

SECURITIES AND EXCHANGE COMMISSION
(Release No. 34-58171; File No. SR-CBOE-2008-31)

July 16, 2008

Self-Regulatory Organizations; Chicago Board Options Exchange, Incorporated; Order Approving Proposed Rule Change to List and Trade CBOE S&P 500 Three-Month Realized Variance Options and CBOE S&P 500 Three-Month Realized Volatility Options

On May 23, 2008, the Chicago Board Options Exchange, Incorporated (“Exchange” or “CBOE”) filed with the Securities and Exchange Commission (“Commission”), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Act”),¹ and Rule 19b-4 thereunder,² a proposed rule change to list and trade CBOE S&P 500 three-month realized variance options and CBOE S&P 500 three-month realized volatility options. The proposed rule change was published for comment in the Federal Register on June 11, 2008.³ The Commission received no comment letters on the proposed rule change. This order approves the proposed rule change.

I. Description of the Proposed Rule Change

The proposed rule change will permit the Exchange to list and trade cash-settled options having European-style exercise on two statistical measurements of market variability: realized variance and realized volatility of the S&P 500 Index. These statistical measurements are attributes of and based on a broad-based security index (i.e., S&P 500 Index). Three-month realized variance is a measure of the historical variability of the S&P 500 Index, based on actual prices that have been reported, or "realized," historically

¹ 15 U.S.C. 78s(b)(1).

² 17 CFR 240.19b-4.

³ See Securities Exchange Act Release No. 57913 (June 3, 2008), 73 FR 33128 (June 11, 2008).

looking back over a three-month period. The calculation uses daily returns for the three-month period relative to an average (mean) daily price return of zero. Three-month realized volatility is the square root of three-month realized variance. The Exchange also proposed to make technical changes to some of the rules requiring amendment in order to list and trade realized variance and realized volatility options.

Currently, the Exchange lists and trades options on the 30-day implied volatility of the S&P 500 Index (CBOE Volatility Index ("VIX") options).⁴ In its proposal, CBOE explained that realized variance and realized volatility options, will enable market participants to trade options that settle to the actual or realized volatility of the S&P 500 Index that has accrued over a three-month time period. CBOE further explained that realized variance and realized volatility options differ from VIX options in that they will allow market participants to take a position on what they anticipate the actual volatility of the S&P 500 Index will be at expiration. The Exchange also noted that realized variance contracts are a popular and successful product in the over-the-counter ("OTC") market and that a listed and standardized market for realized variance and realized volatility options would attract investors who desire to trade options on realized variance and realized volatility but at the same time prefer the certainty and safeguards of a regulated and standardized marketplace.

Calculation of Realized Variance and Realized Volatility

The formula for three-month realized variance and three-month realized volatility uses continuously compounded daily returns for a three-month period assuming a mean daily price return of zero. The calculated realized variance is then annualized assuming

⁴ The Exchange also calculates the CBOE S&P 500 Three-Month Volatility Index ("VXV"), which measures implied volatility, but the Exchange currently does not list VXV options.

252 business days per year.⁵ The exercise-settlement value for CBOE S&P 500 Three-Month Realized Variance options is 10,000 times the three-month realized variance of the S&P 500 Index, and the exercise-settlement value for CBOE S&P 500 Three-Month Realized Volatility options is 100 times the three-month realized volatility of the S&P 500 Index, both of which are calculated using the following standardized formula:

REALIZED VARIANCE AND REALIZED VOLATILITY FORMULAS:

$$\text{Realized Variance} = 252 \times \left(\frac{\sum_{i=1}^{N_a-1} R_i^2}{(N_e - 1)} \right)$$

$$\text{Realized Volatility} = \sqrt{\text{Realized Variance}} = \sqrt{252 \times \left(\frac{\sum_{i=1}^{N_a-1} R_i^2}{(N_e - 1)} \right)}$$

Where:

R_i = $\ln(P_{i+1}/P_i)$ - Daily return of the S&P 500 Index from P_i to P_{i+1} .

P_{i+1} = The final value of the S&P 500 Index used to calculate the daily return.

P_i = The initial value of the S&P 500 Index used to calculate the daily return.

N_e = Number of expected S&P 500 Index values needed to calculate daily returns during the three-month period. The total number of daily returns expected during the three-month period is $N_e - 1$.

N_a = The actual number of S&P 500 Index values used to calculate daily returns during the three-month period. Generally, the actual number of S&P 500 Index values will equal the expected number of S&P 500 Index values (represented by N_e). However, if one or more "market disruption events" occurs during the three-month period, the actual number of S&P 500 Index values will be less than the expected number of S&P 500 Index values by an amount equal to the number of market disruption events that occurred during the three-month period. The total number of actual daily returns during the three-month period is $N_a - 1$.

