

**PLAN TO ADDRESS EXTRAORDINARY MARKET VOLATILITY**

**SUBMITTED TO**

**THE SECURITIES AND EXCHANGE COMMISSION**

**PURSUANT TO RULE 608 OF REGULATION NMS**

**UNDER THE**

**SECURITIES EXCHANGE ACT OF 1934**

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## Preamble

The Participants submit to the SEC this Plan establishing procedures to address extraordinary volatility in NMS Stocks. The procedures provide for market-wide limit up-limit down requirements that prevent trades in individual NMS Stocks from occurring outside of the specified Price Bands. These limit up-limit down requirements are coupled with Trading Pauses to accommodate more fundamental price moves. The Plan procedures are designed, among other things, to protect investors and promote fair and orderly markets. The Participants developed this Plan pursuant to Rule 608(a)(3) of Regulation NMS under the Exchange Act, which authorizes the Participants to act jointly in preparing, filing, and implementing national market system plans.

I. Definitions

(A) “Eligible Reported Transactions” shall have the meaning prescribed by the Operating Committee and shall generally mean transactions that are eligible to update the last sale price of an NMS Stock.

(B) “Exchange Act” means the Securities Exchange Act of 1934, as amended.

(C) “Limit State” shall have the meaning provided in Section VI of the Plan.

(D) “Limit State Quotation” shall have the meaning provided in Section VI of the Plan.

(E) “Lower Price Band” shall have the meaning provided in Section V of the Plan.

(F) “Market Data Plans” shall mean the effective national market system plans through which the Participants act jointly to disseminate consolidated information in compliance with Rule 603(b) of Regulation NMS under the Exchange Act.

(G) “National Best Bid” and “National Best Offer” shall have the meaning provided in Rule 600(b)(42) of Regulation NMS under the Exchange Act.

(H) “NMS Stock” shall have the meaning provided in Rule 600(b)(47) of Regulation NMS under the Exchange Act.

(I) “Opening Price” shall mean the price of a transaction that opens trading on the Primary Listing Exchange. If the Primary Listing Exchange opens with quotations, the “Opening Price” shall mean the closing price of the NMS Stock on the Primary Listing Exchange on the previous trading day, or if no such closing price exists, the last sale on the Primary Listing Exchange.

(J) “Operating Committee” shall have the meaning provided in Section III(C) of the Plan.

(K) “Participant” means a party to the Plan.

(L) “Plan” means the plan set forth in this instrument, as amended from time to time in accordance with its provisions.

(M) “Percentage Parameter” shall mean the percentages for each tier of NMS Stocks set forth in Appendix A of the Plan.

(N) “Price Bands” shall have the meaning provided in Section V of the Plan.

(O) “Primary Listing Exchange” shall mean the Participant on which an NMS Stock is listed. If an NMS Stock is listed on more than one Participant, the Participant on which the NMS Stock has been listed the longest shall be the Primary Listing Exchange.

(P) “Processor” shall mean the single plan processor responsible for the consolidation of information for an NMS Stock pursuant to Rule 603(b) of Regulation NMS under the Exchange Act.

(Q) “Pro-Forma Reference Price” shall have the meaning provided in Section V(A)(2) of the Plan.

(R) “Reference Price” shall have the meaning provided in Section V of the Plan.

(S) “Regular Trading Hours” shall have the meaning provided in Rule 600(b)(64) of Regulation NMS under the Exchange Act. For purposes of the Plan, Regular Trading Hours can end earlier than 4:00 p.m. ET in the case of an early scheduled close.

(T) “Regulatory Halt” shall have the meaning specified in the Market Data Plans.

(U) “Reopening Price” shall mean the price of a transaction that reopens trading on the Primary Listing Exchange following a Trading Pause or a Regulatory Halt, or, if the Primary Listing Exchange reopens with quotations, the midpoint of those quotations.

(V) “SEC” shall mean the United States Securities and Exchange Commission.

(W) “Straddle State” shall have the meaning provided in Section VII(A)(2) of the Plan.

(X) “Trading center” shall have the meaning provided in Rule 600(b)(78) of Regulation NMS under the Exchange Act.

(Y) “Trading Pause” shall have the meaning provided in Section VII of the Plan.

(Z) “Upper Price Band” shall have the meaning provided in Section V of the Plan.

## II. Parties

### (A) List of Parties

The parties to the Plan are as follows:

- (1) Cboe BZX Exchange, Inc.  
400 South LaSalle Street  
Chicago, Illinois 60605
- (2) Cboe BYX Exchange, Inc.  
400 South LaSalle Street  
Chicago, Illinois 60605
- (3) Cboe EDGA Exchange, Inc.  
400 South LaSalle Street  
Chicago, Illinois 60605
- (4) Cboe EDGX Exchange, Inc.  
400 South LaSalle Street  
Chicago, Illinois 60605
- (5) Chicago Stock Exchange, Inc.  
440 South LaSalle Street  
Chicago, Illinois 60605
- (6) Financial Industry Regulatory Authority, Inc.  
1735 K Street, NW  
Washington, DC 20006
- (7) Investors Exchange LLC  
4 World Trade Center, 44<sup>th</sup> Floor  
New York, New York 10007
- (8) NASDAQ BX, Inc.  
One Liberty Plaza  
New York, New York 10006
- (9) NASDAQ PHLX LLC  
1900 Market Street  
Philadelphia, Pennsylvania 19103

- (10) The Nasdaq Stock Market LLC  
1 Liberty Plaza  
165 Broadway  
New York, NY 10006
- (11) NYSE National, Inc.  
11 Wall Street  
New York, NY 10005
- (12) New York Stock Exchange LLC  
11 Wall Street  
New York, New York 10005
- (13) NYSE American LLC  
11 Wall Street  
New York, New York 10005
- (14) NYSE Arca, Inc.  
11 Wall Street  
New York, New York 10005
- (B) Compliance Undertaking

By subscribing to and submitting the Plan for approval by the SEC, each Participant agrees to comply with and to enforce compliance, as required by Rule 608(c) of Regulation NMS under the Exchange Act, by its members with the provisions of the Plan. To this end, each Participant shall adopt a rule requiring compliance by its members with the provisions of the Plan, and each Participant shall take such actions as are necessary and appropriate as a participant of the Market Data Plans to cause and enable the Processor for each NMS Stock to fulfill the functions set forth in this Plan.

(C) New Participants

The Participants agree that any entity registered as a national securities exchange or national securities association under the Exchange Act may become a Participant by: (1) becoming a participant in the applicable Market Data Plans; (2) executing a copy of the Plan, as then in effect; (3) providing each then-current Participant with a copy of such executed Plan; and (4) effecting an amendment to the Plan as specified in Section III (B) of the Plan.

(D) Advisory Committee

(1) Formation. Notwithstanding other provisions of this Plan, an Advisory Committee to the Plan shall be formed and shall function in accordance with the provisions set forth in this section.

(2) Composition. Members of the Advisory Committee shall be selected for two-year terms as follows:

(A) Advisory Committee Selections. By affirmative vote of a majority of the Participants, the Participants shall select at least one representatives from each of the following categories to be members of the Advisory Committee: (1) a broker-dealer with a substantial retail investor customer base; (2) a broker-dealer with a substantial institutional investor customer base; (3) an alternative trading system; (4) a broker-dealer that primarily engages in trading for its own account; and (5) an investor.

(3) Function. Members of the Advisory Committee shall have the right to submit their views to the Operating Committee on Plan matters, prior to a decision by the Operating Committee on such matters. Such matters shall include, but not be limited to, proposed material amendments to the Plan.

(4) Meetings and Information. Members of the Advisory Committee shall have the right to attend meetings of the Operating Committee and to receive any information concerning Plan matters; provided, however, that the Operating Committee may meet in executive session if, by affirmative vote of a majority of the Participants, the Operating Committee determines that an item of Plan business requires confidential treatment.



### III. Amendments to Plan

#### (A) General Amendments

Except with respect to the addition of new Participants to the Plan, any proposed change in, addition to, or deletion from the Plan shall be effected by means of a written amendment to the Plan that: (1) sets forth the change, addition, or deletion; (2) is executed on behalf of each Participant; and, (3) is approved by the SEC pursuant to Rule 608 of Regulation NMS under the Exchange Act, or otherwise becomes effective under Rule 608 of Regulation NMS under the Exchange Act.

#### (B) New Participants

With respect to new Participants, an amendment to the Plan may be effected by the new national securities exchange or national securities association executing a copy of the Plan, as then in effect (with the only changes being the addition of the new Participant's name in Section II(A) of the Plan) and submitting such executed Plan to the SEC for approval. The amendment shall be effective when it is approved by the SEC in accordance with Rule 608 of Regulation NMS under the Exchange Act or otherwise becomes effective pursuant to Rule 608 of Regulation NMS under the Exchange Act.

#### (C) Operating Committee

(1) Each Participant shall select from its staff one individual to represent the Participant as a member of an Operating Committee, together with a substitute for such individual. The substitute may participate in deliberations of the Operating Committee and shall be considered a voting member thereof only in the absence of the primary representative. Each Participant shall have one vote on all matters considered by the Operating Committee. No later than the initial date of Plan operations, the Operating Committee shall designate one member of the Operating Committee to act as the Chair of the Operating Committee.

(2) The Operating Committee shall monitor the procedures established pursuant to this Plan and advise the Participants with respect to any deficiencies, problems, or recommendations as the Operating Committee may deem appropriate. The Operating Committee shall establish specifications and procedures for the implementation and operation of the Plan that are consistent with the provisions of this Plan and the Appendixes thereto. With respect to matters in this paragraph, Operating Committee decisions shall be approved by a simple majority vote.

(3) Any recommendation for an amendment to the Plan from the Operating Committee that receives an affirmative vote of at least two-thirds of the Participants, but is less than unanimous, shall be submitted to the SEC as a request for an amendment to the Plan initiated by the Commission under Rule 608 of Regulation NMS.

