

SECURITIES AND EXCHANGE COMMISSION  
(Release No. 34-85873; File No. SR-OCC-2019-002)

May 16, 2019

Self-Regulatory Organizations; The Options Clearing Corporation; Order Approving Proposed Rule Change Related to The Options Clearing Corporation's Margin Methodology for Volatility Index Futures

**I. INTRODUCTION**

On March 18, 2019, the Options Clearing Corporation (“OCC”) filed with the Securities and Exchange Commission (“Commission”) the proposed rule change SR-OCC-2019-002 (“Proposed Rule Change”) pursuant to Section 19(b) of the Securities Exchange Act of 1934 (“Exchange Act”)<sup>1</sup> and Rule 19b-4<sup>2</sup> thereunder to propose changes to OCC’s margin methodology for futures on indices designed to measure volatilities implied by prices of options on a particular underlying interest (such indexes being “Volatility Indexes” and futures contracts on such Volatility Indexes being “Volatility Index Futures.”)<sup>3</sup>

The Proposed Rule Change was published for public comment in the Federal Register on April 3, 2019,<sup>4</sup> and the Commission received no comments regarding the Proposed Rule Change. This order approves the Proposed Rule Change.

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<sup>1</sup> 15 U.S.C. 78s(b)(1).

<sup>2</sup> 17 CFR 240.19b-4.

<sup>3</sup> See Notice of Filing infra note 4, at 84 FR 13082.

<sup>4</sup> Securities Exchange Act Release No. 85440 (Mar. 28, 2019), 84 FR 13082 (Apr. 3, 2019) (SR-OCC-2019-002) (“Notice of Filing”). OCC also filed a related advance notice (SR-OCC-2019-801) (“Advance Notice”) with the Commission 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 and Rule 19b-4(n)(1)(i) under the Act. 12 U.S.C. 5465(e)(1). 15 U.S.C. 78s(b)(1) and 17 CFR 240.19b-4, respectively. The Advance Notice was published in the Federal Register on April 23, 2019. Securities Exchange Act Release No. 85670 (Apr. 17, 2019), 84 FR 16915 (Apr. 23, 2019) (SR-OCC-2019-801).

## II. BACKGROUND

The System for Theoretical Analysis and Numerical Simulations (“STANS”) is OCC’s methodology for calculating Clearing Member margin requirements. STANS includes econometric models to forecast price and volatility movements in determining Clearing Member margin requirements, which are calculated at the portfolio level of Clearing Member accounts with positions in marginable securities.<sup>5</sup> The STANS methodology measures the exposure of portfolios containing options, futures, and cash instruments.

Certain indices are designed to measure the volatility implied by the prices of options on a particular reference index or asset (“Volatility Indexes”).<sup>6</sup> OCC clears futures contracts on Volatility Indexes (“Volatility Index Futures”). Currently, OCC models the future settlement prices of Volatility Index Futures in STANS based on the index underlying the futures contract. In this modeling process, OCC assumes that the values of the underlying index follow a long-term stable process, notwithstanding any short-term fluctuations. On a daily basis, OCC recalibrates the distribution that defines this process so that the expected final settlement prices of the Volatility Index Futures match the then currently-observed market prices.

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<sup>5</sup> See Notice of Filing, 84 FR at 13083.

<sup>6</sup> For example, the Cboe Volatility Index (“VIX”) is designed to measure the 30-day expected volatility of the Standard & Poor’s 500 index (“SPX”). 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. Using the Black-Scholes options pricing model, the implied volatility is the standard deviation of the underlying asset price necessary to arrive at the market price of an option of a given strike, time to maturity, underlying asset price and the current risk-free rate. In effect, the implied volatility is responsible for that portion of the premium that cannot be explained by the then-current intrinsic value (i.e., the difference between the price of the underlying and the exercise price of the option) of the option, discounted to reflect its time value. See Notice, 84 FR at 13083, n. 10.

OCC's current methodology for modeling future settlement prices of Volatility Index Futures is subject to certain limitations because the model is based on the Volatility Indexes underlying the relevant futures contracts. First, Volatility Indexes cannot be invested in and, therefore, cannot be replicated by static portfolios of traded contracts. Second, the term structure of the futures market cannot be modeled using just the underlying Volatility Indexes.<sup>7</sup> Finally, because of the term structure of the futures market, futures on a volatility index are less volatile and may have a lower probability of extreme price movements than the underlying index itself. Additionally, due to the limitations of modeling the term structure, the current model may under-margin positions in certain strategies that Clearing Members may deploy that involve spreads between delivery dates.

The Proposed Rule Change includes changes that OCC believes would address the limitations described above. The construction of and reliance on "synthetic" futures is essential to the changes that OCC proposes.<sup>8</sup> According to OCC, its current model was developed before sufficient data on Volatility Index Futures was available for the construction of synthetic futures.<sup>9</sup> OCC also represented that, in recent years, it has seen significant growth in trading volume for Volatility Index Futures.<sup>10</sup> As described in more detail below, OCC proposes to: (1)

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<sup>7</sup> Similar to a stock index (e.g., SPX), a Volatility Index does not have an expiration. By contrast, there may be a variety of futures contracts with varying expiry dates on any one Volatility Index. For example, the VIX does not have an expiration date, but market participants may trade VIX futures that expire on different dates.

