SECURITIES AND EXCHANGE COMMISSION
(Release No. 34-76421; File No. SR-OCC-2015-804)

November 10, 2015

Self-Regulatory Organizations; The Options Clearing Corporation; Notice of Filing of an Advance Notice to Modify The Options Clearing Corporation's Margin Methodology by Incorporating Variations in Implied Volatility

Pursuant to Section 806(e)(1) of Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act entitled the Payment, Clearing, and Settlement Supervision Act of 2010 ("Payment, Clearing and Settlement Supervision Act")[1] and Rule 19b-4(n)(1)(i) under the Securities Exchange Act of 1934,[2] notice is hereby given that on October 5, 2015, The Options Clearing Corporation ("OCC") filed with the Securities and Exchange Commission ("Commission") the advance notice as described in Items I and II below, which Items have been prepared by OCC.[3] The Commission is publishing this notice to solicit comments on the advance notice from interested persons.

I. Clearing Agency's Statement of the Terms of Substance of the Advance Notice

This advance notice is filed by The Options Clearing Corporation ("OCC") in connection with a proposed change that would modify OCC's margin methodology by incorporating variations in implied volatility for "shorter tenor" options within the System for Theoretical Analysis and Numerical Simulations ("STANS").

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1 12 U.S.C. 5465(e)(1).

2 17 CFR 240.19b-4(n)(1)(i).

3 OCC also filed a proposed rule change with the Commission pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 and Rule 19b-4 thereunder, seeking approval of changes to its rules necessary to implement the proposal. 15 U.S.C. 78s(b)(1) and 17 CFR 240.19b-4, respectively. *See* SR-OCC-2015-016.

II. Clearing Agency's Statement of the Purpose of, and Statutory Basis for, the Advance Notice

In its filing with the Commission, OCC included statements concerning the purpose of and basis for the advance notice and discussed any comments it received on the advance notice. The text of these statements may be examined at the places specified in Item IV below. OCC has prepared summaries, set forth in sections (A) and (B) below, of the most significant aspects of these statements.

(A) Clearing Agency's Statement on Comments on the Advance Notice Received from Members, Participants or Others

Written comments were not and are not intended to be solicited with respect to the proposed change and none have been received.

(B) Advance Notices Filed Pursuant to Section 806(e) of the Payment, Clearing and Settlement Supervision Act

Description of the Proposed Change

The proposed change would modify OCC's margin methodology by more broadly incorporating variations in implied volatility within STANS. As explained below, OCC believes that expanding the use of variations in implied volatility within STANS for substantially all[4] option contracts available to be cleared by OCC that have a residual

[4] OCC is proposing to exclude: (i) binary options, (ii) options on energy futures, and (iii) options on U.S. Treasury securities. These relatively new products were introduced as the implied volatility margin methodology changes were in the process of being completed by OCC. Subsequent to the implementation of the revised implied volatility margin methodology discussed in this filing, OCC would plan to modify the margin methodology to accommodate the above new products. In addition, due to *de minimus* open interest in those options, OCC does not believe there is a substantive risk if the products would be excluded from the implied volatility margin methodology modifications at this time.

tenor[5] of less than three years ("Shorter Tenor Options") would enhance OCC's ability to ensure that option prices and the margin coverage related to such positions more appropriately reflect possible future market value fluctuations and better protect OCC in the event it must liquidate the portfolio of a suspended Clearing Member.

Implied Volatility in STANS Generally

STANS is OCC's proprietary risk management system that calculates Clearing Members' margin requirements in accordance with OCC's Rules.[6] The STANS methodology uses Monte Carlo simulations to forecast price movement and correlations in determining a Clearing Member's margin requirement. Under STANS, the daily margin calculation for each Clearing Member account is constructed to comply with Commission Rule 17Ad-22(b)(2),[7] ensuring OCC maintains sufficient financial resources to liquidate a defaulting member's positions, without loss, within the liquidation horizon of two business days.

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5 The "tenor" of an option is the amount of time remaining to its expiration.

