



EXECUTE SUCCESS™

May 16, 2013

**Via Electronic Mail**

Mr. David Stawick  
Secretary  
Commodity Futures Trading Commission  
Three Lafayette Centre  
1155 21st Street, N.W.  
Washington, D.C. 20581

Re: CBOE Futures Exchange, LLC Rule Certification  
Submission Number CFE-2013-22

Dear Mr. Stawick:

Pursuant to Section 5c(c)(1) of the Commodity Exchange Act, as amended (“Act”), and §40.6(a) of the regulations promulgated by the Commodity Futures Trading Commission (“CFTC” or “Commission”) under the Act, CBOE Futures Exchange, LLC (“CFE” or “Exchange”) hereby submits a CFE rule amendment (“Amendment”) relating to the S&P 500 Variance (“VA”) futures contract. Specifically, the Amendment changes the time for the price conversion process from the time of trade execution to the close of trading (or soon thereafter when the current day’s realized variance of the S&P Composite Stock Index (“S&P 500”) is determined by CFE using the daily S&P 500 closing value provided to CFE by the index calculator). The Amendment will become effective on June 3, 2013.

VA futures began trading on CFE in December 2012 and are based on the realized variance of the S&P 500.<sup>1</sup> VA futures are quoted in terms of volatility points (e.g., 25.65) and vega notional (e.g., 100,000 vega), and those values are currently converted to an adjusted futures price and to variance units (number of contracts), respectively, at the time of trade execution (intraday).<sup>2</sup>

The formula used to convert volatility points to an adjusted futures price is comprised of three parts: (i) the current par variance strike, (ii) accumulated return on modified variation margin (“ARMVM”), and (iii) a constant.<sup>3</sup> The current par variance strike is a weighted average of the realized variance since listing and implied variance to maturity.

<sup>1</sup> The VA futures contract launched in December 2012 and was redesigned from previously listed variance futures contracts, which had failed to gain traction. The Exchange redesigned the current VA futures contract to more closely align with the terms of variance products that trade over-the-counter (“OTC”). See CFE Rule Submission Number CFE-2012-18.

<sup>2</sup> The change to the timing of the price conversion process applies only to the conversion from volatility points to an adjusted futures price.

Because of intraday conversion (at trade execution), CFE is required to use the closing value of the S&P 500 from the previous business day to calculate the realized variance portion of the par variance strike. As a result, intraday quotes for VA futures are typically priced to account for some portion of the current trading day's realized variance of the S&P 500. The Exchange understands that this differs from the convention used in the OTC marketplace for variance products. Specifically, the Exchange understands that, for OTC variance products, the closing value of the S&P 500 on the trade date is the first price observation contained in the calculation of realized variance. As a result, quotes for OTC variance products are typically priced to reflect only implied volatility (and not some portion of realized variance) because they are one-day forward starting.

In order to align VA futures more closely with the conventions used to trade OTC variance products, CFE will convert volatility points to futures prices for VA futures at the close of trading (or soon thereafter when the current day's realized variance of the S&P 500 is determined by CFE using the daily S&P 500 closing value provided to CFE by the index calculator).<sup>4</sup> CFE believes that this change to the timing of conversion will improve the contract because: (i) intraday quotes for a VA futures may be priced to reflect only implied volatility (and not some portion of realized variance); and (ii) the converted futures price (at the close or soon thereafter) will include the current trading day's S&P realized variance (because that value will be known at the time of conversion).

The change to the time for the price conversion process will apply to all existing VA futures currently listed for trading and going forward. As to VA futures with open interest listed prior to the effective date of this filing, the change will have no impact on those contracts held to maturity. If a VA futures position (with open interest listed prior to the effective date of this filing) is exited prior to maturity, the calculation of the par variance strike will include one more realized observation than expected when the contract was entered. The extra realized variance observation will apply equally to holders of long and short positions with open interest.