#### IV. Trading Center Policies and Procedures

All trading centers in NMS Stocks, including both those operated by Participants and those operated by members of Participants, shall establish, maintain, and enforce written policies and procedures that are reasonably designed to comply with the limit up - limit down requirements specified in Sections VI of the Plan, and to comply with the Trading Pauses specified in Section VII of the Plan.

#### V. Price Bands

##### (A) Calculation and Dissemination of Price Bands

(1) The Processor for each NMS stock shall calculate and disseminate to the public a Lower Price Band and an Upper Price Band during Regular Trading Hours for such NMS Stock. The Price Bands shall be based on a Reference Price for each NMS Stock that equals the arithmetic mean price of Eligible Reported Transactions for the NMS stock over the immediately preceding five-minute period (except for periods following openings and reopenings, which are addressed below). If no

Eligible Reported Transactions for the NMS Stock have occurred over the immediately preceding five-minute period, the previous Reference Price shall remain in effect. The Price Bands for an NMS Stock shall be calculated by applying the Percentage Parameter for such NMS Stock to the Reference Price, with the Lower Price Band being a Percentage Parameter below the Reference Price, and the Upper Price Band being a Percentage Parameter above the Reference Price. The Price Bands shall be calculated during Regular Trading Hours. Between 9:30 a.m. and 9:45 a.m. ET, and 3:35 p.m. and 4:00 p.m. ET, or in the case of an early scheduled close, during the last 25 minutes of trading before the early scheduled close, the Price Bands shall be calculated by applying double the Percentage Parameters set forth in Appendix A. If the Processor has not yet disseminated Price Bands, but a Reference Price is available, a trading center may calculate and apply Price Bands based on the same Reference Price that the Processor would use for calculating such Price Bands until such trading center receives Price Bands from the Processor. If, under Section VII(B)(2), the Primary Listing Exchange notifies the Processor that it is unable to reopen an NMS Stock due to a systems or technology issue and it has not declared a Regulatory Halt, the Processor will calculate and disseminate Price Bands by applying triple the Percentage Parameters set forth in Appendix A for the first 30 seconds such Price Bands are disseminated.

(2) The Processor shall calculate a Pro-Forma Reference Price on a continuous basis during Regular Trading Hours, as specified in Section V(A)(1) of the Plan. If a Pro-Forma Reference Price has not moved by 1% or more from the Reference Price currently in effect, no new Price Bands shall be disseminated, and the current Reference Price shall remain the effective Reference Price. When the Pro-Forma Reference Price has moved by 1% or more from the Reference Price currently in effect, the Pro-Forma Reference Price shall become the Reference Price, and the Processor shall disseminate new

Price Bands based on the new Reference Price; provided, however, that each new Reference Price shall remain in effect for at least 30 seconds.

(B) Openings

(1) Except when a Regulatory Halt is in effect at the start of Regular Trading Hours, the first Reference Price for a trading day shall be the Opening Price on the Primary Listing Exchange in an NMS Stock if such Opening Price occurs less than five minutes after the start of Regular Trading Hours. During the period less than five minutes after the Opening Price, a Pro-Forma Reference Price shall be updated on a continuous basis to be the arithmetic mean price of Eligible Reported Transactions for the NMS Stock during the period following the Opening Price (including the Opening Price), and if it differs from the current Reference Price by 1% or more shall become the new Reference Price, except that a new Reference Price shall remain in effect for at least 30 seconds. Subsequent Reference Prices shall be calculated as specified in Section V(A) of the Plan.

(2) If the Opening Price on the Primary Listing Exchange in an NMS Stock does not occur within five minutes after the start of Regular Trading Hours, the first Reference Price for a trading day shall be the arithmetic mean price of Eligible Reported Transactions for the NMS Stock over the preceding five minute time period, and subsequent Reference Prices shall be calculated as specified in Section V(A) of the Plan.

(C) Reopenings

(1) Following a Trading Pause in an NMS Stock, and if the Primary Listing Exchange has not declared a Regulatory Halt, if the Primary Listing Exchange reopens trading with a transaction or quotation that does not include a zero bid or zero offer, the next Reference Price shall be the Reopening Price on the Primary Listing Exchange. Subsequent Reference Prices shall be determined in the manner prescribed for normal openings, as specified in Section V(B)(1) of the Plan. If the

Primary Listing Exchange notifies the Processor that it is unable to reopen an NMS Stock due to a systems or technology issue, or if the Primary Listing Exchange reopens trading with a quotation that has a zero bid or zero offer, or both, the next Reference Price shall be the last effective Price Band that was in a Limit State before the Trading Pause. Subsequent Reference Prices shall be calculated as specified in Section V(A) of the Plan.

(2) Following a Regulatory Halt, the next Reference Price shall be the Opening or Reopening Price on the Primary Listing Exchange if such Opening or Reopening Price occurs within five minutes after the end of the Regulatory Halt, and subsequent Reference Prices shall be determined in the manner prescribed for normal openings, as specified in Section V(B)(1) of the Plan. If such Opening or Reopening Price has not occurred within five minutes after the end of the Regulatory Halt, the Reference Price shall be equal to the arithmetic mean price of Eligible Reported Transactions for the NMS Stock over the preceding five minute time period, and subsequent Reference Prices shall be calculated as specified in Section V(A) of the Plan.

## VI. Limit Up-Limit Down Requirements

### (A) Limitations on Trades and Quotations Outside of Price Bands

(1) All trading centers in NMS Stocks, including both those operated by Participants and those operated by members of Participants, shall establish, maintain, and enforce written policies and procedures that are reasonably designed to prevent trades at prices that are below the Lower Price Band or above the Upper Price Band for an NMS Stock. Single-priced opening, reopening, and closing transactions on the Primary Listing Exchange, however, shall be excluded from this limitation. In addition, any transaction that both (i) does not update the last sale price (except if solely because the transaction was reported late or because the transaction was an odd-lot sized transaction), and (ii) is excepted or exempt from Rule 611 under Regulation NMS shall be excluded from this limitation.

(2) When a National Best Bid is below the Lower Price Band or a National Best Offer is above the Upper Price Band for an NMS Stock, the Processor shall disseminate such National Best Bid or National Best Offer with an appropriate flag identifying it as non-executable. When a National Best Offer is equal to the Lower Price Band or a National Best Bid is equal to the Upper Price Band for an NMS Stock, the Processor shall distribute such National Best Bid or National Best Offer with an appropriate flag identifying it as a “Limit State Quotation”.

(3) All trading centers in NMS Stocks, including both those operated by Participants and those operated by members of Participants, shall establish, maintain, and enforce written policies and procedures that are reasonably designed to prevent the display of offers below the Lower Price Band and bids above the Upper Price Band for an NMS Stock. The Processor shall disseminate an offer below the Lower Price Band or bid above the Upper Price Band that may be submitted despite such reasonable policies and procedures, but with an appropriate flag identifying it as non-executable; provided, however, that any such bid or offer shall not be included in National Best Bid or National Best Offer calculations.

(B) Entering and Exiting a Limit State

(1) All trading for an NMS Stock shall immediately enter a Limit State if the National Best Offer equals the Lower Price Band and does not cross the National Best Bid, or the National Best Bid equals the Upper Price Band and does not cross the National Best Offer.

(2) When trading for an NMS Stock enters a Limit State, the Processor shall disseminate this information by identifying the relevant quotation (i.e., a National Best Offer that equals the Lower Price Band or a National Best Bid that equals the Upper Price Band) as a Limit State Quotation. At this point, the Processor shall cease calculating and disseminating updated Reference Prices and Price

Bands for the NMS Stock until either trading exits the Limit State or trading resumes with an opening or re-opening as provided in Section V.

(3) Trading for an NMS Stock shall exit a Limit State if, within 15 seconds of entering the Limit State, the entire size of all Limit State Quotations are executed or cancelled.

(4) If trading for an NMS Stock exits a Limit State within 15 seconds of entry, the Processor shall immediately calculate and disseminate updated Price Bands based on a Reference Price that equals the arithmetic mean price of Eligible Reported Transactions for the NMS Stock over the immediately preceding five-minute period (including the period of the Limit State).

(5) If trading for an NMS Stock does not exit a Limit State within 15 seconds of entry, the Limit State will terminate when the Primary Listing Exchange declares a Trading Pause pursuant to Section VII of the Plan or at the end of Regular Trading Hours.

## VII. Trading Pauses

### (A) Declaration of Trading Pauses

(1) If trading for an NMS Stock does not exit a Limit State within 15 seconds of entry during Regular Trading Hours, then the Primary Listing Exchange shall declare a Trading Pause for such NMS Stock and shall notify the Processor.

(2) The Primary Listing Exchange may also declare a Trading Pause for an NMS Stock when an NMS Stock is in a Straddle State, which is when National Best Bid (Offer) is below (above) the Lower (Upper) Price Band and the NMS Stock is not in a Limit State, and trading in that NMS Stock deviates from normal trading characteristics such that declaring a Trading Pause would support the Plan's goal to address extraordinary market volatility. The Primary Listing Exchange shall develop policies and procedures for determining when it would declare a Trading Pause in such circumstances.

If a Trading Pause is declared for an NMS Stock under this provision, the Primary Listing Exchange shall notify the Processor.

(3) The Processor shall disseminate Trading Pause information to the public. No trades in an NMS Stock shall occur during a Trading Pause, but all bids and offers may be displayed.

(B) Reopening of Trading During Regular Trading Hours

(1) Five minutes after declaring a Trading Pause for an NMS Stock, and if the Primary Listing Exchange has not declared a Regulatory Halt, the Primary Listing Exchange shall attempt to reopen trading using its established reopening procedures. The Processor will publish the following information that the Primary Listing Exchange provides to the Processor in connection with such reopening: auction reference price; auction collars; and number of extensions to the reopening auction. The Trading Pause shall end when the Primary Listing Exchange reports a Reopening Price.

(2) The Primary Listing Exchange shall notify the Processor if it is unable to reopen trading in an NMS Stock due to a systems or technology issue and if it has not declared a Regulatory Halt. The Processor shall disseminate this information to the public.

