letter, supra* note 2.

42. The letter, sent by “an anonymous whistleblower who has held senior positions at some of the largest investment firms in the world,” notified the agencies of a “pervasive flaw [in VIX] . . . [which] 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.”⁸

43. The whistleblower told other sources that “the calculation [of the VIX settlement value] is not based on traded prices but on mid prices – the middle between the bid and ask. Crucially . . . it does not require any trading activity for the VIX index to move – just posted bids and offers.”⁹

44. The letter also urges “prompt investigation . . . before the consequences of this market manipulation risk to threaten not only the stability of financial markets but also have dramatic economic consequences.”¹⁰

45. The Commodity Futures Trading Commission (“CFTC”), the Securities and Exchange Commissions (“SEC”), and the Financial Industry Regulatory Authority (“FINRA”) have all have recently announced investigations of VIX-Linked Instruments.¹¹

E. The Doe Defendants’ Conspiracy to Manipulate Prices of VIX-Linked Instruments

46. The Doe Defendants combined, conspired, and/or colluded to manipulate the prices of VIX-Linked Instruments, amounting to a *per se* violation of the Sherman Act, 15 U.S.C. § 1 and also violating the Commodities Exchange Act (“CEA”). In the alternative, the

⁸ *Id.*

⁹ Bob Pisani, *Volatility index manipulation contributed to the market plunge last week, whistleblower alleges in interview*, CNBC Trader Talk (Feb. 13, 2018, 2:23 P.M.), <https://www.cnbc.com/2018/02/13/whistleblower-market-manipulation-of-vix-contributed-to-sell-off.html>.

¹⁰ *Whistleblower Letter*, *supra* note 2.

¹¹ Benjamin Bain & Matt Robinson, *VIX Funds Face Fresh Scrutiny from U.S. Regulators*, Bloomberg Markets (Feb. 23, 2018, 3:44 P.M.), <https://www.bloomberg.com/news/articles/2018-02-23/vix-fund-blowups-spur-u-s-to-probe-if-misconduct-played-a-role>.

Doe Defendants' collusion had substantial anticompetitive effects in the market for VIX-Linked Instrument in the United States.

47. There is no legitimate business justification or resulting pro-competitive benefits that explain the Doe Defendants' unreasonable restraint of trade.

48. Manipulation of the VIX-Linked Instruments market would have been close to impossible for a single Defendant taking unilateral action, as a single actor could not have counted on the market not to counteract its efforts, or another competitor to manipulate the market the opposite direction. Although it is much more difficult to manipulate the VIX downward, large institutional players working cooperatively were able to do so.

49. Recent data regarding the value of the VIX and the VIX Settlement Price indicates there was anomalous activity within the narrow VIX settlement window. This activity caused the VIX Settlement Price to be on many occasions either significantly higher or significantly lower than the entire price range of the VIX, in the days both before and the day of the VIX Settlement Price calculation. The frequency of these unlikely settlement values can only be explained through the coordinated efforts of multiple parties trading at artificial prices.

F. The Cboe Defendants' Failure to Meet Statutory Obligations under the CEA

50. The VIX is central to the Cboe Defendants' business. In Cboe's own words, the VIX is "the premier benchmark for U.S. stock market volatility"¹² and a "homerun" product.¹³

51. The Cboe Defendants have publicly represented the VIX as a "transparent, closely regulated, and highly reliable gauge of market sentiment with no history of failure."¹⁴

¹² White Paper, The CBOE Volatility Index – VIX, Chicago Board Options Exchange, at 2, <http://www.cboe.com/micro/vix/vixwhite.pdf> (last accessed April 24, 2018).

¹³ CBOE Holdings, Inc., Form S-4 (Feb. 8, 2017), https://www.sec.gov/Archives/edgar/data/1374310/000110465917007806/a16-23690_24425.htm.

¹⁴ Elliott Blair Smith, *Opinion: How S&P 500 options may be used to manipulated VIX 'fear gauge'*, MarketWatch (June 19, 2017, 2:06 PM), <https://www.marketwatch.com/story/how-sp-500-options-may->

52. The Cboe Defendants listed VIX Futures and VIX Options pursuant to their authority as registered entities and boards of trade designated as a contract market under the Commodity Exchange Act, 7 U.S.C. §§ 1a(6), 1(40). VIX Futures are only traded on the Cboe Futures Exchanges and VIX Options are only traded on the Cboe Exchange.