For purposes of calculating the respective exercise-settlement value to which the options will settle, realized variance and realized volatility are calculated from a series of values of the S&P 500 Index beginning with the Special Opening Quotation ("SOQ") of

⁵ The annualization factor for realized volatility is the square root of 252.

the S&P 500 Index on the first day of the three-month period, and ending with the S&P 500 Index SOQ on the last day of the three-month period.⁶ All other values in the series are closing values of the S&P 500 Index.

CBOE noted that three-month realized variance and three-month realized volatility will be calculated using actual daily values of the S&P 500 Index, which is a broad-based security index. CBOE added that, by extension, products based on statistical measurements that are derived from S&P 500 Index values should similarly be treated as products based directly on S&P 500 Index values. CBOE represented that, for purposes of its rules, it would treat the indicative values for three-month realized variance and three-month realized volatility as indexes.

CBOE represented that it calculates indicative values for implied and realized variance, and publishes those values daily after the close of trading. The CBOE S&P 500 Implied Variance indicator ("IUG") is a measure of the market's expectation of future variance of the S&P 500 Index that is implied by the daily settlement price of the front-month CBOE S&P 500 Three-Month Variance futures contract.⁷ The CBOE S&P 500 Realized Variance indicator ("RUG") is a measure of the realized variance of the S&P 500 Index from the beginning of the three-month period to the current date. IUG and RUG are disseminated through the Options Price Reporting Authority ("OPRA") and are

⁶ The SOQ is calculated per normal index calculation procedures and uses the opening (first) reported sales price in the primary market of each component stock in the index on the last business day (usually a Friday) before the expiration date. If a stock in the index does not open on the day on which the exercise-settlement value is determined, the last reported sales price in the primary market is used to calculate the exercise-settlement value.

⁷ CBOE Futures Exchange, LLC ("CFE") currently lists CBOE S&P 500 Three-Month Realized Variance future contracts, which commenced trading on May 18, 2004.

publicly available through most price quote vendors.⁸

Options Trading

Under the proposal, the exercise-settlement value for CBOE S&P 500 Three-Month Realized Variance options will be 10,000 times the three-month realized variance of the S&P 500 Index. Realized variance will be quoted in variance points and fractions and one point will equal \$50. The minimum tick size for all series will be 0.10 point (\$5.00) and the minimum strike price interval will be \$5.00.⁹

The exercise-settlement value for CBOE S&P 500 Three-Month Realized Volatility options will be 100 times the three-month realized volatility of the S&P 500 Index. Realized volatility will be quoted in volatility points and fractions and one point will equal \$100. The minimum tick size for series trading below 3.00 will be 0.05 point (\$5.00) and the minimum tick for series trading at and above 3.00 will be 0.10 point (\$10.00). The minimum strike price interval will be \$1.00.

The Exchange proposed to list series at \$1 or greater strike price intervals on CBOE S&P 500 Three-Month Realized Volatility options. CBOE noted that traders will likely use the related CBOE S&P 500 Three-Month Variance futures contract price as a proxy for the "current index level," because, according to CBOE, the futures contract price reflects: (i) the realized variance of the S&P 500 Index experienced to date; and (ii) the market's expectation of the future variance of the S&P 500 Index at expiration of the respective contract.¹⁰

⁸ These values can be accessed by typing in the ticker symbol (IUG or RUG) at the following webpage : <http://cfe.cboe.com/DelayedQuote/SSFQuote.aspx>.

⁹ See Rules 5.5 and 24.9.

¹⁰ The Commission has approved the listing of options and LEAPS in \$1 strike intervals, and the use of futures prices in setting those strike intervals, for all other implied volatility products approved for listing and trading on the Exchange. See

Under the proposal, the CBOE initially will list at least two strike prices above and two strike prices below the square root of the related CBOE S&P 500 Three-Month Variance futures contract price at or about the time a series is opened for trading on the Exchange. As part of this initial listing, the Exchange will list strike prices that are within 5 points from the square root of the related CBOE S&P 500 Three-Month Variance futures contract price on the preceding day.

As for additional series, the Exchange will be permitted to add additional series when the Exchange deems it necessary to maintain an orderly market, to meet customer demand or when the square root of the related CBOE S&P 500 Three-Month Variance futures contract price, moves substantially from the initial exercise price or prices. To the extent that any additional strike prices are listed by the Exchange, such additional strike prices shall be within thirty percent (30%) above or below the square root of the related CBOE S&P 500 Three-Month Variance futures contract price. The Exchange will also be permitted to open additional strike prices that are more than 30% above or below the square root of the related CBOE S&P 500 Three-Month Variance futures contract price, provided that demonstrated customer interest exists for such series, as expressed by institutional, corporate or individual customers or their brokers. Market-makers trading for their own account will not be considered when determining customer interest. In addition to the initial listed series, the Exchange proposed to list up to sixty (60) additional series per expiration month for each series in CBOE S&P 500 Three-Month

Rule 24.9.01(e)(ii). See also Securities Exchange Act Release Nos. 54192 (July 21, 2006), 71 FR 43251 (July 31, 2006) (SR-CBOE-2006-27) (\$1 strikes for VIX options); 55425 (March 8, 2007), 72 FR 12238 (March 15, 2007) (SR-CBOE-2006-73) (\$1 strikes for RVX options); 56813 (November 19, 2007), 72 FR 66211 (November 27, 2007) (SR-CBOE-2007-52) (\$1 strikes for VXD and VXN options and \$1 strikes for RVX, VIX, VXD and VXN LEAPS).