6 Pursuant to OCC Rule 601(e)(1), however, OCC uses the Standard Portfolio Analysis of Risk Margin Calculation System ("SPAN") to calculate initial margin requirements for segregated futures accounts. No changes are proposed to OCC's use of SPAN because the proposed changes do not concern futures. *See* Securities Exchange Act Release No. 72331 (June 5, 2014), 79 FR 33607 (June 11, 2014) (SR-OCC-2014-13).

7 17 CFR 240.17Ad-22(b)(2). As a registered clearing agency that performs central counterparty services, OCC is required to "use margin requirements to limit its credit exposures to participants under normal market conditions and use risk-based models and parameters to set margin requirements and review such margin requirements and the related risk-based models and parameters at least monthly."

The STANS margin requirement for an account is composed of two primary components:[8] a base component and a stress test component. The base component is obtained from a risk measure of the expected margin shortfall for an account that results under Monte Carlo price movement simulations. For the exposures that are observed regarding the account, the base component is established as the estimated average of potential losses higher than the 99% VaR[9] threshold to help ensure that OCC continuously meets the requirements of Rule 17Ad-22(b)(2).[10] In addition, OCC augments the base component using the stress test component. The stress test component is obtained by considering increases in the expected margin shortfall for an account that would occur due to (i) market movements that are especially large and/or in which certain risk factors would exhibit perfect or zero correlations rather than correlations otherwise estimated using historical data or (ii) extreme and adverse idiosyncratic movements for individual risk factors to which the account is particularly exposed.

Including variations in implied volatility within STANS is intended to ensure that the anticipated cost of liquidating each Shorter Tenor Option position in an account

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8 The two primary components referenced relate to the risk calculation and are associated with the 99% two-day expected shortfall (i.e., ES) and the concentration/dependence margin add-on (i.e., Add-on Charge). When computing the ES or Add-on Charges, STANS computes the theoretical value of an option for a given simulated underlying price change using the implied volatility reflected in the prior day closing price. Under the proposed change, STANS would use a modeled implied volatility intended to simulate the estimated change in implied volatilities given the simulated underlying price change in STANS.

9 The term "value at risk" or "VaR" refers to a statistical technique that, generally speaking, is used in risk management to measure the potential risk of loss for a given set of assets over a particular time horizon.

10 17 CFR 240.17Ad-22(b)(2).

recognizes the possibility that implied volatility could change during the two business day liquidation time horizon in STANS and lead to corresponding changes in the market prices of the options. Generally speaking, the implied volatility of an option is a measure of the expected future volatility of the value of the option's annualized standard deviation of the price of the underlying security, index, or future at exercise, which is reflected in the current option premium in the market. The volatility is "implied" from the premium for an option[11] at any given time by calculating the option premium under certain assumptions used in the Black-Scholes options pricing model and then determining what value must be added to the known values for all of the other variables in the Black-Scholes model to equal the premium. In effect, the implied volatility is responsible for that portion of the premium that cannot be explained by the then-current intrinsic value[12] of the option, discounted to reflect its time value. OCC currently incorporates variations in implied volatility as risk factors for certain options with residual tenors of at least three years ("Longer Tenor Options").[13]

Implied Volatility for Shorter Tenor Options

OCC is proposing certain modifications to STANS to more broadly incorporate variations in implied volatility for Shorter Tenor Options. Consistent with its approach

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11 The premium is the price that the holder of an option pays and the writer of an option receives for the rights conveyed by the option.

12 Generally speaking, the intrinsic value is the difference between the price of the underlying and the exercise price of the option.

13 *See* Securities Exchange Act Release Nos. 68434 (December 14, 2012), 77 FR 57602 [sic] (December 19, 2012) (SR-OCC-2012-14); 70709 [sic] (October 18, 2013), 78 FR 63267 [sic] (October 23, 2013) [sic] (SR-OCC-2013-16).

for Longer Tenor Options, OCC would model a volatility surface[14] for Shorter Tenor Options by incorporating into the econometric models underlying STANS certain risk factors regarding a time series of proportional changes in implied volatilities for a range of tenors and absolute deltas. Shorter Tenor Option volatility points would be defined by three different tenors and three different absolute deltas, which produce nine "pivot points." In calculating the implied volatility values for each pivot point, OCC would use the same type of series-level pricing data set to create the nine pivot points that it does to create the larger number of pivot points used for Longer Tenor Options, so that the nine pivot points would be the result of a consolidation of the entire series-level dataset into a smaller and more manageable set of pivot points before modeling the volatility surface.