53. The Cboe Defendants had several statutory obligations under the CEA, including duties to:

- a. “[E]stablish, monitor, and enforce compliance with “rules prohibiting abusive trade practices”;
- b. “[L]ist only contracts not readily susceptible to manipulation”;
- c. “[P]revent manipulation, price distortion, and disruptions of the . . . cash-settlement process through market surveillance, compliance, and enforcement practices and procedures”;
- d. “[E]stablish and enforce rules – (A) to protect markets and market participants from abusive practices . . . ; and (B) to promote fair and equitable trading on the contract market”; and
- e. “[E]stablish and enforce disciplinary procedures that authorize the board of trade to discipline, suspend, or expel members or market participants that violate the rules.”¹⁵

54. The Cboe Defendants established a set of rules that would have prevented manipulation of the VIX, including a prohibition on “creating or inducing a false, misleading or artificial appearance of activity in [a] security . . . or for the purpose of unduly or improperly

be-used-to-manipulate-vix-fear-gauge-2017-06-19.

¹⁵ 7 U.S.C. §§ 7(d)(2–4), (12), (13).

influencing the market price of [a] security . . . or for the purpose of making a price which does not reflect the true state of the market in [a] security.”¹⁶

55. Despite their rulemaking, the Cboe Defendants failed to enforce these rules to prevent VIX manipulation.

56. There is a compelling reason why the Cboe Defendants chose not to enforce their rules to prevent manipulation. Cboe Defendants derive substantial revenues from the fees earned on each trade on their platforms. For the 2013 fiscal year, Cboe stated that “[t]he primary and largest source of operating revenues is transaction fees,” with “[t]ransaction fees account[ing] for 69%, 69.7%, and 73.4% of total operating revenues for the year ended December 31, 2013, 2012, and 2011, respectively.”¹⁷

57. By publicizing the manipulation of the VIX, Cboe would have driven away investors and drastically reduced the Cboe Defendants’ profits.

58. When Cboe changed the VIX formula in 2003, it changed it in a way that made the formula easier to manipulate. Before the formula change, VIX used ITM or near-the-money options on the S&P 100 Index. This original formula made the VIX more difficult to manipulate because it gave more weight to ITM and near-the-money options that are more frequently and broadly traded, compared to the OTM options given significant weight in the new formulation. Cboe Defendants earned significant profits from making the VIX easier to manipulate, as the change encouraged manipulators to make OTM trades in higher volumes, and in turn, pay more in transaction fees.

¹⁶ Cboe Exchange, Inc., Rules of Cboe Exchange, Inc., Rule 4.7(a), <https://www.cboe.com/publish/cboe-rules/cboe-exchange-inc-rule-book.pdf> (last updated Apr. 9, 2018).

¹⁷ CBOE Holdings, Inc., SEC Form 10-K, at 33, <http://otp.investis.com/clients/us/cboe1/SEC/secshow.aspx?Type=page&FilingId=9800949-174708-256201&CIK=0001374310&Index=12300> (Feb. 21, 2014).

59. In 2013, the Cboe Defendants were assessed a \$6 million fine for “systemic breakdowns in their regulatory and compliance functions as a self-regulatory organization, including a failure to enforce or even full comprehend rules to prevent abusive short selling.”¹⁸ This was the first time the SEC had ever penalized “an exchange for violations related to its regulatory oversight.”¹⁹ The SEC found that Cboe had put its business interests before their regulatory obligations “by failing to properly investigate and then *interfering with the SEC investigation.*”²⁰

60. The Cboe Defendants have maintained primary responsibility for oversight of the VIX settlement process despite their notable prior failure in this area. The Cboe Defendants’ internal Department of CFE Regulation (“CFER”) ostensibly performs market surveillance activities related to the VIX settlement and adjudicates necessary disciplinary action.

61. Government regulators continue to find problems with the Cboe Defendants’ oversight of their trading platforms. The CFTC in 2016 found that a significant amount of staff turnover prevented the Cboe Defendants from maintaining sufficient compliance staff that would be adequate to conduct and complete investigations in a timely manner.²¹

62. The Cboe Defendants also acted with knowledge or reckless disregard through their failure to prevent VIX manipulation. They knew, or should have known, that the VIX was being manipulated, and have failed to address the issue.

¹⁸ Press Release, SEC, *SEC Charges CBOE For Regulatory Failures* (June 11, 2013), <https://www.sec.gov/news/press-release/2013-2013-107htm>.