CFE believes that the Amendment is consistent with Designated Contract Market Core Principle 3 (Contracts Not Readily Susceptible to Manipulation) and Core Principle 9 (Execution of Transactions) under Section 5 of the Act because the change to the time for the price conversion process has been vetted with all holders of open interest, meets the risk management needs of users of VA futures, and will hopefully result in the migration of new market participants to the Exchange because the VA futures contract will more closely align with OTC variance products.

CFE believes that the impact of the Amendment will be beneficial to the public and market participants. Prior to submission of this filing, the Exchange polled all holders of VA futures (including the Designated Primary Market Maker for VA futures) for feedback. All holders with open interest indicated their support of the proposed change. Additionally, because of this advance notice, holders with open interest have had the opportunity to close positions under the convention that is being replaced. CFE hereby certifies that the Amendment complies with the Act and the regulations thereunder. CFE further certifies that it has posted a notice of

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<sup>3</sup> ARMVM and the constant are unaffected by the change to the timing of the price conversion process.

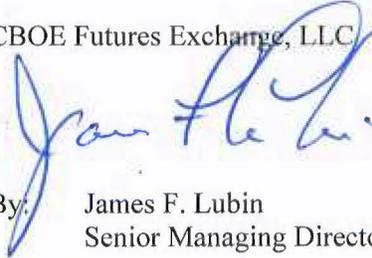
<sup>4</sup> On each trading day, CFE receives the final value of the S&P 500 directly from the index calculator. CFE then uses this value to determine the current day's realized variance for the S&P 500 using a standardized formula. If the index calculator adjusts the closing value of the S&P 500 after CFE receives it, CFE will not adjust the realized variance determined for a given day (unless CFE determines otherwise).

pending certification with the Commission and a copy of this submission on CFE's Web site (<http://cfe.cboe.com/aboutcfe/rules.aspx>) concurrent with the filing of this submission with the Commission.

The filing is marked to show additions in underlined text and deletions in [bracketed] text to the current summary product specifications chart for VA futures. No rule text is being changed by the current filing.

Questions regarding this submission may be directed to Arthur Reinstein at (312) 786-7570 or Jenny Golding at (312) 786-7466. Please reference our submission number CFE-2013-22 in any related correspondence.

CBOE Futures Exchange, LLC



By: James F. Lubin  
Senior Managing Director

cc: Philip Colling (CFTC)  
Thomas Leahy (CFTC)  
Nancy Markowitz (CFTC)  
National Futures Association  
The Options Clearing Corporation

**Summary Product Specifications Chart for  
S&P 500 Variance Futures**

<b>CONTRACT NAME:</b>	S&P 500 Variance futures
<b>LISTING DATE:</b>	December 10, 2012
<b>DESCRIPTION:</b>	S&P 500 Variance futures are exchange-traded futures contracts based on the realized variance of the S&P 500 Composite Stock Price Index (S&P 500). The final settlement value for the contract will be determined based on a standardized formula for calculating the realized variance of the S&P 500 measured from the time of initial listing until expiration of the contract. The standard formula inputs for discount factor and daily interest rate are determined by the Exchange.
<b>CONTRACT SIZE:</b>	The contract multiplier for the S&P 500 Variance futures contract is \$1 per variance unit. One contract equals one variance unit.
<b>TRADING HOURS:</b>	8:30 a.m. - 3:15 p.m. (Chicago time).
<b>CONTRACT MONTHS:</b>	The Exchange may list contract months on S&P 500 Variance futures that correspond to the listed contract months for S&P 500 Index options listed on Chicago Board Options Exchange, Incorporated (CBOE).
<b>TICKER SYMBOL:</b>	VA
<b>PRICING QUOTATION:</b>	<p>The S&amp;P 500 Variance futures contract is quoted in terms of volatility points (e.g., 25.65) and vega notional (e.g., 100,000 vega). <u>At the close of trading (or soon thereafter when the current day's realized variance of the S&amp;P 500 is determined by CFE using the daily S&amp;P 500 closing value provided to CFE by the index calculator) [trade execution], price is converted from volatility points to an adjusted futures price (rounded to the nearest 0.0001). On each trading day, the closing value of the S&amp;P 500 for that day will be included in the price conversion as a realized observation. If the index calculator adjusts the closing value of the S&amp;P 500 after the Exchange receives it, the Exchange will not adjust the realized variance determined for a given day (unless the Exchange determines otherwise).</u></p> <p><u>Because the adjusted futures price is converted at the end of day, intraday quotes will generally be expected to be priced solely to account for implied volatility. [, and]</u></p> <p><u>Additionally, at the close of trading, quantity is converted from vega notional to variance units. The conversion formulas are as follows:</u></p> <p><i>Volatility Points to Adjusted Futures Price:</i></p> $F_t = DF(t, T)(k - k_0) - ARMVM + 1000$ <p>Where,  DF(t, T) = OIS discount factor from time t to maturity T.</p> $k = \frac{252}{N_e - 1} \times \left( \left( \text{volatility strike}^2 \times \frac{(N_e - 1 - n)}{252} \right) + \left( \sum_{i=1}^n R_i^2 \times 10,000 \right) \right)$ <p><math>k_0</math> = Initial Variance Strike – see below  ARMVM = Accumulated Return on Modified Variation Margin - see below  <math>N_e</math> = Number of expected S&amp;P 500 values needed to calculate daily returns from the date the contract is listed until settlement.</p>