(3) Trading centers may not resume trading in an NMS Stock following a Trading Pause without Price Bands in such NMS Stock.

(4) The Processor shall update the Price Bands as set forth in Section V(C)(1) – (2) of the Plan after receiving notification from the Primary Listing Exchange of a Reopening Price following a Trading Pause (or a resume message in the case of a reopening quote that has a zero bid or zero offer, or both) or that it is unable to reopen trading following a Trading Pause due to a systems or technology issue, provided that if the Primary Listing Exchange is unable to reopen due to a systems or technology issue, the update to the Price Bands will be no earlier than ten minutes after the beginning of the Trading Pause.



(C) Trading Pauses Within Ten Minutes of the End of Regular Trading Hours

(1) If an NMS Stock is in a Trading Pause during the last ten minutes of trading before the end of Regular Trading Hours, the Primary Listing Exchange shall not reopen trading and shall attempt to execute a closing transaction using its established closing procedures. All trading centers may begin trading the NMS Stock when the Primary Listing Exchange executes a closing transaction.

(2) If the Primary Listing Exchange does not execute a closing transaction within five minutes after the end of Regular Trading Hours, all trading centers may begin trading the NMS Stock.

VIII. Implementation

The initial date of Plan operations shall be April 8, 2013.

The Plan shall be implemented on a pilot basis set to end on [April 16, 2018]*April 15, 2019*.

IX. Withdrawal from Plan

If a Participant obtains SEC approval to withdraw from the Plan, such Participant may withdraw from the Plan at any time on not less than 30 days' prior written notice to each of the other Participants. At such time, the withdrawing Participant shall have no further rights or obligations under the Plan.

X. Counterparts and Signatures

The Plan may be executed in any number of counterparts, no one of which need contain all signatures of all Participants, and as many of such counterparts as shall together contain all such signatures shall constitute one and the same instrument.

IN WITNESS THEREOF, this Plan has been executed as of the \_\_\_ day of February 2018 by each of the parties hereto.

Cboe BZX EXCHANGE, INC.

Cboe BYX EXCHANGE, INC.

BY: \_\_\_\_\_

BY: \_\_\_\_\_

Cboe EDGA EXCHANGE, INC.

Cboe EDGX EXCHANGE, INC.

BY: \_\_\_\_\_

BY: \_\_\_\_\_

CHICAGO STOCK EXCHANGE, INC.

FINANCIAL INDUSTRY  
REGULATORY AUTHORITY, INC.

BY: \_\_\_\_\_

BY: \_\_\_\_\_

INVESTORS EXCHANGE LLC

NASDAQ BX, Inc.

BY: \_\_\_\_\_

BY: \_\_\_\_\_

NASDAQ PHLX LLC

THE NASDAQ STOCK MARKET LLC

BY: \_\_\_\_\_

BY: \_\_\_\_\_

NYSE NATIONAL, INC.

NEW YORK STOCK EXCHANGE LLC

BY: \_\_\_\_\_

BY: \_\_\_\_\_

NYSE American LLC

NYSE ARCA, INC.

BY: \_\_\_\_\_

BY: \_\_\_\_\_

## Appendix A – Percentage Parameters

### I. Tier 1 NMS Stocks

(1) Tier 1 NMS Stocks shall include all NMS Stocks included in the S&P 500 Index, the Russell 1000 Index, and the exchange-traded products (“ETP”) identified as Schedule 1 to this Appendix. Schedule 1 to the Appendix will be reviewed and updated semi-annually based on the fiscal year by the Primary Listing Exchange to add ETPs that meet the criteria, or delete ETPs that are no longer eligible. To determine eligibility for an ETP to be included as a Tier 1 NMS Stock, all ETPs across multiple asset classes and issuers, including domestic equity, international equity, fixed income, currency, and commodities and futures will be identified. Leveraged ETPs will be excluded and the list will be sorted by notional consolidated average daily volume (“CADV”). The period used to measure CADV will be from the first day of the previous fiscal half year up until one week before the beginning of the next fiscal half year. Daily volumes will be multiplied by closing prices and then averaged over the period. ETPs, including inverse ETPs, that trade over \$2,000,000 CADV will be eligible to be included as a Tier 1 NMS Stock. The semi-annual updates to Schedule 1 do not require an amendment to the Plan. The Primary Listing Exchanges will maintain the updated Schedule 1 on their respective websites.

(2) The Percentage Parameters for Tier 1 NMS Stocks with a Reference Price more than \$3.00 shall be 5%.

(3) The Percentage Parameters for Tier 1 NMS Stocks with a Reference Price equal to \$0.75 and up to and including \$3.00 shall be 20%.

(4) The Percentage Parameters for Tier 1 NMS Stocks with a Reference Price less than \$0.75 shall be the lesser of (a) \$0.15 or (b) 75%.

(5) The Reference Price used for determining which Percentage Parameter shall be applicable during a trading day shall be based on the closing price of the NMS Stock on the Primary Listing Exchange on the previous trading day, or if no closing price exists, the last sale on the Primary Listing Exchange reported by the Processor.

## II. Tier 2 NMS Stocks

(1) Tier 2 NMS Stocks shall include all NMS Stocks other than those in Tier 1, provided, however, that all rights and warrants are excluded from the Plan.

(2) The Percentage Parameters for Tier 2 NMS Stocks with a Reference Price more than \$3.00 shall be 10%.

(3) The Percentage Parameters for Tier 2 NMS Stocks with a Reference Price equal to \$0.75 and up to and including \$3.00 shall be 20%.

(4) The Percentage Parameters for Tier 2 NMS Stocks with a Reference Price less than \$0.75 shall be the lesser of (a) \$0.15 or (b) 75%.

(5) Notwithstanding the foregoing, the Percentage Parameters for a Tier 2 NMS Stock that is a leveraged ETP shall be the applicable Percentage Parameter set forth in clauses (2), (3), or (4) above, multiplied by the leverage ratio of such product.

(6) The Reference Price used for determining which Percentage Parameter shall be applicable during a trading day shall be based on the closing price of the NMS Stock on the Primary Listing Exchange on the previous trading day, or if no closing price exists, the last sale on the Primary Listing Exchange reported by the Processor.

**Appendix A – Schedule 1  
(as of January 2, 2018)**

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
SPY	SPDR S&P 500® ETF	NYSE Arca
QQQ	Powershares QQQ Trust Series 1	NASDAQ
IWM	iShares Russell 2000 ETF	NYSE Arca
EEM	iShares MSCI Emerging Markets ETF	NYSE Arca
XLF	Financial Select Sector SPDR Fund	NYSE Arca
VXX	iPath S&P 500 VIX Short-Term Futures ETN	NYSE Arca
EFA	iShares MSCI EAFE ETF	NYSE Arca
TLT	iShares 20+ Year Treasury Bond ETF	NASDAQ
HYG	iShares iBoxx \$ High Yield Corporate Bond ETF	NYSE Arca
GDX	VanEck Vectors Gold Miners ETF	NYSE Arca
XIV	VelocityShares Daily Inverse VIX Short Term ETN	NASDAQ
IVV	iShares Core S&P 500 ETF	NYSE Arca
GLD	SPDR Gold Trust	NYSE Arca
XLE	Energy Select Sector SPDR Fund	NYSE Arca
LQD	iShares iBoxx \$ Investment Grade Corporate Bond ETF	NYSE Arca
EWZ	iShares MSCI Brazil Capped ETF	NYSE Arca
XLU	Utilities Select Sector SPDR Fund	NYSE Arca
XLI	Industrial Select Sector SPDR Fund	NYSE Arca
DIA	SPDR Dow Jones Industrial Average ETF Trust	NYSE Arca
XLP	Consumer Staples Select Sector SPDR Fund	NYSE Arca
XLK	Technology Select Sector SPDR Fund	NYSE Arca
SVXY	ProShares Short VIX Short Term Futures	NYSE Arca
FXI	iShares China Large-Cap ETF	NYSE Arca
XLV	Health Care Select Sector SPDR Fund	NYSE Arca
IYR	iShares U.S. Real Estate ETF	NYSE Arca
XOP	SPDR S&P Oil & Gas Exploration & Production ETF	NYSE Arca
VWO	Vanguard FTSE Emerging Markets ETF	NYSE Arca
VOO	Vanguard S&P 500 ETF	NYSE Arca
IEMG	iShares Core MSCI Emerging Markets ETF	NYSE Arca
EWJ	iShares MSCI Japan ETF	NYSE Arca
GDXJ	VanEck Vectors Junior Gold Miners ETF	NYSE Arca
XLY	Consumer Discretionary Select Sector SPDR Fund	NYSE Arca
SMH	VanEck Vectors Semiconductor ETF	NYSE Arca
JNK	SPDR Bloomberg Barclays High Yield Bond ETF	NYSE Arca
KRE	SPDR S&P Regional Banking ETF	NYSE Arca
MDY	SPDR S&P MidCap 400® ETF	NYSE Arca