¹⁹ *Id.*

²⁰ *Id.* (emphasis added).

²¹ CFTC, Division of Market Oversight, *Trade Practice Rule Enforcement Review of the CBOE Futures Exchange, LLC*, at 8 (June 24, 2016), <https://www.cftc.gov/sites/default/files/idc/groups/public/@iodcms/documents/file/rrcboefutures062416.pdf>.

63. After the Griffin-Shams study was published in May 2017 and presented the Cboe Defendants with credible evidence of manipulation, the Cboe Defendants responded not by an investigation, but by raising false and implausible explanations for the trading anomalies in an effort to protect the reputation of the VIX and their bottom line.

V. CLASS ACTION ALLEGATIONS

64. Plaintiff incorporates the allegations in each above numbered paragraph.

65. Plaintiff brings this action on behalf of himself and all others similarly situated.

66. Plaintiff seeks to represent the following class (“the Class”), as defined below:

All persons, corporations, or other legal entities residing in the United States or its territories who transacted in VIX-Linked Instruments between March 26, 2004 and the present (the “Class Period”).

67. Excluded from the Class are Defendants, any entity or division in which Defendants have a controlling interest, and their legal representatives, officers, directors, assigns, and successors and the Judge to whom this case is assigned and the Judge’s staff. Plaintiff reserves the right to amend the Class definition if discovery and further investigation reveal that the Class should be expanded, divided into subclasses, or modified in any other way.

68. The Class is so numerous that individual joinder of all its members is impracticable. While the precise number and identification of class members is unknown to Plaintiff at this time and can be ascertained only through appropriate discovery, the Class is believed to number in the millions.

69. This action is brought and may properly be maintained as a class action pursuant to the provisions of Federal Rules of Civil Procedure 23(a)(1)–(4) and 23(b)(1)–(3). This action satisfies the numerosity, commonality, typicality, adequacy, predominance, and superiority requirements of those provisions. Common questions of fact and law exist as to all class

members which predominate over any questions affecting only individual class members. These common legal and factual questions, which do not vary from Class member to Class member, and which may be determined without reference to the individual circumstances of any Class member, include the following:

- a. Whether the Doe Defendants unreasonably restrained trade in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1;
- b. Whether the Doe Defendants' conduct amounts to a *per se* violation of Section 1 of the Sherman Act;
- c. Whether the Doe Defendants manipulated the VIX in violation of the Commodity Exchange Act;
- d. Whether the Doe Defendants engaged in a combination, conspiracy, and/or agreement to manipulate prices of VIX-Linked Instruments;
- e. The identities of the participants in the conspiracy;
- f. The duration and scope of the conspiracy;
- g. Whether the Cboe Defendants failed to prevent manipulation of the VIX in violation of the Commodity Exchange Act;
- h. Whether the alleged conduct of Defendants caused injury to the business or property of Plaintiff and Class members;
- i. Whether injunctive and/or equitable relief should be awarded; and
- j. Whether Plaintiff and the Class members are entitled to actual damages, costs, restitution, disgorgement, statutory, and/or treble damages.

70. Plaintiff's claims are typical of the claims of the Class members. Plaintiff and other Class members must prove the same facts in order to establish the same claims, described herein, which apply to all Class members.

71. Plaintiff is an adequate representative of the Class because he is a member of the Class and his interests do not conflict with the interests of the Class members he seeks to represent. Plaintiff has retained counsel competent and experienced in the prosecution of complex antitrust class actions, and together Plaintiff and his counsel intend to prosecute this action vigorously for the benefit of the Class. The interests of Class members will be fairly and adequately protected by Plaintiff and his counsel.

72. A class action is superior to other available methods for the fair and efficient adjudication of this litigation since individual litigation of the claims of all Class members is impracticable. Even if every Class member could afford individual litigation, the court system could not. It would be unduly burdensome to the courts, in which individual litigation of thousands of cases (or more) would proceed. Individual litigation presents a potential for inconsistent or contradictory judgments, the prospect of a race for the courthouse, and an inequitable allocation of recovery among those with equally meritorious claims. Individual litigation increases the expense and delay to all parties and the court system in resolving the legal and factual issues common to all Class members' claims relating to the manipulation of VIX-Linked Instruments. By contrast, the class action device presents far fewer management difficulties and provides the benefit of a single adjudication, economies of scale, and comprehensive supervision by a single court.