<sup>8</sup> A "synthetic" futures time series refers to a uniform substitute for a time series of daily settlement prices for actual futures contracts. Such a time series would be based on the historical returns of futures contracts with approximately the same tenor.

<sup>9</sup> See Notice, 84 FR at 13084.

<sup>10</sup> See id.

estimate future settlement prices based on synthetic futures rather than the Volatility Indexes underlying Volatility Index Futures; (2) modify the statistical distribution that OCC uses to model price returns of the synthetic futures; and (3) introduce an anti-procyclical floor to reduce the potential for sudden increases in margin requirements that could result from corrections in abnormally low levels of volatility.

(1) Daily Re-Estimation of Prices Using “Synthetic” Futures

OCC proposes to modify the way it estimates future settlement prices for Volatility Index Futures. OCC currently models future settlement prices based on the index underlying the futures contract. OCC proposes to model the distribution of future settlement prices based on synthetic futures. Such synthetic futures would be based on the historical returns of futures contracts with approximately the same tenor. For any one underlying interest, there may be a variety of futures contracts with varying expiry dates. As a result of this variety of contracts and maturities, there is no single, continuous time series for the various futures that reference a given underlying interest. Synthetic futures, however, can be used to generate a continuous time series of prices for each futures contract across multiple expirations.

OCC proposes to use the price return histories of synthetic futures in its daily price simulation process alongside the underlying interests of OCC’s other cleared and cross-margin products and collateral. OCC believes that the use of synthetic futures would allow OCC’s margin system to better approximate correlations between futures contracts of different tenors by creating more price data points and margin offsets.

OCC proposes to update the historical synthetic time series for Volatility Indexes daily. OCC would then map this time series to the corresponding futures contracts. Following the expiration date of the front contract (i.e., the futures contract with the earliest expiration date),

each contract within a time series would be replaced with a contract maturing one month later. While synthetic time series contain returns from different contracts, a return on any given date would be constructed from prices of a single contract. OCC would estimate the distribution parameters for synthetic time series daily using recent historical observations. OCC believes that daily re-estimation of prices using synthetic futures instead of the current process, which is based solely on the underlying Volatility Indexes, would allow OCC's model for Volatility Index Futures to more accurately reflect current market conditions and achieve better margin coverage across the term curve.<sup>11</sup> Thus, OCC believes the proposed changes would result in margin requirements that respond more appropriately to changes in market volatility and therefore are more accurate for Clearing Members.<sup>12</sup>

(2) Statistical Distribution for Modeling Price Returns

OCC proposes to modify the statistical distribution it uses to model price returns of synthetic futures. The model that OCC currently uses for modeling price returns across its margin system, including for Volatility Index Futures, assumes a symmetric distribution of returns. OCC believes, however, that an asymmetric distribution would better fit the historical data underlying synthetic futures.<sup>13</sup> OCC also believes that employing an asymmetric distribution for modeling price returns of synthetic futures would provide a more consistent framework for treatment of returns on both the upside and downside of the distribution.<sup>14</sup>

(3) Anti-Procyclical Floor

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<sup>11</sup> See Notice, 84 FR at 13085.

<sup>12</sup> See id.

<sup>13</sup> See id.

<sup>14</sup> See id.

OCC proposes to introduce a new floor for variance estimates of the Volatility Index Futures. OCC would calculate this variance floor based on the Volatility Indexes underlying the Volatility Index Futures. As noted above, OCC assumes that the values of the underlying index follow a long-term stable process, notwithstanding any short-term fluctuations. OCC anticipates that such a floor would prevent sudden increases in margin requirements that would otherwise result from the normalization of volatility from abnormally low levels.<sup>15</sup>

### III. DISCUSSION AND COMMISSION FINDINGS

Section 19(b)(2)(C) of the Exchange Act directs the Commission to approve a proposed rule change of a self-regulatory organization if it finds that such proposed rule change is consistent with the requirements of the Exchange Act and the rules and regulations thereunder applicable to such organization.<sup>16</sup> After carefully considering the Proposed Rule Change, the Commission finds the proposal is consistent with the requirements of the Exchange Act and the rules and regulations thereunder applicable to OCC. More specifically, the Commission finds that the proposal is consistent with Section 17A(b)(3)(F) of the Exchange Act<sup>17</sup> and Rule 17Ad-22(e)(6)(i) thereunder.<sup>18</sup>

#### A. Consistency with Section 17A(b)(3)(F) of the Exchange Act

Section 17A(b)(3)(F) of the Exchange Act requires that the rules of a clearing agency be designed to, among other things, assure the safeguarding of securities and funds which are in the

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<sup>15</sup> See id.

<sup>16</sup> 15 U.S.C. 78s(b)(2)(C).