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
XBI	SPDR S&P Biotech ETF	NYSE Arca
VEA	Vanguard FTSE Developed Markets ETF	NYSE Arca
IBB	iShares Nasdaq Biotechnology ETF	NASDAQ
VNQ	Vanguard REIT ETF	NYSE Arca
AGG	iShares Core U.S. Aggregate Bond ETF	NYSE Arca
EZU	iShares MSCI Eurozone ETF	Cboe BZX
VTI	Vanguard Total Stock Market ETF	NYSE Arca
IEFA	iShares Core MSCI EAFE ETF	Cboe BZX
XLB	Materials Select Sector SPDR Fund	NYSE Arca
EMB	iShares JP Morgan USD Emerging Markets Bond ETF	NASDAQ
IWD	iShares Russell 1000 Value ETF	NYSE Arca
USO	United States Oil Fund LP	NYSE Arca
XRT	SPDR S&P Retail ETF	NYSE Arca
IEF	iShares 7-10 Year Treasury Bond ETF	NASDAQ
IJR	iShares Core S&P Small-Cap ETF	NYSE Arca
IJH	iShares Core S&P Mid-Cap ETF	NYSE Arca
IWF	iShares Russell 1000 Growth ETF	NYSE Arca
VGK	Vanguard FTSE Europe ETF	NYSE Arca
EWY	iShares MSCI South Korea Capped ETF	NYSE Arca
BND	Vanguard Total Bond Market ETF	NYSE Arca
OIH	VanEck Vectors Oil Services ETF	NYSE Arca
DXJ	WisdomTree Japan Hedged Equity Fund	NYSE Arca
AMLPL	Alerian MLP ETF	NYSE Arca
EWX	iShares MSCI Mexico Capped ETF	NYSE Arca
IWB	iShares Russell 1000 ETF	NYSE Arca
VTV	Vanguard Value ETF	NYSE Arca
RSX	VanEck Vectors Russia ETF	NYSE Arca
SLV	iShares Silver Trust	NYSE Arca
EWT	iShares MSCI Taiwan Capped ETF	NYSE Arca
IAU	iShares Gold Trust	NYSE Arca
VCSH	Vanguard Short-Term Corporate Bond ETF	NASDAQ
TIP	iShares TIPS Bond ETF	NYSE Arca
ACWI	iShares MSCI ACWI ETF	NASDAQ
IWO	iShares Russell 2000 Growth ETF	NYSE Arca
BSV	Vanguard Short-Term Bond ETF	NYSE Arca
MCHI	iShares MSCI China ETF	NASDAQ
VCIT	Vanguard Intermediate-Term Corporate Bond ETF	NASDAQ
IWN	iShares Russell 2000 Value ETF	NYSE Arca
EWG	iShares MSCI Germany ETF	NYSE Arca

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
INDA	iShares MSCI India ETF	Cboe BZX
FEZ	SPDR EURO STOXX 50 ETF	NYSE Arca
KBE	SPDR S&P Bank ETF	NYSE Arca
IVW	iShares S&P 500 Growth ETF	NYSE Arca
VEU	Vanguard FTSE All-World ex-US ETF	NYSE Arca
PFF	iShares US Preferred Stock ETF	NASDAQ
ITB	iShares U.S. Home Construction ETF	Cboe BZX
AAXJ	iShares MSCI All Country Asia ex Japan ETF	NASDAQ
EWH	iShares MSCI Hong Kong ETF	NYSE Arca
HEDJ	WisdomTree Europe Hedged Equity Fund	NYSE Arca
SOXX	iShares PHLX Semiconductor ETF	NASDAQ
XME	SPDR S&P Metals & Mining ETF	NYSE Arca
IVE	iShares S&P 500 Value ETF	NYSE Arca
SHV	iShares Short Treasury Bond ETF	NASDAQ
SHY	iShares 1-3 Year Treasury Bond ETF	NASDAQ
VB	Vanguard Small-Cap ETF	NYSE Arca
VUG	Vanguard Growth ETF	NYSE Arca
BKLN	PowerShares Senior Loan Portfolio	NYSE Arca
AMJ	JPMorgan Alerian MLP Index ETN	NYSE Arca
VGT	Vanguard Information Technology ETF	NYSE Arca
SH	ProShares Short S&P500	NYSE Arca
USMV	iShares MSCI USA Minimum Volatility ETF	Cboe BZX
EWU	iShares MSCI United Kingdom ETF	NYSE Arca
VYM	Vanguard High Dividend Yield Index Fund	NYSE Arca
XHB	SPDR S&P Homebuilders ETF	NYSE Arca
IEI	iShares 3-7 Year Treasury Bond ETF	NASDAQ
FXE	CurrencyShares Euro Trust	NYSE Arca
EWC	iShares MSCI Canada ETF	NYSE Arca
UNG	United States Natural Gas Fund LP	NYSE Arca
MBB	iShares MBS ETF	NASDAQ
XLRE	Real Estate Select Sector SPDR Fund	NYSE Arca
SPLV	PowerShares S&P 500® Low Volatility Portfolio	NYSE Arca
MUB	iShares National Muni Bond ETF	NYSE Arca
VT	Vanguard Total World Stock Index Fund	NYSE Arca
MINT	PIMCO Enhanced Short Maturity Strategy Exchange-Traded Fund	NYSE Arca
DBEF	Xtrackers MSCI EAFE Hedged Equity ETF	NYSE Arca
VO	Vanguard Mid-Cap ETF	NYSE Arca
OEF	iShares S&P 100 ETF	NYSE Arca
VIG	Vanguard Dividend Appreciation ETF	NYSE Arca

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
EWP	iShares MSCI Spain Capped ETF	NYSE Arca
FLOT	iShares Floating Rate Bond ETF	Cboe BZX
EPI	WisdomTree India Earnings Fund	NYSE Arca
DVY	iShares Select Dividend ETF	NASDAQ
CSJ	iShares 1-3 Year Credit Bond ETF	NASDAQ
VIXY	ProShares VIX Short-Term Futures ETF	NYSE Arca
CWB	SPDR Bloomberg Barclays Convertible Securities ETF	NYSE Arca
BIV	Vanguard Intermediate-Term Bond ETF	NYSE Arca
SCHF	Schwab International Equity ETF	NYSE Arca
ITA	iShares US Aerospace & Defense ETF	Cboe BZX
SCZ	iShares MSCI EAFE Small-Cap ETF	NASDAQ
RSP	Guggenheim S&P 500 Equal Weight ETF	NYSE Arca
SJNK	SPDR Bloomberg Barclays Short Term High Yield Bond ETF	NYSE Arca
ITOT	iShares Core S&P Total U.S. Stock Market ETF	NYSE Arca
BNDX	Vanguard Total International Bond ETF	NASDAQ
EWA	iShares MSCI Australia ETF	NYSE Arca
IYT	iShares Transportation Average ETF	Cboe BZX
ILF	iShares Latin America 40 ETF	NYSE Arca
VFH	Vanguard Financials ETF	NYSE Arca
PCY	PowerShares Emerging Markets Sovereign Debt Portfolio	NYSE Arca
HYS	PIMCO 0-5 Year High Yield Corporate Bond Index Exchange-Traded Fund	NYSE Arca
FDN	First Trust Dow Jones Internet Index Fund	NYSE Arca
CIU	iShares Intermediate Credit Bond ETF	NASDAQ
MTUM	iShares MSCI USA Momentum Factor ETF	Cboe BZX
VBR	Vanguard Small-Cap Value ETF	NYSE Arca
VXUS	Vanguard Total International Stock ETF	NASDAQ
SDY	SPDR S&P Dividend ETF	NYSE Arca
IWR	iShares Russell Mid-Cap ETF	NYSE Arca
EMLC	VanEck Vectors Emerging Markets Local Currency Bond ETF	NYSE Arca
HEWJ	iShares Currency Hedged MSCI Japan ETF	NYSE Arca
EFAV	iShares MSCI EAFE Minimum Volatility ETF	Cboe BZX
EUFN	iShares MSCI Europe Financials ETF	NASDAQ
IWS	iShares Russell Mid-Cap Value ETF	NYSE Arca
SCHX	Schwab U.S. Large-Cap ETF	NYSE Arca
NEAR	iShares Short Maturity Bond ETF	Cboe BZX
IWP	iShares Russell Mid-Cap Growth ETF	NYSE Arca
KWEB	KraneShares CSI China Internet ETF	NYSE Arca
HEFA	iShares Currency Hedged MSCI EAFE ETF	Cboe BZX



<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
EWI	iShares MSCI Italy Capped ETF	NYSE Arca
IWV	iShares Russell 3000 ETF	NYSE Arca
IYF	iShares U.S. Financials ETF	NYSE Arca
EZA	iShares MSCI South Africa ETF	NYSE Arca
VXF	Vanguard Extended Market Index Fund	NYSE Arca
IYW	iShares U.S. Technology ETF	NYSE Arca
VHT	Vanguard Health Care ETF	NYSE Arca
BIL	SPDR Bloomberg Barclays 1-3 Month T-Bill ETF	NYSE Arca
UUP	PowerShares DB US Dollar Index Bullish Fund	NYSE Arca
IEUR	iShares Core MSCI Europe ETF	NYSE Arca
DBC	PowerShares DB Commodity Index Tracking Fund	NYSE Arca
EFV	iShares MSCI EAFE Value ETF	Cboe BZX
HEZU	iShares Currency Hedged MSCI Eurozone ETF	NYSE Arca
SCHB	Schwab U.S. Broad Market ETF	NYSE Arca
IEV	iShares Europe ETF	NYSE Arca
SCHD	Schwab U.S. Dividend Equity ETF	NYSE Arca
VV	Vanguard Large-Cap ETF	NYSE Arca
PGX	PowerShares Preferred Portfolio	NYSE Arca
EWL	iShares MSCI Switzerland Capped ETF	NYSE Arca
VPL	Vanguard FTSE Pacific ETF	NYSE Arca
IJK	iShares S&P Mid-Cap 400 Growth ETF	NYSE Arca
BOTZ	Global X Robotics & Artificial Intelligence Thematic ETF	NASDAQ
VMBS	Vanguard Mortgage-Backed Securities ETF	NASDAQ
IXUS	iShares Core MSCI Total International Stock ETF	NASDAQ
VCLT	Vanguard Long-Term Corporate Bond ETF	NASDAQ
SCHE	Schwab Emerging Markets Equity ETF	NYSE Arca
LIT	Global X Lithium & Battery Tech ETF	NYSE Arca
ASHR	Xtrackers Harvest CSI 300 China A-Shares ETF	NYSE Arca
ACWX	iShares MSCI ACWI ex US ETF	NASDAQ
VOE	Vanguard Mid-Cap Value ETF	NYSE Arca
VDE	Vanguard Energy ETF	NYSE Arca
HDV	iShares Core High Dividend ETF	NYSE Arca
IUSG	iShares Core US Growth ETF	NASDAQ
SCHA	Schwab U.S. Small-Cap ETF	NYSE Arca
PSQ	ProShares Short QQQ	NYSE Arca
GOVT	iShares Core US Treasury Bond ETF	Cboe BZX
KBWB	PowerShares KBW Bank Portfolio	NASDAQ
EEMV	iShares MSCI Emerging Markets Minimum Volatility ETF/Dup	Cboe BZX
VTIP	Vanguard Short-Term Inflation-Protected Securities ETF	NASDAQ