73. The various claims asserted in this action are additionally or alternatively certifiable under the provisions of Federal Rules of Civil Procedure 23(b)(1) and/or 23(b)(2) because:

- a. The prosecution of separate actions by thousands of individual Class members would create a risk of inconsistent or varying adjudications with respect to individual Class members, thus establishing incompatible standards of conduct for Defendants;
- b. The prosecution of separate actions by individual Class members would also create the risk of adjudications with respect to them that would, as a practical matter, be dispositive of the interests of the other Class members who are not a party to such adjudications and would substantially impair or impede the ability of such non-party Class members to protect their interests; and
- c. Defendants have acted or refused to act on grounds generally applicable to the entirety of each of the Classes, thereby making appropriate final declaratory and injunctive relief with respect to the Class as a whole.

VI. FRAUDULENT CONCEALMENT AND TOLLING

74. Defendants engaged in conduct that, by its nature, was inherently self-concealing. Defendants affirmatively, actively, and fraudulently concealed their unlawful conduct from Plaintiff and the Class.

75. Plaintiff and Class Members were unaware of Defendants' unlawful conduct during the limitations period due to the self-concealing nature of Defendants' conduct. Due to the anonymous nature of the transactions at issue in this litigation, Plaintiff and Class Members had and have no way of determining the identities of their trading partners.

76. Although trading on its exchanges is done anonymously, Cboe collects and keeps detailed records of who trades on the exchanges it runs. Cboe keeps track of the identities of the traders, the timing of the trade, their trading partners, and the volume of trades.

77. These detailed records kept by Cboe are not available publicly and Cboe will not release them upon public request.

78. Because the manipulative transactions were carried out on Cboe's exchanges, and these exchanges are designed to work through anonymous trading, the Cboe is the only keeper of the records that could identify Defendants, aside from the Defendants themselves. Due to the corporate policies of Cboe, these records cannot be accessed without initiating a more formal process, e.g., a subpoena for these records.

79. Due to the self-concealing nature of Defendants' actions and Cboe's corporate policies keeping data on the trades on their exchange anonymous, Plaintiff and Class Members had no way to discover the unlawful conduct prior to the public announcements in February 2018 of the regulatory investigations into Cboe and the VIX.

80. In response to the publication of Dr. Griffin's research paper which suggested market manipulation in the VIX, Cboe repeatedly denied that manipulation in the VIX had occurred, calling the findings baseless. The Cboe's exchange officials similarly claimed that the VIX settlement process was resistant to manipulation. Cboe's denial of the existence of VIX manipulation continued at least through February 2018.

81. Given the self-concealing nature of Defendants' misconduct and Cboe's public statements denying the existence of such misconduct, any statute of limitations affecting or limiting the rights of action by Plaintiff and Class Members has been tolled during the period of the fraudulent concealment.

VII. ANTITRUST INJURY

82. Defendants' combination, conspiracy, and/or agreement to manipulate prices of VIX-Linked Instruments injured Plaintiff and Class members by injuring competition in the market for VIX-Linked Instruments in the United States.

83. Defendants understood the nature of the connection between the value of VIX-Linked Instruments and the settlement price of the VIX, and therefore knew that they could manipulate the prices of VIX-Linked Instruments by manipulation of the VIX settlement price.

84. Defendants' conspiracy caused VIX-Linked Instruments to trade at artificial prices. Had Defendants not colluded to manipulate prices, those transacting in VIX-Linked Instruments would have engaged in transactions at competitive prices.

85. The unlawful conduct of Defendants deprived Plaintiff and Class members transacting in VIX-Linked Instruments of a competitive marketplace, and exposed Class members to artificial volatility.

86. Defendants' conduct and conspiracy had the direct, intended, foreseeable, and proximate result of injuring Plaintiff and Class members in their business and property, in violation of Section 1 of the Sherman Act, 15 U.S.C. § 1.

87. The injury to Plaintiff and Class members is the type the antitrust laws were designed to prevent and directly flows from Defendants' unlawful and anticompetitive conduct.

COUNT I Violation of the Sherman Act, 15 U.S.C. § 1 Against the Doe Defendants

88. Plaintiff incorporates the allegations in each above numbered paragraph.

89. The Doe Defendants entered into and engaged in a combination or conspiracy in unreasonable restraint of trade in violation of Section 1 of the Sherman Act, 15, U.S.C. § 1.