Realized Volatility options. Further, LEAPS on CBOE S&P 500 Three-Month Realized Volatility options will not be listed at intervals less than \$1.

The Exchange also proposed a delisting policy with respect to CBOE S&P 500 Three-Month Realized Volatility options. Specifically, the Exchange will, on a monthly basis, review series that are outside a range of five (5) strikes above and five (5) strikes below the square root of the related CBOE S&P 500 Three-Month Variance futures contract price and delist series with no open interest in both the put and the call series having a: (i) strike higher than the highest strike price with open interest in the put and/or call series for a given expiration month; and (ii) strike lower than the lowest strike price with open interest in the put and/or call series for a given expiration month.

Notwithstanding the proposed delisting policy, CBOE represented that it would grant customer requests to add strikes and/or maintain strikes in CBOE S&P 500 Three-Month Realized Volatility option series.

The Exchange also proposed to add new Interpretation and Policy .11 to Rule 5.5, Series of Option Contracts Open for Trading, which will be an internal cross reference stating that the intervals between strike prices for CBOE S&P 500 Three-Month Realized Volatility options series will be determined in accordance with proposed new Interpretation and Policy .01(g) to Rule 24.9.

Exercise and Settlement

The proposed options will expire on the Saturday following the third Friday of the expiring month. Trading in the expiring contract month will normally cease at 3:15 p.m. Chicago time on the business day preceding the last day of trading (ordinarily the Thursday before expiration Saturday, unless there is an intervening holiday). When the last trading day is moved because of an Exchange holiday (such as when CBOE is closed

on the Friday before expiration), the last trading day for expiring options will be Thursday. As described above, the exercise-settlement value will be calculated from a series of values of the S&P 500 Index beginning with the SOQ of the S&P 500 Index on the first day of the three-month period, and ending with the S&P 500 Index SOQ on the last day of the three-month period. All other values in the series are closing values of the S&P 500 Index.

The exercise-settlement amount is equal to the difference between the exercise-settlement value and the exercise price of the option multiplied by \$50 for CBOE S&P 500 Three-Month Realized Variance options and multiplied by \$100 for CBOE S&P 500 Three-Month Realized Volatility options.

Surveillance

The Exchange represented that it would use the same surveillance procedures currently utilized for each of the Exchange's other index options to monitor trading in CBOE S&P 500 Three-Month Realized Variance options and CBOE S&P 500 Three-Month Realized Volatility options. The Exchange represents that these surveillance procedures are adequate to monitor trading in options on these option products. For surveillance purposes, the Exchange further represented that it would have complete access to information regarding trading activity in the pertinent underlying securities (*i.e.*, S&P 500 Index component securities).

Position Limits

The Exchange did not propose any position limits for CBOE S&P 500 Three-Month Realized Variance options and CBOE S&P 500 Three-Month Realized Volatility options. Because realized variance and realized volatility are calculated using values of the S&P 500 Index, the Exchange argued that the position and exercise limits for these

new products should be the same as those for broad-based index options (e.g., SPX, for which there are no position limits). According to CBOE, CBOE S&P 500 Three-Month Realized Variance options and CBOE S&P 500 Three-Month Realized Volatility options will be subject to the same reporting and other requirements triggered for other options dealt in on the Exchange.¹¹

Exchange Rules Applicable

As stated above, for purposes of CBOE's rules, the indicative values for three-month realized variance and three-month realized volatility will be treated as indexes. Except as modified by the proposal, the rules in Chapters I through XIX, XXIV, XXIVA, and XXIVB will equally apply to CBOE S&P 500 Three-Month Realized Variance options and CBOE S&P 500 Three-Month Realized Volatility options.

CBOE S&P 500 Three-Month Realized Variance options and CBOE S&P 500 Three-Month Realized Volatility options will be margined as "broad-based index" options, and under CBOE rules, especially, Rule 12.3(c)(5)(A), the margin requirement for a short put or call shall be 100% of the current market value of the contract plus up to 15% of the respective underlying indicative value. Additional margin may be required pursuant to Exchange Rule 12.10.