OCC partnered with an experienced vendor in this area to study implied volatility surfaces and to use back-testing of OCC's margin requirements to build a model that would be appropriately sophisticated and operate conservatively to minimize margin exceedances. The back-testing results support that, over a look-back period from January 2008 to May 2013,[15] using nine pivot points to define the volatility surface would have resulted in a comparable number of instances in which an account containing certain hypothetical positions would have been under-margined compared to using a larger

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14 The term "volatility surface" refers to a three-dimensional graphed surface that represents the implied volatility for possible tenors of the option and the implied volatility of the option over those tenors for the possible levels of "moneyness" of the option. The term "moneyness" refers to the relationship between the current market price of the underlying interest and the exercise price.

15 The look-back period was determined based on the availability of relevant data at the time of the back-testing. Relevant data in this case means data obtained from OCC's consultants, Finance Concepts. The back-testing was performed by Finance Concepts using data from their OptionMetrics Ivy source. The Ivy source maintains data from prior to 2008, but it is not clear that data from before the market dislocation in early August 2007 is as relevant to today's options markets.

number of pivot points to define the volatility surface. Therefore, although OCC could create a more detailed volatility surface by increasing the number of pivot points, OCC has determined that doing so for Shorter Tenor Options would not be appropriate. Moreover, due to the significantly larger volume of Shorter Tenor Options, OCC also believes that relying on a greater number of pivot points could potentially lead to increases in the time necessary to compute margin requirements that would impair OCC's capacity to make timely calculations.

Under OCC's model for Shorter Tenor Options, the volatility surfaces would be defined using tenors of one month, three months, and one year with absolute deltas, in each case, of 0.25, 0.5, and 0.75. This results in the nine implied volatility pivot points. Given that premiums of deep-in-the-money options (those with absolute deltas closer to 1.0) and deep-out-of-the-money options (those with absolute deltas closer to 0) are insensitive to changes in implied volatility, in each case notwithstanding increases or decreases in implied volatility over the two business day liquidation time horizon, those higher and lower absolute deltas have not been selected as pivot points. OCC believes that it is appropriate to focus on pivot points representing at- and near-the-money options because prices for those options are more sensitive to variations in implied volatility over the liquidation time horizon of two business days. Specifically, for SPX index options, four factors explain 99% variance of implied volatility movements: (i) a parallel shift of the entire surface, (ii) a slope or skewness with respect to Delta, (iii) a slope with respect to time to maturity; and, (iv) a convexity with respect to the time to maturity. The nine correlated pivot points, arranged by delta and tenor, give OCC the flexibility to capture these factors.

In the proposed approach to computing margin for Shorter Tenor Options under STANS, OCC would first use its econometric models to simulate implied volatility changes at the nine pivot points that would correspond to underlying price simulations used by STANS.[16] For each Shorter Tenor Option in the account of a Clearing Member, changes in its implied volatility would then be simulated according to the corresponding pivot point and the price of the option would be computed to determine the amount of profit or loss in the account under the particular STANS price simulation. Additionally, as OCC does today, it would continue to use simulated closing prices for the assets underlying options in the account of a Clearing Member that are scheduled to expire within the liquidation time horizon of two business days to compute the options' intrinsic value[17] and use those values to help calculate the profit or loss in the account.[18]

Effects of the Proposed Change and Implementation

OCC believes that the proposed change would enhance OCC's ability to ensure that in determining margin requirements STANS appropriately takes into account normal market conditions that OCC may encounter in the event that, pursuant to OCC Rule 1102, it suspends a defaulted Clearing Member and liquidates its accounts.[19] Accordingly, the

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16 STANS relies on 10,000 price simulation scenarios that are based generally on a historical data period of 500 business days, which is updated monthly to keep model results from becoming stale.