	<p><math>n</math> = Number of returns to date, which includes the return through the close of trading each trading day.</p> $R_j = \ln\left(\frac{P_{j+1}}{P_j}\right)$ <p><i>Vega Notional to Variance Units:</i></p> $\text{Variance Units}^* = \frac{\text{Vega Notional}}{2 \times \text{Volatility Strike}} \times \frac{N_e - 1}{N_e - 1 - n}$ <p>Where,  <math>N_e</math> = Number of expected S&amp;P 500 values needed to calculate daily returns from the date the contract is listed until settlement.  <math>n</math> = Number of returns to date, which includes the return through the close of trading each trading day.</p> <p>*The number of variance units will be rounded to the nearest integer.</p>
<b>MINIMUM PRICE INTERVALS:</b>	The minimum price interval is .05 volatility points.
<b>MINIMUM QUOTE AND ORDER SIZES:</b>	<p>The minimum quote size and the minimum order size for the S&amp;P 500 Variance futures contract is 1,000 vega notional and all quotes and orders must be in multiples of 1,000 vega notional.</p> <p>The sizes of quotes, Orders and trades in S&amp;P 500 Variance futures are expressed and displayed in notional equivalent units of 1,000 vega notional. For example, a quote, Order or trade size of 1 has a size of 1,000 vega notional, and a quote, Order or trade size of 3 has a size of 3,000 vega notional. Quote, Order and trade expression and display in notional equivalent units of 1,000 applies to all trading in S&amp;P 500 Variance futures, including Block Trades and Exchange of Contract for Related Position transactions.</p>
<b>CROSSING:</b>	CFE Rule 2302(h). Crossing Two or More Original Orders. The eligible size for an original Order that may be entered for a cross trade with one or more other original Orders pursuant to Rule 407 is a Contract amount equal to 1,000 vega notional. The Trading Privilege Holder or Authorized Trader, as applicable, must expose to the market for at least five seconds under Rule 407(a) at least one of the original Orders that it intends to cross.
<b>PRE-EXECUTION DISCUSSIONS:</b>	CFE Rule 2302(m). Pre-execution Discussions. The Order Exposure Period under Policy and Procedure IV before an Order may be entered to take the other side of another Order with respect to which there has been pre-execution discussions is five seconds after the first Order was entered into the CBOE System.
<b>EXCHANGE OF CONTRACT FOR RELATED POSITION TRANSACTIONS:</b>	CFE Rule 2302(j). Exchange of Contract for Related Position transactions, as set forth in Rule 414, may be entered into with respect to S&P 500 Variance futures contracts. Any Exchange of Contract for Related Position transaction must satisfy the requirements of Rule 414 and must be for a minimum order size of 1,000 vega notional.
<b>BLOCK TRADES:</b>	CFE Rule 2302(k). Pursuant to Rule 415(a)(i), the minimum Block Trade quantity for the S&P 500 Variance futures is a contract amount equaling 200,000 vega notional if there is only one leg involved in the trade. If the