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
RWX	SPDR Dow Jones International Real Estate ETF	NYSE Arca
ROBO	ROBO Global Robotics and Automation Index ETF	NASDAQ
DBJP	Xtrackers MSCI Japan Hedged Equity ETF	NYSE Arca
VNQI	Vanguard Global ex-U.S. Real Estate ETF	NASDAQ
SHYG	iShares 0-5 Year High Yield Corporate Bond ETF	NYSE Arca
QUAL	iShares MSCI USA Quality Factor ETF	Cboe BZX
IGV	iShares North American Tech-Software ETF	Cboe BZX
EPP	iShares MSCI Pacific ex Japan ETF	NYSE Arca
EWQ	iShares MSCI France ETF	NYSE Arca
VLUE	iShares MSCI USA Value Factor ETF	Cboe BZX
VSS	Vanguard FTSE All-World Ex-US Small-Cap Index Fund	NYSE Arca
ECH	iShares MSCI Chile Capped ETF	Cboe BZX
SCHZ	Schwab U.S. Aggregate Bond ETF	NYSE Arca
IDV	iShares International Select Dividend ETF	Cboe BZX
IJS	iShares S&P Small-Cap 600 Value ETF	NYSE Arca
DBEU	Xtrackers MSCI Europe Hedged Equity ETF	NYSE Arca
SPIB	SPDR Bloomberg Barclays Intermediate Term Corporate Bond ETF	NYSE Arca
IHI	iShares U.S. Medical Devices ETF	NYSE Arca
HYD	VanEck Vectors High Yield Municipal Index ETF	NYSE Arca
SCHO	Schwab Short-Term U.S. Treasury ETF	NYSE Arca
SCHH	Schwab U.S. REIT ETF	NYSE Arca
IUSV	iShares Core US Value ETF	NASDAQ
SCHG	Schwab U.S. Large-Cap Growth ETF	NYSE Arca
SHM	SPDR Nuveen Bloomberg Barclays Short Term Municipal Bond ETF	NYSE Arca
FPE	First Trust Preferred Securities and Income ETF	NYSE Arca
SPSB	SPDR Bloomberg Barclays Short Term Corporate Bond ETF	NYSE Arca
VBK	Vanguard Small-Cap Growth ETF	NYSE Arca
ACWV	iShares MSCI All Country World Minimum Volatility ETF	Cboe BZX
TOTL	SPDR DoubleLine Total Return Tactical ETF	NYSE Arca
VTEB	Vanguard Tax-Exempt Bond Index Fund	NYSE Arca
FXU	First Trust Utilities AlphaDEX Fund	NYSE Arca
IJT	iShares S&P Small-Cap 600 Growth ETF	NASDAQ
IYM	iShares U.S. Basic Materials ETF	NYSE Arca
MLPI	ETRACS Alerian MLP Infrastructure ETN	NYSE Arca
VPU	Vanguard Utilities Index Fund	NYSE Arca
SRLN	SPDR Blackstone / GSO Senior Loan ETF	NYSE Arca
FXL	First Trust Technology AlphaDEX Fund	NYSE Arca
BLV	Vanguard Long-Term Bond ETF	NYSE Arca
SPHD	PowerShares S&P 500 High Dividend Low Volatility Portfolio	NYSE Arca

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
IYH	iShares U.S. Healthcare ETF	NYSE Arca
TFI	SPDR Nuveen Bloomberg Barclays Municipal Bond ETF	NYSE Arca
ICF	iShares Cohen & Steers REIT ETF	Cboe BZX
VDC	Vanguard Consumer Staples ETF	NYSE Arca
EWM	iShares MSCI Malaysia ETF	NYSE Arca
VOX	Vanguard Telecommunication Services ETF	NYSE Arca
IJJ	iShares S&P Mid-Cap 400 Value ETF	NYSE Arca
SCHP	Schwab U.S. TIPS ETF	NYSE Arca
DBA	PowerShares DB Agriculture Fund	NYSE Arca
THD	iShares MSCI Thailand Capped ETF	NYSE Arca
VIS	Vanguard Industrials ETF	NYSE Arca
EIDO	iShares MSCI Indonesia ETF	NYSE Arca
IYG	iShares U.S. Financial Services ETF	NYSE Arca
ANGL	VanEck Vectors Fallen Angel High Yield Bond ETF	NYSE Arca
RWM	ProShares Short Russell2000	NYSE Arca
FTSM	First Trust Enhanced Short Maturity ETF	NASDAQ
EWS	iShares MSCI Singapore Capped ETF	NYSE Arca
FVD	First Trust Value Line Dividend Index Fund	NYSE Arca
BWX	SPDR Bloomberg Barclays International Treasury Bond ETF	NYSE Arca
OIL	iPath S&P GSCI Crude Oil Total Return Index ETNs	NYSE Arca
IYE	iShares U.S. Energy ETF	NYSE Arca
QTEC	First Trust NASDAQ-100 Technology Index Fund	NASDAQ
DGRO	iShares Core Dividend Growth ETF	NYSE Arca
TUR	iShares MSCI Turkey ETF	NASDAQ
VOT	Vanguard Mid-Cap Growth ETF	NYSE Arca
IYZ	iShares US Telecommunications ETF	Cboe BZX
PHB	PowerShares High Yield Corporate Bond Portfolio	NYSE Arca
SCHV	Schwab U.S. Large-Cap Value ETF	NYSE Arca
KIE	SPDR S&P Insurance ETF	NYSE Arca
IDU	iShares U.S. Utilities ETF	NYSE Arca
EMLP	First Trust North American Energy Infrastructure Fund	NYSE Arca
REM	iShares Mortgage Real Estate Capped ETF	Cboe BZX
RWR	SPDR Dow Jones REIT ETF	NYSE Arca
ERUS	iShares MSCI Russia Capped ETF	NYSE Arca
MGK	Vanguard Mega Cap Growth ETF	NYSE Arca
VGSH	Vanguard Short-Term Government Bond ETF	NASDAQ
FXB	CurrencyShares British Pound Sterling Trust	NYSE Arca
NOBL	ProShares S&P 500 Dividend Aristocrats ETF	Cboe BZX
GBIL	Goldman Sachs TreasuryAccess® 0-1 Year ETF	NYSE Arca

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
PRF	PowerShares FTSE RAFI U.S. 1000 Portfolio	NYSE Arca
EFG	iShares MSCI EAFE Growth ETF	Cboe BZX
AMZA	InfraCap MLP ETF	NYSE Arca
GVI	iShares Intermediate Government/Credit Bond ETF	Cboe BZX
GUNR	FlexShares Global Upstream Natural Resources Index Fund	NYSE Arca
VAW	Vanguard Materials ETF	NYSE Arca
XAR	SPDR S&P Aerospace & Defense ETF	NYSE Arca
BOND	PIMCO Active Bond Exchange-Traded Fund	NYSE Arca
VTWO	Vanguard Russell 2000	NASDAQ
IGF	iShares Global Infrastructure ETF	NASDAQ
FLRN	SPDR Bloomberg Barclays Investment Grade Floating Rate ETF	NYSE Arca
SCHM	Schwab U.S. Mid-Cap ETF	NYSE Arca
FNDX	Schwab Fundamental U.S. Large Company Index ETF	NYSE Arca
RWO	SPDR Dow Jones Global Real Estate ETF	NYSE Arca
EWD	iShares MSCI Sweden Capped ETF	NYSE Arca
CQQQ	Guggenheim China Technology ETF	NYSE Arca
VRP	PowerShares Variable Rate Preferred Portfolio	NYSE Arca
FTEC	Fidelity MSCI Information Technology Index ETF	NYSE Arca
ZIV	VelocityShares Daily Inverse VIX Medium Term ETN	NASDAQ
IYJ	iShares U.S. Industrials ETF	Cboe BZX
DEM	WisdomTree Emerging Markets High Dividend Fund	NYSE Arca
USMC	Principal U.S. Mega-Cap Multi-Factor ETF	NASDAQ
GSY	Guggenheim Ultra Short Duration ETF	NYSE Arca
XES	SPDR S&P Oil & Gas Equipment & Services ETF	NYSE Arca
VGIT	Vanguard Intermediate-Term Government Bond ETF	NASDAQ
VCR	Vanguard Consumer Discretionary ETF	NYSE Arca
FNDF	Schwab Fundamental International Large Company Index ETF	NYSE Arca
FXY	CurrencyShares Japanese Yen Trust	NYSE Arca
FNDA	Schwab Fundamental U.S. Small Company Index ETF	NYSE Arca
IDEV	iShares Core MSCI International Developed Markets ETF	NYSE Arca
DON	WisdomTree U.S. MidCap Dividend Fund	NYSE Arca
ITM	VanEck Vectors AMT-Free Intermediate Municipal Index ETF	NYSE Arca
HACK	ETFMG Prime Cyber Security ETF	NYSE Arca
CRED	iShares Core US Credit Bond ETF	NASDAQ
FNCL	Fidelity MSCI Financials Index ETF	NYSE Arca
IXN	iShares Global Tech ETF	NYSE Arca
ONEQ	Fidelity NASDAQ Composite Index Tracking Stock ETF	NASDAQ
SPDW	SPDR S&P World ex-US ETF	NYSE Arca
HEWG	iShares Currency Hedged MSCI Germany ETF	NASDAQ