90. Through their conduct, the Doe Defendants intended to restrain trade and actually restrained trade in violation of Section 1. The Doe Defendants shared a conscious commitment to a common scheme aimed at achieving the unlawful objective of manipulating the prices of VIX-Linked Instruments.

91. As a direct and proximate result of the Doe Defendants' anticompetitive conduct, Plaintiff and Class members have been injured in their business or property and will continue to be injured in their business and property.

92. There are no pro-competitive benefits of or legitimate business justifications for the Doe Defendants' combination, conspiracy, and/or agreement to restrain trade. Any alleged pro-competitive benefit or business justification is pretextual and/or could have been achieved through less restrictive means.

93. The anticompetitive combination or conspiracy occurred within the follow of and substantially affected interstate commerce.

94. The alleged combination or conspiracy is a *per se* violation of the federal antitrust laws.

95. Alternatively, the anticompetitive combination, conspiracy, and/or agreement alleged resulted in substantial anticompetitive effects in the VIX-Linked Instruments market in the United States, in violation of the federal antitrust laws.

VIII. VIOLATIONS OF THE COMMODITY EXCHANGE ACT

COUNT II

Manipulation in Violation of the Commodity Exchange Act

7 U.S.C. § 1, *et seq.* and 17 C.F.R. 180.2

Against the Doe Defendants

96. Plaintiff incorporates the allegations in each above numbered paragraph.

97. The Doe Defendants specifically intended to, and did in fact cause unlawful and artificial final settlement prices of VIX-Linked Instruments in violation of the CEA, 7 U.S.C. § 1, *et seq.*

98. By their intentional misconduct as alleged herein, the Doe Defendants each violated Section 9(a)(2) of the CEA, 7 U.S.C. § 13(a)(2), and caused prices of VIX-Linked Instruments to be artificial during the Class Period.

99. The Doe Defendants traded substantial numbers of OTM SPX Options during the settlement period of VIX-Linked Instruments. The Doe Defendants lacked legitimate purposes for these transactions and transacted in a large volume of OTM SPX Options within the VIX settlement period in order to affect the final settlement price of the VIX, and therefore, the values of VIX-Linked Instruments.

100. The Doe Defendants' engaged in these transactions in OTM SPX Options in order to create false and misleading market signals regarding the true supply and demand for SPX Options at various strike prices and for VIX-Linked Instruments. This in turn led to artificial settlement prices for the VIX and VIX-Linked Instruments that did not accurately reflect the legitimate market supply and demand forces. The Doe Defendants engaged in these transactions because they held significant positions where they stood to gain from the manipulation.

101. Through their intentional and unlawful conduct, the Doe Defendants caused artificial final settlement prices of the VIX, and therefore artificial prices of the VIX-Linked Instruments, in violation of 7 U.S.C. §§ 9(3), 13(a)(2), 25(a), and 17 C.F.R. § 180.2.

102. Plaintiff and Class Members who held VIX-Linked Instruments through final settlement during the Class Period were deprived of a lawfully-operating market and suffered

injury as a result of transacting at the artificial prices that resulted from Defendants' manipulative conduct.

103. Plaintiff and Class Members are entitled to damages as a result of the Doe Defendants' violations of the Commodity Exchange Act ("CEA").

COUNT III
Manipulation in Violation of the Commodity Exchange Act
7 U.S.C. § 1, *et seq.* and 7 C.F.R. § 180.1
Against the Doe Defendants

104. Plaintiff incorporates the allegations in each above numbered paragraph.

105. The CEA prohibits any person, directly or indirectly, from using or employing or attempting to use or employ, in connection with a contract of sale of any commodity in interstate commerce, any manipulative or deceptive device or contrivance in contravention of rules and regulations that the CFTC promulgates not later than 1 year after July 21, 2010. 7 U.S.C. § 9(1); 7 U.S.C. § 25.

106. The Doe Defendants violated Rule 180.1(a), which was promulgated by the CFTC in July 2011. 7 C.F.R. § 180.1. Rule 180.1 prohibits employment of manipulative devices or scheme in connection with a contract of sale for any commodity in interstate commerce. Rule 180.1(a) also makes it unlawful to deliver through interstate commerce, by any means whatsoever, a false or misleading or inaccurate report concerning market information or conditions that affect or tend to affect the price of any commodity in interstate commerce, knowing, or acting in reckless disregard of the fact that such report is false, misleading, or inaccurate.