	<p>Block Trade is executed as a spread order, one leg must meet the minimum Block Trade quantity for the S&amp;P 500 Variance futures contract and the other leg(s) must have a contract size that is reasonably related to the leg meeting the minimum Block Trade quantity.</p>
<b>NO BUST RANGE:</b>	<p>CFE Rule 2302(I). Pursuant to Rule 416 the Exchange error trade policy may only be invoked for: (i) a trade price that is greater than 10% on either side of the market price, quoted in volatility points, of the applicable S&amp;P 500 Variance futures contract (referred to as trade price errors), and (ii) an error as to the value of the calculated realized variance, the value of the discount factor, or the value of the daily interest rate that results in an incorrect converted futures contract price (referred to as standard formula input errors).</p> <p>In accordance with Policy and Procedure III, for trade price errors, the Help Desk will determine what the true market price for the relevant Contract was immediately before the potential error trade occurred. In making that determination, the Help Desk may consider all relevant factors, including the last trade price for such Contract, a better bid or offer price, a more recent price in a different contract month and the prices of related contracts trading on the Exchange and other markets. In accordance with Policy and Procedure III, for standard formula input errors, the determination of whether an input error occurred is solely within the Help Desk's discretion.</p>
<b>TERMINATION OF TRADING:</b>	<p>The close of trading on the day before the Final Settlement Date. When the last trading day is a CFE holiday, the last trading day for expiring S&amp;P 500 Variance futures contracts will be the business day immediately preceding the last regularly-scheduled trading day.</p>
<b>FINAL SETTLEMENT DATE:</b>	<p>The third Friday of the expiring month. If the third Friday of the expiring month is a CFE holiday, the Final Settlement Date for the expiring contract shall be the CFE business day immediately preceding the third Friday.</p>
<b>FINAL SETTLEMENT VALUE:</b>	<p>The final settlement price will be determined according to the following formula and rounded to the nearest 0.0001:</p> $F_T = \text{Realized Variance} - k_0 - \text{ARMVM} + 1,000$ <p>The Realized Variance is based on a standardized calculation of the realized variance for the S&amp;P 500. This calculation uses continuously compounded daily returns for a defined period assuming a mean daily price return of zero. The calculated variance is then annualized assuming 252 business days per year. The final realized variance value is this annualized, calculated variance multiplied by 10,000.</p> <p>The Variance Strike, <math>k_0</math>, will be set at 3:15 p.m. (Chicago time) on the business day immediately preceding the first trading day of each S&amp;P 500 Variance futures contract listed.</p> <p>The Accumulated Return on Modified Variation Margin (ARMVM) is an adjustment to the final settlement price to account for the accumulation of interest on daily Variation Margin.</p>
<b>VARIANCE FORMULA:</b>	<p>For purposes of calculating the settlement value, the realized variance is calculated from a series of values of the S&amp;P 500 beginning with the closing price of the S&amp;P 500 on the first day a contract is listed for trading, and ending with the S&amp;P 500 Special Opening Quotation (SOQ) on the final settlement</p>