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
TBF	ProShares Short 20+ Year Treasury	NYSE Arca
RPG	Guggenheim S&P 500 Pure Growth ETF	NYSE Arca
DOG	ProShares Short Dow30	NYSE Arca
RYT	Guggenheim S&P Equal Weight Technology ETF	NYSE Arca
LMBS	First Trust Low Duration Opportunities ETF	NASDAQ
GXC	SPDR S&P China ETF	NYSE Arca
SPHB	PowerShares S&P 500® High Beta Portfolio	NYSE Arca
INDY	iShares India 50 ETF	NASDAQ
IYC	iShares U.S. Consumer Services ETF	NYSE Arca
RING	iShares MSCI Global Gold Miners ETF	NASDAQ
MDYG	SPDR S&P 400 Mid Cap Growth ETF	NYSE Arca
DFE	WisdomTree Europe SmallCap Dividend Fund	NYSE Arca
DGRW	WisdomTree U.S. Quality Dividend Growth Fund	NASDAQ
SPEM	SPDR S&P Emerging Markets ETF	NYSE Arca
FNDE	Schwab Fundamental Emerging Markets Large Company Index ETF	NYSE Arca
IXC	iShares Global Energy ETF	NYSE Arca
EPHE	iShares MSCI Philippines ETF	NYSE Arca
DGS	WisdomTree Emerging Markets SmallCap Dividend Fund	NYSE Arca
FXC	CurrencyShares Canadian Dollar Trust	NYSE Arca
EPOL	iShares MSCI Poland Capped ETF	NYSE Arca
GSLC	Goldman Sachs ActiveBeta U.S. Large Cap Equity ETF	NYSE Arca
ISTB	iShares Core 1-5 Year USD Bond ETF	NASDAQ
VWOB	Vanguard Emerging Markets Government Bond ETF	NASDAQ
STIP	iShares 0-5 Year TIPS Bond ETF	NYSE Arca
SUB	iShares Short-Term National Muni Bond ETF	NYSE Arca
TLH	iShares 10-20 Year Treasury Bond ETF	NYSE Arca
EMHY	iShares Emerging Markets High Yield Bond ETF	Cboe BZX
FXO	First Trust Financial AlphaDEX Fund	NYSE Arca
LDRS	Innovator IBD® ETF Leaders ETF	NYSE Arca
SPAB	SPDR Bloomberg Barclays Aggregate Bond ETF	NYSE Arca
SLYV	SPDR S&P 600 Small Cap Value ETF	NYSE Arca
DJP	iPath Bloomberg Commodity Index Total Return ETN	NYSE Arca
SDOG	ALPS Sector Dividend Dogs ETF	NYSE Arca
MLPA	Global X MLP ETF	NYSE Arca
FBT	First Trust NYSE Arca Biotechnology Index Fund	NYSE Arca
FV	First Trust Dorsey Wright Focus 5 ETF	NASDAQ
SCHR	Schwab Intermediate-Term U.S. Treasury ETF	NYSE Arca
MDYV	SPDR S&P 400 Mid Cap Value ETF	NYSE Arca
TAN	Guggenheim Solar ETF	NYSE Arca

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
FTSL	First Trust Senior Loan ETF	NASDAQ
PZA	PowerShares National AMT-Free Municipal Bond Portfolio	NYSE Arca
VOOG	Vanguard S&P 500 Growth ETF	NYSE Arca
FEX	First Trust Large Cap Core AlphaDEX Fund	NASDAQ
SKYY	First Trust ISE Cloud Computing Index Fund	NASDAQ
SDIV	Global X SuperDividend ETF	NYSE Arca
IAT	iShares U.S. Regional Banks ETF	NYSE Arca
SLYG	SPDR S&P 600 Small Cap Growth ETF	NYSE Arca
IYK	iShares U.S. Consumer Goods ETF	NYSE Arca
IUSB	iShares Core Total USD Bond Market ETF	NASDAQ
VGLT	Vanguard Long-Term Government Bond ETF	NASDAQ
XSD	SPDR S&P Semiconductor ETF	NYSE Arca
EDV	Vanguard Extended Duration Treasury ETF	NYSE Arca
HYLS	First Trust Exchange-Traded Fund IV First Trust Tactical High Yield ETF	NASDAQ
CWI	SPDR MSCI ACWI ex-US ETF	NYSE Arca
GREK	Global X MSCI Greece ETF	NYSE Arca
XT	iShares Exponential Technologies ETF	NASDAQ
SPTM	SPDR Portfolio Total Stock Market ETF	NYSE Arca
PPLT	ETFS Physical Platinum Shares	NYSE Arca
XMLV	PowerShares S&P MidCap Low Volatility Portfolio	NYSE Arca
VIGI	Vanguard International Dividend Appreciation ETF	NASDAQ
SCHK	Schwab 1000 Index® ETF	NYSE Arca
SPYG	SPDR Portfolio S&P 500 Growth ETF	NYSE Arca
IGM	iShares North American Tech ETF	NYSE Arca
ARKK	ARK Innovation ETF	NYSE Arca
XSLV	PowerShares S&P SmallCap Low Volatility Portfolio	NYSE Arca
FXH	First Trust Health Care AlphaDEX Fund	NYSE Arca
IWY	iShares Russell Top 200 Growth ETF	NYSE Arca
VONG	Vanguard Russell 1000 Growth ETF	NASDAQ
EWN	iShares MSCI Netherlands ETF	NYSE Arca
CLRG	IQ Chaikin U.S. Large Cap ETF	NASDAQ
PICK	iShares MSCI Global Metals & Mining Producers ETF	Cboe BZX
DES	WisdomTree U.S. SmallCap Dividend Fund	NYSE Arca
SCHC	Schwab International Small-Cap Equity ETF	NYSE Arca
IGOV	iShares International Treasury Bond ETF	NASDAQ
GNR	SPDR S&P Global Natural Resources ETF	NYSE Arca
CLY	iShares 10+ Year Credit Bond ETF	NYSE Arca
IPAC	iShares Core MSCI Pacific ETF	NYSE Arca
EMQQ	EMQQ The Emerging Markets Internet & Ecommerce ETF	NYSE Arca

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
FFTY	Innovator IBD® 50 ETF	NYSE Arca
AIEQ	AI Powered Equity ETF	NYSE Arca
FEP	First Trust Europe AlphaDEX Fund	NASDAQ
DLS	WisdomTree International SmallCap Dividend Fund	NYSE Arca
IXJ	iShares Global Healthcare ETF	NYSE Arca
AOM	iShares Core Moderate Allocation Fund	NYSE Arca
PGF	PowerShares Financial Preferred Portfolio	NYSE Arca
FXR	First Trust Industrials/Producer Durables AlphaDEX Fund	NYSE Arca
JO	iPath Bloomberg Coffee Subindex Total Return ETN	NYSE Arca
FDL	First Trust Morningstar Dividend Leaders Index Fund	NYSE Arca
FHLC	Fidelity MSCI Health Care Index ETF	NYSE Arca
VXZ	iPATH S&P 500 VIX Mid-Term Futures ETN	NYSE Arca
SIL	Global X Silver Miners ETF	NYSE Arca
LRGF	iShares Edge MSCI Multifactor USA ETF	NYSE Arca
SPLG	SPDR Portfolio Large Cap ETF	NYSE Arca
DFJ	WisdomTree Japan SmallCap Dividend Fund	NYSE Arca
PHYS	Sprott Physical Gold Trust	NYSE Arca
SPTL	SPDR Bloomberg Barclays Long Term Treasury ETF	NYSE Arca
URA	Global X Uranium ETF	NYSE Arca
JPIN	JPMorgan Diversified Return International Equity ETF	NYSE Arca
PDBC	PowerShares DB Optimum Yield Diversified Commodity Strategy Portfolio	NASDAQ
HYMB	SPDR Nuveen S&P High Yield Municipal Bond ETF	NYSE Arca
FNDC	Schwab Fundamental International Small Company Index ETF	NYSE Arca
HYLB	Xtrackers USD High Yield Corporate Bond ETF	NYSE Arca
PXH	PowerShares FTSE RAFI Emerging Markets Portfolio	NYSE Arca
DBO	PowerShares DB Oil Fund	NYSE Arca
PRFZ	PowerShares FTSE RAFI US 1500 Small-Mid Portfolio	NASDAQ
AIA	iShares Asia 50 ETF	NASDAQ
DWX	SPDR S&P International Dividend ETF	NYSE Arca
MOAT	VanEck Vectors Morningstar Wide Moat ETF	NYSE Arca
XPH	SPDR S&P Pharmaceuticals ETF	NYSE Arca
RPV	Guggenheim S&P 500 Pure Value ETF	NYSE Arca
AOR	iShares Core Growth Allocation Fund	NYSE Arca
ITE	SPDR Bloomberg Barclays Intermediate Term Treasury ETF	NYSE Arca
PSI	PowerShares Dynamic Semiconductors Portfolio	NYSE Arca
VYMI	Vanguard International High Dividend Yield ETF	NASDAQ
PPA	PowerShares Aerospace & Defense Portfolio	NYSE Arca
JPMF	JPMorgan Managed Futures Strategy ETF	NYSE Arca