107. The Doe Defendants' conduct transacting in OTM SPX Options during the VIX settlement period violated Rule 180.1(a), as these transactions had no legitimate purpose and were transacted in in order to create an artificial final settlement price for the VIX and VIX-

Linked Instruments. The Doe Defendants' introduction of these OTM SPX Options created artificial and misleading market signals regarding the true level of supply and demand for these various OTM SPX Options. This led to artificial prices for VIX-Linked Instruments.

108. Plaintiff and Class Members are entitled to damages for these violations of the CEA.

COUNT IV
Aiding and Abetting Violation of the Commodity Exchange Act
7 U.S.C. § 1, et seq.
Against All Defendants

109. Plaintiff incorporates the allegations in each above numbered paragraph.

110. As an alternative to Counts II & III, and if the Defendants are not found liable for a primary violation of the CEA, the Defendants are liable for aiding and abetting manipulation.

111. The Defendants knowingly aided, abetted, counseled, induced, and/or procured the violations of the CEA alleged herein. The Defendants did so knowing of each other Defendants' manipulation of the VIX settlement value, and willfully intended to assist these manipulations, thereby resulting in VIX-Linked Instruments trading at artificial prices during the Class Period, in violation of Section 22(a)(1) of the C.E.A., 7 U.S.C. § 25(a)(1).

112. Plaintiff and Class Members are entitled to actual damages for these violations of the CEA.

COUNT V
Failure to Prevent Market Manipulation in Violation of the Commodity Exchange Act
7 U.S.C. § 1, et seq.
Against the Cboe Defendants

113. Plaintiff incorporates the allegations in each above numbered paragraph.

114. The Cboe Defendants did not enforce several rules that they were statutorily required to enforce as registered entities under the Commodity Exchange Act, 7 U.S.C. § 25(b),

1(a)(40). Such rules include, but are not limited to, those codified at 7 U.S.C. §§ 7(d)(2)(A), 7(d)(3), 7(d)(4), and 7(d)(12), which mandate that registered entities “enforce compliance with the rules of the contract market, including . . . rules prohibiting abusive trade practices”, “list on the contract market only contracts that are not readily susceptible to manipulation”, have the capacity and responsibility to prevent manipulation, price distortion, and disruptions of the delivery or cash-settlement process”, and “establish and enforce rules . . . to promote fair and equitable trading on the contract market.”

115. Cboe Defendants acted in bad faith through their failure to enforce the rules as required by the Commodity Exchange Act. The Cboe Defendants profit handsomely from fees attached to the high volume of transactions in VIX Futures, VIX Options, and SPX Options. When confronted with credible, expertly-researched allegations of manipulation, the Cboe Defendants offered false and implausible explanations in order to protect their source of revenue.

116. As a result of Cboe Defendants’ conduct, Plaintiff and class members have suffered damages within the scope of Section 22 of the Commodity Exchange Act. 7 U.S.C. § 25(b).

IX. REQUEST FOR RELIEF

WHEREFORE, Plaintiff, on behalf of himself and all others similarly situated, pray for judgment against Defendants as follows:

1. An order certifying this action as a class action pursuant to Federal Rule of Civil Procedure 23, and appointing Plaintiff and his counsel to represent the Class;
2. An order finding that Defendants are jointly and severally liable for the damages incurred by Plaintiff and the Class members;

3. An order declaring that the actions of Defendants, as set out above, are unlawful under Section 1 of the Sherman Act;
4. An order declaring that the actions of Defendants, as set out above, are unlawful under the CEA;
5. An order enjoining Defendants from continuing to engage in their unlawful conduct;
6. An award of actual damages, costs, restitution, disgorgement, statutory, and/or treble damages under applicable law;
7. An award of monetary damages in favor of the Plaintiff and the Class and against Defendants for their violation of the Sherman Act, in an amount trebled with interest according to the federal antitrust laws;
8. An award of costs, expenses, and attorneys' fees as permitted by law;
9. Pre- and post-judgment interest, to the extent allowable; and
10. Such other and further relief as this Court deems just and proper.

X. JURY TRIAL DEMANDED

Plaintiff, on behalf of himself and all others similarly situated, hereby demands a trial by jury in this case as to all issues so triable.

Dated: April 30, 2018

Respectfully submitted,

/s/ Mark R. Miller

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