	<p>date.</p> $\text{Realized Variance} = \left( 252 \times \sum_{i=1}^{N_a-1} \frac{R_i^2}{N_s - 1} \right) \times 10,000$ <p>Where,</p> <p><math>R_i = \ln(P_{i+1}/P_i)</math> – Daily return of the S&amp;P 500 from <math>P_i</math> to <math>P_{i+1}</math>  <math>P_{i+1}</math> – The final value of the S&amp;P 500 used to calculate the daily return.  <math>P_i</math> – The initial value of the S&amp;P 500 used to calculate the daily return.  <math>N_s</math> – Number of expected S&amp;P 500 values needed to calculate daily returns from the date the contract is listed until settlement. The total number of daily returns expected from the date the contract is listed until settlement is <math>N_e - 1</math>.  <math>N_a</math> – The actual number of S&amp;P 500 values from the date the contract is listed until settlement used to calculate daily returns. Generally, the actual number of S&amp;P 500 values will equal the expected number of S&amp;P 500 values (represented by <math>N_e</math>). However, if one or more “market disruption events” occurs while the contract is listed, the actual number of S&amp;P 500 values will be less than the expected number of S&amp;P 500 values by an amount equal to the number of market disruption events that occurred. The total number of actual daily returns is <math>N_a - 1</math>.</p>
<p><b>VARIANCE STRIKE:</b></p>	<p>The Variance Strike (“fair variance”) will be set at 3:15 p.m. (Chicago time) on the business day immediately preceding the first trading day of each S&amp;P 500 Variance futures contract listed. [It will be set by applying the following formula to S&amp;P 500 Index options with the same expiration date.] <u>For an S&amp;P 500 Variance futures contract to be listed by the Exchange, the Exchange will identify a CBOE S&amp;P 500 Index option with an expiration that precedes the expiration of the S&amp;P 500 Variance futures contract and a CBOE S&amp;P 500 Index option with an expiration that follows the expiration of the S&amp;P 500 Variance futures contract. The formula below will be applied to the two identified S&amp;P 500 Index options to calculate the Variance Strike for the S&amp;P 500 Variance futures contract to be listed. The variance strike is determined by interpolating between the two resulting variance values (i.e., by averaging the values weighted by time to expiration).</u></p> $k_0 = \left( \frac{2}{T} \sum_i \frac{\Delta K_i}{K_i^2} e^{RT} Q(K_i) - \frac{1}{T} \left[ \frac{F}{K_{ATM}} - 1 \right]^2 \right) \times 10,000$ <p>T = Time to expiration  F = Forward index level derived from index option prices  <math>K_{ATM}</math> = First strike below the forward index level, F  <math>K_i</math> = Strike price of <math>i^{\text{th}}</math> out-of-the-money option;  a call if <math>K_i &gt; K_0</math> and a put if <math>K_i &lt; K_0</math>;  both put and call if <math>K_i = K_0</math>.  <math>K_i</math> = Interval between strike prices – half the difference between the strike on either side of <math>K_i</math>;  <math display="block">\Delta K_i = \frac{K_{i+1} - K_{i-1}}{2}</math>  R = Risk-free interest rate to expiration  <math>Q(K_i)</math> = The midpoint of the bid-ask spread for each option with strike <math>K_i</math>.</p>

