



8011-01

**SECURITIES AND EXCHANGE COMMISSION**  
**[Release No. 34-85870; File No. SR-OCC-2019-801]**

**Self-Regulatory Organizations; The Options Clearing Corporation; Notice of No Objection to Advance Notice Related to The Options Clearing Corporation’s Margin Methodology for Volatility Index Futures**

May 15, 2019

**I. INTRODUCTION**

On March 18, 2019, the Options Clearing Corporation (“OCC”) filed with the Securities and Exchange Commission (“Commission”) advance notice SR-OCC-2019-801 (“Advance Notice”) pursuant to Section 806(e)(1) of Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act, entitled Payment, Clearing and Settlement Supervision Act of 2010 (“Clearing Supervision Act”)<sup>1</sup> and Rule 19b-4(n)(1)(i)<sup>2</sup> under the Securities Exchange Act of 1934 (“Exchange Act”)<sup>3</sup> to propose changes to OCC’s margin methodology for futures on indexes designed to measure volatilities implied by prices of options on a particular underlying interest.<sup>4</sup>

The Advance Notice was published for public comment in the Federal Register on April 23, 2019,<sup>5</sup> and the Commission has not received comments regarding the proposal contained in

---

<sup>1</sup> 12 U.S.C. 5465(e)(1).

<sup>2</sup> 17 CFR 240.19b-4(n)(1)(i).

<sup>3</sup> 15 U.S.C. 78a et seq.

<sup>4</sup> See Notice of Filing infra note 5, at 84 FR 16915.

<sup>5</sup> Securities Exchange Act Release No. 85670 (April 17, 2019), 84 FR 16915 (April 23, 2019) (SR-OCC-2019-801) (“Notice of Filing”). On March 18, 2019, OCC also filed a related proposed rule change (SR-OCC-2019-002) with the Commission pursuant to Section 19(b)(1) of the Exchange Act and Rule 19b-4 thereunder, seeking approval of changes to its rules necessary to implement the Advance Notice (“Proposed Rule Change”). 15 U.S.C. 78s(b)(1) and 17 CFR 240.19b-4, respectively. The Proposed Rule

the Advance Notice.<sup>6</sup> This publication serves as notice of no objection to the Advance Notice.

## 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>7</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>8</sup> OCC clears futures contracts on

---

Change was published in the Federal Register on April 3, 2019. Securities Exchange Act Release No. 85440 (Mar. 28, 2019), 84 FR 13082 (Apr. 3, 2019) (SR-OCC-2019-002).

<sup>6</sup> Since the proposal contained in the Advance Notice was also filed as a proposed rule change, all public comments received on the proposal are considered regardless of whether the comments are submitted on the proposed rule change or the Advance Notice.

<sup>7</sup> See Notice of Filing, 84 FR at 16915.

<sup>8</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 16916, n. 10.

Volatility Indexes (“Volatility Index Futures”).<sup>9</sup> 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.

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>10</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.

---

<sup>9</sup> A designated clearing agency, such as OCC, is required to provide advance notice to the Commission of any proposed change to its rules, procedures, or operations that could materially affect the nature or level of risks presented by such designated clearing agency. 12 U.S.C. 5465(e)(1); see also 17 CFR 204.19b-4(n)(1)(i). Further, Rule 19b-4(n) states that such changes may include changes that materially affect, among other things, risk management or financial resources. 17 CFR 204.19b-4(n)(2)(ii). The Advance Notice relates to Volatility Index Futures, such as futures on the VIX or VIX-like indices. Such futures, and options on those futures, comprise a material portion of the contracts that OCC clears and settles, and, as such, account for a material portion of the risk that OCC manages. The Advance Notice concerns changes to the way OCC risk manages exposures based on Volatility Index Futures and the financial resources available to OCC to manage the default of a Clearing Member engaged in trading Volatility Index Futures.

<sup>10</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.

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 Advance Notice 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>11</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>12</sup> OCC also represented that, in recent years, it has seen significant growth in trading volume for Volatility Index Futures.<sup>13</sup> As described in more detail below, OCC proposes to: (1) 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

---

<sup>11</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>12</sup> See Notice, 84 FR at 16916.