17 Generally speaking, the intrinsic value is the difference between the price of the underlying and the exercise price of the option.

18 For such Shorter Tenor Options that are scheduled to expire on the open of the market rather than the close, OCC would use the relevant opening price for the underlying assets.

19 Under authority in OCC Rules 1104 and 1106, OCC has authority to promptly liquidate margin assets and options positions of a suspended Clearing Member in

change would promote OCC's ability to ensure that margin assets are sufficient to liquidate the accounts of a defaulted Clearing Member without incurring a loss.

OCC estimates that Clearing Member accounts generally would experience increased margin requirements as compared to those calculated for the same options positions in an account today. OCC estimates the proposed change would most significantly affect customer accounts and least significantly affect firm accounts, with the effect on Market Maker accounts falling in between.

OCC expects customer accounts to experience the largest margin increases because positions considered under STANS for customer accounts typically consist of more short than long options positions, and therefore reflect a greater magnitude of direction risk than other account types. Positions considered under STANS for customer accounts typically consist of more short than long options positions because, to facilitate Clearing Members' compliance with Commission requirements for the protection of certain customer property under Rule 15c3-3(b),[20] OCC segregates long option positions in the securities customers' account of each Clearing Member and does not assign them any value in determining the expected liquidating value of the account.[21]

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the most orderly manner practicable, which might include, but would not be limited to, a private auction.

20 17 CFR 240.15c3-3(b).

21 *See* OCC Rule 601(d)(1). Pursuant to OCC Rule 611, however, a Clearing Member, subject to certain conditions, may instruct OCC to release segregated long option positions from segregation. Long positions may be released, for example, if they are part of a spread position. Once released from segregation, OCC receives a lien on each unsegregated long securities option carried in a customers' account and therefore OCC permits the unsegregated long to offset corresponding short option positions in the account.

While overall OCC expects an increase in aggregate margins by about $1.5 billion (9% of expected shortfall and stress-test add-on), OCC does anticipate a decrease in margins in certain clearing member accounts' requirements. OCC anticipates that such a decrease would occur in accounts with underlying exposure and implied volatility exposure in the same direction, such as concentrated call positions, due to the negative correlation typically observed between these two factors. Over the back-testing period, about 28% of the observations for accounts on the days studied had lower margins under the proposed methodology and the average reduction was about 2.7%. Parallel results will be made available to the membership in the weeks ahead of implementation.

To help Clearing Members prepare for the proposed change, OCC has provided Clearing Members with an Information Memo explaining the proposal, including the planned timeline for its implementation,[22] and discussed with certain other clearinghouses the likely effects of the change on OCC's cross-margin agreements with them. OCC is also publishing an Information Memo to notify Clearing Members of the submission of this filing to the Commission. Subject to all necessary regulatory approvals regarding the proposed change, for a period of at least two months beginning in October 2015, OCC intends to begin making parallel margin calculations with and without the changes in the margin methodology. The commencement of the calculations

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[22] In addition to the proposal to introduce variations in implied volatility for Shorter Tenor Options, OCC is also contemporaneously proposing an additional change to its margin methodology that would use liquidity charges to account for certain costs associated with hedging in which OCC would engage during a Clearing Member liquidation and the reasonably expected effect that OCC's management of the liquidation would have on related bid-ask spreads in the marketplace. The Information Memo explained both of these proposed changes and their expected effects on margin requirements.

would be announced by an Information Memo, and OCC would provide the calculations to Clearing Members each business day. OCC believes that Clearing Members will have sufficient time and data to plan for the potential increases in their respective margin requirements. OCC would also provide at least thirty days prior notice to Clearing Members before implementing the change.

Consistency with the Payment, Clearing and Settlement Supervision Act

OCC believes that the proposed change regarding the incorporation of variations in implied volatility within STANS is consistent with Section 805(b)(1) of the Payment, Clearing and Settlement Supervision Act[23] because the proposed procedures would promote robust risk management by more robustly computing Clearing Member margin requirements in order to ensure that OCC maintains adequate financial resources in the event of a Clearing Member default. As described above, OCC believes that the proposed change would enhance OCC's ability to ensure that margin requirements determined through STANS appropriately take into account normal market conditions that OCC may encounter in the event that, pursuant to OCC Rule 1102, it suspends a defaulted Clearing Member and liquidates its accounts. As a result, OCC would be better able to ensure that margin assets are sufficient to liquidate the accounts of a defaulted Clearing Member without incurring a loss and thereby promote robust risk management.