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
SCIF	VanEck Vectors India Small-Cap Index ETF	NYSE Arca
FM	iShares MSCI Frontier 100 ETF	NYSE Arca
FDT	First Trust Developed Markets ex-US AlphaDEX Fund	NASDAQ
DSI	iShares MSCI KLD 400 Social ETF	NYSE Arca
GWX	SPDR S&P International Small Cap ETF	NYSE Arca
SLQD	iShares 0-5 Year Investment Grade Corporate Bond ETF	NASDAQ
ARKW	ARK Web x.0 ETF	NYSE Arca
STPZ	PIMCO 1-5 Year U.S. TIPS Index Exchange-Traded Fund	NYSE Arca
SPSM	SPDR Portfolio Small Cap ETF	NYSE Arca
IEO	iShares U.S. Oil & Gas Exploration & Production ETF	Cboe BZX
SPHQ	PowerShares S&P 500 Quality Portfolio	NYSE Arca
PNQI	PowerShares NASDAQ Internet Portfolio	NASDAQ
IWC	iShares Micro-Cap ETF	NYSE Arca
VIOO	Vanguard S&P Small-Cap 600 ETF	NYSE Arca
RYH	Guggenheim S&P Equal Weight Health Care ETF	NYSE Arca
SGOL	ETFS Physical Swiss Gold Shares	NYSE Arca
REMX	VanEck Vectors Rare Earth/Strategic Metals ETF	NYSE Arca
REET	iShares Global REIT ETF	NYSE Arca
VONV	Vanguard Russell 1000 Value	NASDAQ
IHF	iShares U.S. Healthcare Providers ETF	NYSE Arca
BSCI	Guggenheim BulletShares 2018 Corporate Bond ETF	NYSE Arca
MGV	Vanguard Mega Cap Value ETF	NYSE Arca
BSJJ	Guggenheim BulletShares 2019 High Yield Corporate Bond ETF	NYSE Arca
BBH	VanEck Vectors Biotech ETF	NASDAQ
IGE	iShares North American Natural Resources ETF	Cboe BZX
BSJK	Guggenheim BulletShares 2020 High Yield Corporate Bond ETF	NYSE Arca
PDP	PowerShares DWA Momentum Portfolio	NASDAQ
FXA	CurrencyShares Australian Dollar Trust	NYSE Arca
BSJI	Guggenheim BulletShares 2018 High Yield Corporate Bond ETF	NYSE Arca
RFDI	First Trust RiverFront Dynamic Developed International ETF	NASDAQ
CORP	PIMCO Investment Grade Corporate Bond Index Exchange-Traded Fund	NYSE Arca
FPX	First Trust US IPO Index Fund	NYSE Arca
GEM	Goldman Sachs ActiveBeta Emerging Markets Equity ETF	NYSE Arca
PWV	PowerShares Dynamic Large Cap Value Portfolio	NYSE Arca
BSCK	Guggenheim BulletShares 2020 Corporate Bond ETF	NYSE Arca
TDTT	FlexShares iBoxx 3-Year Target Duration TIPS Index Fund	NYSE Arca
AMU	ETRACS Alerian MLP Index ETN	NYSE Arca
IXG	iShares Global Financials ETF	NYSE Arca
FXD	First Trust Consumer Discretionary AlphaDEX Fund	NYSE Arca



<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
DLN	WisdomTree U.S. LargeCap Dividend Fund	NYSE Arca
ILTB	iShares Core Long-Term USD Bond ETF	NYSE Arca
FREL	Fidelity MSCI Real Estate Index ETF	NYSE Arca
SCJ	iShares MSCI Japan Small-Cap ETF	NYSE Arca
SPMD	SPDR S&P 1000 ETF	NYSE Arca
GSG	iShares S&P GSCI Commodity-Indexed Trust	NYSE Arca
FENY	Fidelity MSCI Energy Index ETF	NYSE Arca
BSCJ	Guggenheim BulletShares 2019 Corporate Bond ETF	NYSE Arca
FXG	First Trust Consumer Staples AlphaDEX Fund	NYSE Arca
BAB	PowerShares Taxable Municipal Bond Portfolio	NYSE Arca
QAI	IQ Hedge Multi-Strategy Tracker ETF	NYSE Arca
SPYV	SPDR Portfolio S&P 500 Value ETF	NYSE Arca
PPH	VanEck Vectors Pharmaceutical ETF	NASDAQ
SMIN	iShares MSCI India Small-Cap ETF	Cboe BZX
DBB	PowerShares DB Base Metals Fund	NYSE Arca
TOK	iShares MSCI Kokusai ETF	NYSE Arca
SECT	Main Sector Rotation ETF	Cboe BZX
FCG	First Trust Natural Gas ETF	NYSE Arca
IVOG	Vanguard S&P Mid-Cap 400 Growth ETF	NYSE Arca
EXI	iShares Global Industrials ETF	NYSE Arca
EWO	iShares MSCI Austria Capped ETF	NYSE Arca
SGG	iPath Bloomberg Sugar Subindex Total Return ETN	NYSE Arca
IDLV	PowerShares S&P International Developed Low Volatility Portfolio	NYSE Arca
SIZE	iShares Edge MSCI USA Size Factor ETF	NYSE Arca
FTA	First Trust Large Cap Value AlphaDEX Fund	NASDAQ
FLEE	Franklin FTSE Europe ETF	NYSE Arca
PJP	PowerShares Dynamic Pharmaceuticals Portfolio	NYSE Arca
ECON	EGShares Emerging Markets Consumer ETF	NYSE Arca
FEM	First Trust Emerging Markets AlphaDEX Fund	NASDAQ
HFXI	IQ 50 Percent Hedged FTSE International ETF	NYSE Arca
EBND	SPDR Bloomberg Barclays Emerging Markets Local Bond ETF	NYSE Arca
INTF	iShares Edge MSCI Multifactor Intl ETF	NYSE Arca
EUM	ProShares Short MSCI Emerging Markets	NYSE Arca
IFV	First Trust Dorsey Wright International Focus 5 ETF	NASDAQ
LEMB	iShares J.P. Morgan EM Local Currency Bond ETF	NYSE Arca
IPE	SPDR Bloomberg Barclays TIPS ETF	NYSE Arca
BSCL	Guggenheim BulletShares 2021 Corporate Bond ETF	NYSE Arca
AOK	iShares Core Conservative Allocation Fund	NYSE Arca
IHE	iShares U.S. Pharmaceuticals ETF	NYSE Arca

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
FXZ	First Trust Materials AlphaDEX Fund	NYSE Arca
IYY	iShares Dow Jones U.S. ETF	NYSE Arca
PXF	PowerShares FTSE RAFI Developed Markets ex-U.S. Portfolio	NYSE Arca
QDF	FlexShares Quality Dividend Index Fund	NYSE Arca
HYEM	VanEck Vectors Emerging Markets High Yield Bond ETF	NYSE Arca
AOA	iShares Core Aggressive Allocation Fund	NYSE Arca
RYP	Guggenheim S&P Equal Weight Financial ETF	NYSE Arca
PSLV	Sprott Physical Silver Trust	NYSE Arca
FXN	First Trust Energy AlphaDEX Fund	NYSE Arca
SPYD	SPDR Portfolio S&P 500 High Dividend ETF	NYSE Arca
MOO	VanEck Vectors Agribusiness ETF	NYSE Arca
ULVM	USAA MSCI USA Value Momentum Blend Index ETF	NYSE Arca
PKW	PowerShares Buyback Achievers Portfolio	NASDAQ
PWS	Pacer WealthShield ETF	Cboe BZX
QQEW	First Trust NASDAQ-100 Equal Weighted Index Fund	NASDAQ
DHS	WisdomTree U.S. High Dividend Fund	NYSE Arca
IVOO	Vanguard S&P Mid-Cap 400 ETF	NYSE Arca
CMF	iShares California Muni Bond ETF	NYSE Arca
IGHG	ProShares Investment Grade-Interest Rate Hedged ETF	Cboe BZX
SPLB	SPDR Bloomberg Barclays Long Term Corporate Bond ET	NYSE Arca
PID	PowerShares International Dividend Achievers Portfolio	NASDAQ
VONE	Vanguard Russell 1000	NASDAQ
IAGG	iShares International Aggregate Bond Fund	Cboe BZX
EPU	iShares MSCI All Peru Capped ETF	NYSE Arca
RWL	Oppenheimer Large Cap Revenue ETF	NYSE Arca
RHS	Guggenheim S&P 500 Equal Weight Consumer Staples ETF	NYSE Arca
USRT	iShares U.S. Core REIT ETF	NYSE Arca
MGC	Vanguard Mega Cap 300 Index Fund	NYSE Arca
PTLC	Pacer Trendpilot 750 ETF	Cboe BZX
IQDF	FlexShares International Quality Dividend Index Fund	NYSE Arca
EWX	SPDR S&P Emerging Markets Small Cap ETF	NYSE Arca
JKD	iShares Morningstar Large-Cap ETF	NYSE Arca
FXF	CurrencyShares Swiss Franc Trust	NYSE Arca
PFXF	VanEck Vectors Preferred Securities ex Financials ETF	NYSE Arca
LVHD	Legg Mason Low Volatility High Dividend ETF	NASDAQ
KBWY	PowerShares KBW Premium Yield Equity REIT Portfolio	NASDAQ
FEMS	First Trust Emerging Markets Small Cap AlphaDEX Fund	NASDAQ
CFO	Victory CEMP US 500 Enhanced Volatility Wtd Index ETF	NASDAQ
PSCT	PowerShares S&P SmallCap Information Technology Portfolio	NASDAQ