The Exchange proposed that CBOE S&P 500 Three-Month Realized Variance options and CBOE S&P 500 Three-Month Realized Volatility options be eligible for trading as Flexible Exchange Options as provided for in Chapters XXIVA (Flexible Exchange Options) and XXIVB (FLEX Hybrid Trading System).

¹¹ See Rule 4.13, Reports Related to Position Limits.

Capacity

CBOE represented that it has analyzed its capacity and believes that it and the Options Price Reporting Authority have the necessary systems capacity to handle the additional traffic associated with the listing of new series that will result from the introduction of CBOE S&P 500 Three-Month Realized Variance options and CBOE S&P 500 Three-Month Realized Volatility options.

Technical Changes

The Exchange also proposed to make technical changes to Rules 24.4.03, 24.4.04, and 24.5, Exercise Limits by adding "VIX, VXN and VXD" to the rule text.¹² The Exchange proposed to make technical changes to Rules 24A.7(b), 24A.8(a), 24B.7(b), and 24B.8(a), by adding the parenthetical phrase, "including reduced-value option contracts" to the rule text. These FLEX rules already contemplate reduced-value option contracts, and the proposed changes are consistent with the treatment of non-FLEX reduced-value option contracts.¹³

II. Discussion

After careful review, the Commission finds that CBOE's proposal to permit trading in CBOE S&P 500 three-month realized variance options and CBOE S&P 500 three-month realized volatility options is consistent with the Act and the rules and

¹² The Exchange inadvertently neglected to request the Commission's approval to add "VIX, VXN and VXD" to the respective rule text when the position limits for these products were eliminated. See Securities Exchange Act Release No. 54019 (June 20, 2006), 71 FR 36569 (June 27, 2006) (SR-CBOE-2006-55).

¹³ See Securities Exchange Act Release No. 56350 (September 4, 2007), 72 FR 51878 (September 11, 2007) (SR-CBOE-2007-79).

regulations thereunder applicable to a national securities exchange,¹⁴ and, in particular, the requirements of Section 6 of the Act¹⁵ and the rules and regulations thereunder. The Commission finds that the CBOE's proposal gives options investors the ability to make an additional investment choice in a manner consistent with the requirements of Section 6(b)(5) of the Act.¹⁶

The Commission notes that it has previously approved listing and trading of broad-based index options on similar statistical measurements,¹⁷ and that permitting the listing and trading of options on CBOE S&P 500 three-month realized variance options and CBOE S&P 500 three-month realized volatility options will provide investors with an expanded choice of trading and hedging mechanisms. As CBOE has noted, unlike other broad-based options on statistical measurements, realized variance and realized volatility options will allow market participants to take a position on what they anticipate the actual volatility of the S&P 500 Index will be at expiration.

The Commission therefore finds that it is consistent with the Act for the CBOE to apply its rules for trading of broad-based index options, including its rules regarding

¹⁴ In approving this proposed rule change, the Commission has considered the proposed rule's impact on efficiency, competition, and capital formation. 15 U.S.C. 78c(f).

¹⁵ 15 U.S.C. 78f.

¹⁶ 15 U.S.C. 78f(b)(5).

¹⁷ See e.g., Securities Exchange Act Release No. 55425 (March 8, 2007), 72 FR 12238 (March 15, 2007) (order approving SR-CBOE-2006- 73 to list and trade RVX and VXD options); Securities Exchange Act Release No. 49563 (April 14, 2004) 69 FR 21589 (April 21, 2004) (order approving SR-CBOE-2003-40 to list and trade VIX, VXN and VXD options).

position limits, exercise limits and margin requirements, to CBOE S&P 500 three-month realized variance options and CBOE S&P 500 three-month realized volatility options

The Commission also finds that CBOE has adequate surveillance procedures in place to monitor for manipulation of the volatility index options. The Exchange states that it will use the same surveillance procedures currently utilized for each of the Exchange's other index options to monitor trading in options on each volatility index. The Exchange represents that these surveillance procedures are adequate to monitor the trading of options on these volatility index. For surveillance purposes, the Exchange will have complete access to information regarding trading activity in the pertinent underlying securities.

The Commission also believes the CBOE's trading rules and other product specifications are appropriate, including the minimum tick size and strike price intervals for each product. In addition, the Commission notes that IUG and RUG are disseminated through OPRA.

The Commission also notes CBOE's representation that it possesses the necessary

systems capacity to support new series that will result from the introduction CBOE S&P 500 three-month realized variance options and CBOE S&P 500 three-month realized volatility options.

IT IS THEREFORE ORDERED, pursuant to Section 19(b)(2) of the Act, that the proposed rule change (SR-CBOE-2008-31) be, and it hereby is, approved.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.¹⁸

Florence E. Harmon
Acting Secretary

¹⁸ 17 CFR 200.30-3(a)(12).