<sup>17</sup> 15 U.S.C. 78q-1(b)(3)(F).

<sup>18</sup> 17 CFR 240.17Ad-22(e)(6)(i).

custody or control of the clearing agency or for which it is responsible.<sup>19</sup> Based on its review of the record, the Commission believes that the proposed changes are designed to assure the safeguarding of securities and funds which are in OCC's custody or control for the reasons set forth below.

OCC manages its credit exposure to Clearing Members, in part, through the collection of collateral based on OCC's margin methodology. As noted above, OCC's current process for setting margin requirements to collateralize risks posed by Volatility Index Futures is limited because the model is based on the Volatility Indexes underlying the relevant futures contracts. These limitations relate, in part, to the term structure of the futures market, which is not an attribute of the underlying Volatility Indexes. By contrast, synthetic futures, like those proposed by OCC, can be used to generate a continuous time series of prices for each futures contract across multiple expirations. Additionally, OCC proposes to modify the statistical distribution that it uses to model price returns of synthetic futures such that the resulting curve would better fit the historical data. Finally, OCC proposes to reduce the potential for sudden margin increases resulting from market corrections of abnormally low volatility levels through the implementation of a floor on variance estimates for Volatility Index Futures. The Commission believes that OCC's proposal to use synthetic futures to model Volatility Index Futures contracts, taken together with modification of the relevant statistical distribution and inclusion of a variance floor, is designed to address a known limitation of OCC's current models – namely an inability to account for the term structure of Volatility Index Futures – and produce margin requirements that respond more appropriately to market volatility. The Commission believes that rules designed to set margin requirements that respond more appropriately to market volatility would

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<sup>19</sup> 15 U.S.C. 78q-1(b)(3)(F).

support OCC's ability to determine the amount of collateral it must collect to manage potential credit losses that could arise out of a Clearing Member's default during normal market conditions. Further, the Commission believes that the effective management of potential credit losses that could arise out of a Clearing Member default would support the safeguarding of the securities and funds of non-defaulting Clearing Members within OCC's control. Accordingly, and for the reasons stated above, the Commission believes that the Proposed Rule Change is consistent with Section 17A(b)(3)(F) of the Exchange Act.<sup>20</sup>

B. Consistency with Rule 17Ad-22(e)(6)(i) Under the Exchange Act

Rule 17Ad-22(e)(6)(i) under the Exchange Act requires that a covered clearing agency establish, implement, maintain, and enforce written policies and procedures reasonably designed to cover, if the covered clearing agency provides central counterparty services, its credit exposures to its participants by establishing a risk-based margin system that, at a minimum, considers, and produces margin levels commensurate with, the risks and particular attributes of each relevant product, portfolio, and market.<sup>21</sup>

OCC proposes to base its estimation of final settlement prices for Volatility Index Futures on synthetic futures rather than the Volatility Indexes underlying Volatility Index Futures. As described above, a margin process based on synthetic futures, as opposed to an underlying index, could more accurately model future price movements for Volatility Index Futures because the synthetic futures can be used to generate a continuous time series of futures contract prices across multiple expirations, while the underlying index alone is insufficient to model the term structure of the futures market. OCC further proposes to adjust the econometric model that it

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<sup>20</sup> Id.

<sup>21</sup> 17 CFR 240.17Ad-22(e)(6)(i).

would use to estimate final settlement prices by applying a distribution that better fits observable data of the Volatility Index Futures. Finally, OCC's proposal includes a variance estimate floor to avoid sudden margin increases where the immediate volatility of the Volatility Index Futures deviates significantly from the long-run volatility of the underlying index. The Commission believes, therefore, that OCC's proposal is designed to better account for the term structure of futures contracts, align margin requirements with observable data, and incorporate historical volatility data, thereby producing margin levels commensurate with the particular attributes of Volatility Index Futures. Further, the Commission believes the proposed changes could result in margin requirements that respond more appropriately to changes in market volatility.

Accordingly, based on the foregoing, the Commission believes that the proposed change to OCC's margin methodology for Volatility Index Futures is consistent with Exchange Act Rule 17Ad-22(e)(6)(i).<sup>22</sup>

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Id.

#### IV. CONCLUSION

On the basis of the foregoing, the Commission finds that the Proposed Rule Change is consistent with the requirements of the Exchange Act, and in particular, the requirements of Section 17A of the Exchange Act<sup>23</sup> and the rules and regulations thereunder.

IT IS THEREFORE ORDERED, pursuant to Section 19(b)(2) of the Exchange Act,<sup>24</sup> that the Proposed Rule Change (SR-OCC-2019-002) be, and hereby is, approved.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.<sup>25</sup>

Eduardo A. Aleman  
Deputy Secretary

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<sup>23</sup> In approving this Proposed Rule Change, the Commission has considered the proposed rules' impact on efficiency, competition, and capital formation. See 15 U.S.C. 78c(f).

<sup>24</sup> 15 U.S.C. 78s(b)(2).

<sup>25</sup> 17 CFR 200.30-3(a)(12).