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
NIB	iPath Bloomberg Cocoa Subindex Total Return ETN	NYSE Arca
CSML	IQ Chaikin U.S. Small Cap ETF	NASDAQ
BSCM	Guggenheim BulletShares 2022 Corporate Bond ETF	NYSE Arca
IEZ	iShares U.S. Oil Equipment & Services ETF	NYSE Arca
FUTY	Fidelity MSCI Utilities Index ETF	NYSE Arca
FTCS	First Trust Capital Strength ETF	NASDAQ
PALL	ETFS Physical Palladium Shares	NYSE Arca
XLG	Guggenheim S&P 500 ® Top 50 ETF	NYSE Arca
BSJL	Guggenheim BulletShares 2021 High Yield Corporate Bond ETF	NYSE Arca
RDIV	Oppenheimer Ultra Dividend Revenue ETF	NYSE Arca
CGW	Guggenheim S&P Global Water Index ETF	NYSE Arca
BSCH	Guggenheim BulletShares 2017 Corporate Bond ETF	NYSE Arca
FSTA	Fidelity MSCI Consumer Staples Index ETF	NYSE Arca
FDD	First Trust STOXX European Select Dividend Income Fund	NYSE Arca
PSP	PowerShares Global Listed Private Equity Portfolio	NYSE Arca
FIDU	Fidelity MSCI Industrials Index ETF	NYSE Arca
VNM	VanEck Vectors Vietnam ETF	NYSE Arca
PSK	SPDR Wells Fargo Preferred Stock ETF	NYSE Arca
MDIV	First Trust Multi-Asset Diversified Income Index Fund	NASDAQ
ARGT	Global X MSCI Argentina ETF	NYSE Arca
EEMA	iShares MSCI Emerging Markets Asia ETF	NASDAQ
EZM	WisdomTree U.S. MidCap Earnings Fund	NYSE Arca
IFGL	iShares International Developed Real Estate ETF	NASDAQ
RWJ	Oppenheimer Small Cap Revenue ETF	NYSE Arca
TDTF	FlexShares iBoxx 5-Year Target Duration TIPS Index Fund	NYSE Arca
PEY	PowerShares High Yield Equity Dividend Achievers Portfolio	NASDAQ
ATMP	Barclays ETN+ Select MLP ETN	NYSE Arca
PTH	PowerShares DWA Healthcare Momentum Portfolio	NASDAQ
IOO	iShares Global 100 ETF	NYSE Arca
GBF	iShares Government/Credit Bond ETF	NYSE Arca
FTXO	First Trust Nasdaq Bank ETF	NASDAQ
FIXD	First Trust TCW Opportunistic Fixed Income ETF	NASDAQ
HEEM	iShares Currency Hedged MSCI Emerging Markets ETF	Cboe BZX
PIN	PowerShares India Portfolio	NYSE Arca
PCEF	PowerShares CEF Income Composite Portfolio	NYSE Arca
CHIQ	Global X China Consumer ETF	NYSE Arca
DWM	WisdomTree International Equity Fund	NYSE Arca
CXSE	WisdomTree Trust WisdomTree China ex-State-Owned Enterprises Fund	NASDAQ
VOOV	Vanguard S&P 500 Value ETF	NYSE Arca

<b>Ticker</b>	<b>ETP Name</b>	<b>Exchange</b>
RYE	Guggenheim S&P 500 Equal Weight Energy ETF	NYSE Arca
PKB	PowerShares Dynamic Building & Construction Portfolio	NYSE Arca
GMF	SPDR S&P Emerging Asia Pacific ETF	NYSE Arca
MNA	IQ Merger Arbitrage ETF	NYSE Arca
FMAT	Fidelity MSCI Materials Index ETF	NYSE Arca
OUSA	O'Shares FTSE U.S. Quality Dividend ETF	NYSE Arca
RZV	Guggenheim S&P Smallcap 600 Pure Value ETF	NYSE Arca
IBDM	iShares iBonds Dec 2021 Term Corporate ETF	NYSE Arca
FLTR	VanEck Vectors Investment Grade Floating Rate ETF	NYSE Arca
BNO	United States Brent Oil Fund, LP	NYSE Arca
QABA	First Trust NASDAQ ABA Community Bank Index Fund	NASDAQ
FDIS	Fidelity MSCI Consumer Discretionary Index ETF	NYSE Arca
SLY	SPDR S&P 600 Small Cap ETF	NYSE Arca
CDC	Victory CEMP US EQ Income Enhanced Volatility Wtd Index ETF	NASDAQ
FYX	First Trust Small Cap Core AlphaDEX Fund	NASDAQ
SUSA	iShares MSCI USA ESG Select ETF	NYSE Arca
REZ	iShares Residential Real Estate Capped ETF	NYSE Arca
IBDL	iShares iBonds Dec 2020 Term Corporate ETF	NYSE Arca
BSJH	Guggenheim BulletShares 2017 High Yield Corporate Bond ETF	NYSE Arca
UIVM	USAA MSCI International Value Momentum Blend Index ETF	NYSE Arca
GSIE	Goldman Sachs ActiveBeta International Equity ETF	NYSE Arca
AGGY	WisdomTree Barclays Yield Enhanced U.S. Aggregate Bond Fund	NYSE Arca
JPUS	JPMorgan Diversified Return US Equity ETF	NYSE Arca
RGI	Guggenheim S&P 500 Equal Weight Industrials ETF	NYSE Arca
IHDG	WisdomTree International Hedged Quality Dividend Growth Fund	NYSE Arca
URTH	iShares MSCI World ETF	NYSE Arca
DGL	PowerShares DB Gold Fund	NYSE Arca
CIBR	First Trust NASDAQ Cybersecurity ETF	NASDAQ
FMB	First Trust Managed Municipal ETF	NASDAQ
FTC	First Trust Large Cap Growth AlphaDEX Fund	NASDAQ
RDVY	First Trust NASDAQ Rising Dividend Achievers ETF	NASDAQ
KBA	KraneShares Bosera MSCI China A Share ETF	NYSE Arca
DXJS	WisdomTree Japan Hedged SmallCap Equity Fund	NASDAQ
TDIV	First Trust NASDAQ Technology Dividend Index Fund	NASDAQ
IXP	iShares Global Telecom ETF	NYSE Arca
SLX	VanEck Vectors Steel ETF	NYSE Arca

## Appendix B – Data

Unless otherwise specified, the following data shall be collected and transmitted to the SEC in an agreed-upon format on a monthly basis, to be provided 30 calendar days following month end. Unless otherwise specified, the Primary Listing Exchanges shall be responsible for collecting and transmitting the data to the SEC. Data collected in connection with Sections II(E) – (G) below shall be transmitted to the SEC with a request for confidential treatment under the Freedom of Information Act, 5 U.S.C. § 552, and the SEC’s rules and regulations thereunder.

### I. Summary Statistics

- A. Frequency with which NMS Stocks enter a Limit State. Such summary data shall be broken down as follows:
  1. Partition stocks by category
    - a. Tier 1 non-ETP issues > \$3.00
    - b. Tier 1 non-ETP issues  $\geq$  \$0.75 and  $\leq$  \$3.00
    - c. Tier 1 non-ETP issues < \$0.75
    - d. Tier 1 non-leveraged ETPs in each of above categories
    - e. Tier 1 leveraged ETPs in each of above categories
    - f. Tier 2 non-ETPs in each of above categories
    - g. Tier 2 non-leveraged ETPs in each of above categories
    - h. Tier 2 leveraged ETPs in each of above categories
  2. Partition by time of day
    - a. Opening (prior to 9:45 am ET)
    - b. Regular (between 9:45 am ET and 3:35 pm ET)
    - c. Closing (after 3:35 pm ET)
    - d. Within five minutes of a Trading Pause re-open or IPO open
  3. Track reasons for entering a Limit State, such as:

- a. Liquidity gap –price reverts from a Limit State Quotation and returns to trading within the Price Bands
    - b. Broken trades
    - c. Primary Listing Exchange manually declares a Trading Pause pursuant to Section (VII)(2) of the Plan
    - d. Other
  - B. Determine (1), (2) and (3) for when a Trading Pause has been declared for an NMS Stock pursuant to the Plan.
- II. **Raw Data** *(all Participants, except A-E, which are for the Primary Listing Exchanges only)*
- A. Record of every Straddle State.
    - 1. Ticker, date, time entered, time exited, flag for ending with Limit State, flag for ending with manual override.
    - 2. Pipe delimited with field names as first record.
  - B. Record of every Price Band
    - 1. Ticker, date, time at beginning of Price Band, Upper Price Band, Lower Price Band
    - 2. Pipe delimited with field names as first record
  - C. Record of every Limit State
    - 1. Ticker, date, time entered, time exited, flag for halt
    - 2. Pipe delimited with field names as first record
  - D. Record of every Trading Pause or halt
    - 1. Ticker, date, time entered, time exited, type of halt (i.e., regulatory halt, non-regulatory halt, Trading Pause pursuant to the Plan, other)
    - 2. Pipe delimited with field names as first record
  - E. Data set or orders entered into reopening auctions during halts or Trading Pauses
    - 1. Arrivals, Changes, Cancels, # shares, limit/market, side, Limit State side
    - 2. Pipe delimited with field name as first record
  - F. Data set of order events received during Limit States

G. Summary data on order flow of arrivals and cancellations for each 15-second period for discrete time periods and sample stocks to be determined by the SEC in subsequent data requests. Must indicate side(s) of Limit State.

1. Market/marketable sell orders arrivals and executions
  - a. Count
  - b. Shares
  - c. Shares executed
2. Market/marketable buy orders arrivals and executions
  - a. Count
  - b. Shares
  - c. Shares executed
3. Count arriving, volume arriving and shares executing in limit sell orders above NBBO mid-point
4. Count arriving, volume arriving and shares executing in limit sell orders at or below NBBO mid-point (non-marketable)
5. Count arriving, volume arriving and shares executing in limit buy orders at or above NBBO mid-point (non-marketable)
6. Count arriving, volume arriving and shares executing in limit buy orders below NBBO mid-point
7. Count and volume arriving of limit sell orders priced at or above NBBO mid-point plus \$0.05
8. Count and volume arriving of limit buy orders priced at or below NBBO mid-point minus \$0.05
9. Count and volume of (3-8) for cancels
10. Include: ticker, date, time at start, time of Limit State, all data item fields in 1, last sale prior to 15-second period (null if no trades today), range during 15-second period, last trade during 15-second period

III. **On May 28, 2015, Participants provided to the SEC a supplemental joint assessment relating to the impact of the Plan and calibration of the Percentage Parameters as follows:**

- A. Assess the statistical and economic impact on liquidity of approaching Price Bands.

- B. Assess the statistical and economic impact of the Price Bands on erroneous trades.
- C. Assess the statistical and economic impact of the appropriateness of the Percentage Parameters used for the Price Bands.
- D. Assess whether the Limit State is the appropriate length to allow for liquidity replenishment when a Limit State is reached because of a temporary liquidity gap.
- E. Evaluate concerns from the options markets regarding the statistical and economic impact of Limit States on liquidity and market quality in the options markets. (Participants that operate options exchange should also prepare such assessment reports.)
- F. Assess whether the process for entering a Limit State should be adjusted and whether Straddle States are problematic.
- G. Assess whether the process for exiting a Limit State should be adjusted.
- H. Assess whether the Trading Pauses are too long or short and whether the reopening procedures should be adjusted.