	<p>If the Exchange is unable to calculate the Variance Strike using the above formula at 3:15 p.m. (Chicago time), the Exchange may in its sole discretion establish a Variance Strike that it deems to be a fair and reasonable reflection of what the market was at that time.</p>
<p><b>ARMVM:</b></p>	<p>The Accumulated Return on Modified Variation Margin is an adjustment to the final settlement price to account for the accumulation of interest on daily Variation Margin.</p> $ARMVM = \sum_{t=0}^{T-1} (F_t - 1,000) \times \frac{R_t}{360} \times B_{t+1,T}$ <p>Where:  <math>F_t</math> = The daily settlement value of the S&amp;P 500 Variance futures contract.  <math>R_t</math> = The daily Fed Funds rate applied to the daily Variation Margin  <math>B_{t+1,T}</math> = An accumulation factor applied to the daily Variation Margin, which equals <math>\left(1 + \frac{R_{t+1}}{360}\right) \left(1 + \frac{R_{t+2}}{360}\right) \dots \left(1 + \frac{R_{T-1}}{360}\right)</math></p>
<p><b>MARKET DISRUPTION EVENTS:</b></p>	<p>A “market disruption event” with respect to the S&amp;P 500 Variance futures contract and as determined by CFE, means (i) the occurrence or existence, on any trading day during the one-half hour period that ends at the Scheduled Close of Trading, of any suspension of, or limitation imposed on, trading on one or more of the primary exchange(s) of the companies comprising the S&amp;P 500 in one or more securities that comprise 20 percent or more of the level of the S&amp;P 500; or (ii) if on any trading day the one or more primary exchange(s) determines to change the Scheduled Close of Trading by reducing the time for trading on such day, and either no public announcement of such reduction is made by such exchange or the public announcement of such change is made less than one hour prior to the Scheduled Close of Trading; or (iii) if on any trading day one or more primary exchange(s) fails to open and if in the case of either (i) or (ii) above, in the determination of CFE, such suspension, limitation, or reduction is deemed material. “Scheduled Close of Trading” means that time scheduled by each applicable exchange, as of the opening for trading in the applicable equity security, as the closing time for the trading of such equity security comprising the S&amp;P 500 on the trading day.</p> <p>Generally, if CFE determines that a market disruption event has occurred on a trading day, then the value of the S&amp;P 500 on that day will be omitted from the series of values used to calculate realized variance. For each such market disruption event, the value represented by <math>N_a</math> in the formula set out under the heading “Variance Formula” will be reduced by one.</p> <p>If a market disruption event occurs on the Final Settlement Date, the final settlement value for S&amp;P 500 Variance futures will be determined in accordance with the Rules and By-Laws of The Options Clearing Corporation (OCC). These Rules and By-Laws list actions that may be taken if a final settlement value is unavailable or the normal settlement procedures cannot be utilized. Such actions include, but are not limited to, postponing the Final Settlement Date until the first succeeding trading day in which a market disruption event has not occurred. It is intended that the value of the S&amp;P 500</p>

	<p>on the final day in the period, which is used in the calculation of the realized variance for the CFE S&amp;P 500 Variance futures contract, will equal the corresponding final settlement price for expiring series of S&amp;P 500 options listed on CBOE. Once the calculation period for realized variance begins, the value represented by <math>N_e</math> will not change regardless of the number of market disruption events that occur during the period, even if the Final Settlement Date is postponed. If the Final Settlement Date of the expiring futures contract is postponed, the calculation period for the next realized variance will be shortened by the number of market disruption events that occurred at the beginning of the period. Likewise, the value represented by <math>N_e</math>, will be reduced by the number of market disruption events that occurred at the beginning of the period. The first daily return of the shortened period for the next realized variance will be calculated using the same procedure as described above (the initial value for the first daily return is the variance strike calculated as specified above on the first day of the period and the final value for the first daily return is the closing value of the S&amp;P 500 on the following trading day). For example, if the Final Settlement Date for the previous realized variance is postponed to Tuesday, the initial value for the first daily return of the next realized variance would be fair variance calculated using the S&amp;P 500 on Tuesday's close and the closing value of the S&amp;P 500 on Wednesday.</p> <p>As soon as practical under the circumstances, CFE shall endeavor to notify Trading Privilege Holders of the existence of a market disruption event. Failure to provide such notice will have no effect on the determination by CFE that a market disruption event has occurred.</p>
<b>DELIVERY:</b>	<p>Settlement of S&amp;P 500 Variance futures contracts will result in the delivery of a cash settlement amount on the business day immediately following the Final Settlement Date. The cash settlement amount on the Final Settlement Date shall be the final mark to market amount against the Final Settlement Value of the S&amp;P 500 Variance futures contract multiplied by \$1.00.</p>
<b>POSITION LIMITS:</b>	<p>S&amp;P 500 Variance futures contracts are subject to position limits under Rule 412. A person may not own or control contracts exceeding 125,000 units of variance notional net long or net short in all contract months of an S&amp;P 500 Variance futures contract combined</p> <p>The foregoing position limits shall not apply to positions that are subject to a position limit exemption meeting the requirements of Commission Regulations and CFE Rules.</p>

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