Anticipated Effect on and Management of Risk

OCC believes that the proposed change would reduce OCC's overall level of risk because the proposed change makes it less likely that the amount of margin OCC collects from Clearing Members Clearing Fund would be insufficient should OCC need to use

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[23] 12 U.S.C. 5464(b)(1).

such margin in connection with a Clearing Member default. As described above, OCC is proposing certain modifications to STANS to more broadly incorporate variations in implied volatility for Shorter Tenor Options. Such modifications would result in OCC being able to better ensure that margin requirements computed by STANS because [sic] STANS would appropriately take into account normal market conditions that OCC may encounter in the event that, pursuant to OCC Rule 1102, it suspends a defaulted Clearing Member and liquidates its accounts. As a result, the proposed change would make it less likely that OCC would need to use additional financial resources, such as its clearing fund, in order to appropriately manage a clearing member default. Moreover, the proposed change is intended to measure the exposure associated with changes in option implied volatilities, thus mitigating credit risk presented by clearing members. Accordingly, OCC believes that the proposed changes would reduce risks to OCC and its participants. Moreover, and for the same reasons, the proposed change will facilitate OCC's ability to manage risk.

III. Date of Effectiveness of the Advance Notice and Timing for Commission Action

The designated clearing agency may implement this change if it has not received an objection to the proposed change within 60 days of the later of (i) the date that the Commission receives the notice of proposed change, or (ii) the date the Commission receives any further information it requests for consideration of the notice. The designated clearing agency shall not implement this change if the Commission has an objection.

The Commission may, during the 60-day review period, extend the review period for an additional 60 days for proposed changes that raise novel or complex issues, subject

to the Commission providing the designated clearing agency with prompt written notice of the extension. The designated clearing agency may implement a change in less than 60 days from the date of receipt of the notice of proposed change by the Commission, or the date the Commission receives any further information it requested, if the Commission notifies the designated clearing agency in writing that it does not object to the proposed change and authorizes the designated clearing agency to implement the change on an earlier date, subject to any conditions imposed by the Commission.

The designated clearing agency shall post notice on its website of proposed changes that are implemented.

The proposal shall not take effect until all regulatory actions required with respect to the proposal are completed.[24]

IV. Solicitation of Comments

Interested persons are invited to submit written data, views and arguments concerning the foregoing. Comments may be submitted by any of the following methods:

Electronic Comments:

- Use the Commission's Internet comment form (http://www.sec.gov/rules/sro.shtml); or
- Send an e-mail to rule-comments@sec.gov. Please include File Number SR-OCC-2015-804 on the subject line.

[24] OCC also filed a proposed rule change with the Commission pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 and Rule 19b-4 thereunder, seeking approval of changes to its rules necessary to implement the proposal. *See supra* note 3.

Paper Comments:

- Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street, NE, Washington, DC 20549-1090.

All submissions should refer to File Number SR-OCC-2015-804. This file number should be included on the subject line if e-mail is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's Internet website (http://www.sec.gov/rules/sro.shtml). Copies of the submission, all subsequent amendments, all written statements with respect to the advance notice that are filed with the Commission, and all written communications relating to the advance notice between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street, NE, Washington, DC 20549 on official business days between the hours of 10:00 am and 3:00 pm. Copies of the filing also will be available for inspection and copying at the principal office OCC and on OCC's website at http://www.optionsclearing.com/components/docs/legal/rules_and_bylaws/sr_occ_2015_804.pdf. All comments received will be posted without change; the Commission does not edit personal identifying information from submissions. You should submit only

information that you wish to make available publicly. All submissions should refer to File Number SR-OCC-2015-804 and should be submitted on or before [insert date 15 days from publication in the Federal Register].

By the Commission.

Robert W. Errett
Deputy Secretary