<sup>13</sup> See id.

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 times 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>14</sup> Thus, OCC believes the proposed changes would result in margin requirements that respond more appropriately to changes in market volatility and therefore are

---

<sup>14</sup> See Notice, 84 FR at 16917.

more accurate for Clearing Members.<sup>15</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>16</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>17</sup>

(3) Anti-Procyclical Floor

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>18</sup>

### III. DISCUSSION AND COMMISSION FINDINGS

Although the Clearing Supervision Act does not specify a standard of review for an advance notice, the stated purpose of the Clearing Supervision Act is instructive: to mitigate

---

<sup>15</sup> See id.

<sup>16</sup> See id.

<sup>17</sup> See id.

<sup>18</sup> See Notice, 84 FR at 16918.

systemic risk in the financial system and promote financial stability by, among other things, promoting uniform risk management standards for systemically important financial market utilities (“SIFMUs”) and strengthening the liquidity of SIFMUs.<sup>19</sup>

Section 805(a)(2) of the Clearing Supervision Act authorizes the Commission to prescribe regulations containing risk management standards for the payment, clearing, and settlement activities of designated clearing entities engaged in designated activities for which the Commission is the supervisory agency.<sup>20</sup> Section 805(b) of the Clearing Supervision Act provides the following objectives and principles for the Commission’s risk management standards prescribed under Section 805(a):<sup>21</sup>

- promote robust risk management;
- promote safety and soundness;
- reduce systemic risks; and
- support the stability of the broader financial system.

Section 805(c) provides, in addition, that the Commission’s risk-management standards may address such areas as risk-management and default policies and procedures, among other areas.<sup>22</sup>

The Commission has adopted risk management standards under Section 805(a)(2) of the Clearing Supervision Act and Section 17A of the Exchange Act (the “Clearing Agency Rules”).<sup>23</sup> The Clearing Agency Rules require, among other things, each covered clearing

---

<sup>19</sup> See 12 U.S.C. 5461(b).

<sup>20</sup> 12 U.S.C. 5464(a)(2).

<sup>21</sup> 12 U.S.C. 5464(b).

<sup>22</sup> 12 U.S.C. 5464(c).

<sup>23</sup> 17 CFR 240.17Ad-22. See Securities Exchange Act Release No. 68080 (October 22, 2012), 77 FR 66220 (November 2, 2012) (S7-08-11). See also Securities Exchange Act Release No. 78961 (September 28, 2016), 81 FR 70786 (October 13, 2016) (S7-03-14)

agency to establish, implement, maintain, and enforce written policies and procedures that are reasonably designed to meet certain minimum requirements for its operations and risk-management practices on an ongoing basis.<sup>24</sup> As such, it is appropriate for the Commission to review advance notices against the Clearing Agency Rules and the objectives and principles of these risk management standards as described in Section 805(b) of the Clearing Supervision Act. As discussed below, the Commission believes the proposal in the Advance Notice is consistent with the objectives and principles described in Section 805(b) of the Clearing Supervision Act,<sup>25</sup> and in the Clearing Agency Rules, in particular Rule 17Ad-22(e)(6)(i).<sup>26</sup>

**A. Consistency with Section 805(b) of the Clearing Supervision Act**

The Commission believes that the Advance Notice is consistent with the stated objectives and principles of Section 805(b) of the Clearing Supervision Act. 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

---

("Covered Clearing Agency Standards"). The Commission established an effective date of December 12, 2016, and a compliance date of April 11, 2017, for the Covered Clearing Agency Standards. OCC is a "covered clearing agency" as defined in Rule 17Ad-22(a)(5).

<sup>24</sup> 17 CFR 240.17Ad-22(e).

<sup>25</sup> 12 U.S.C. 5464(b).

<sup>26</sup> 17 CFR 240.17Ad-22(e)(6)(i).

continuous time series of futures contract prices 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 consistent with the promotion of robust risk management because it 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.

Similarly, these changes are consistent with the promotion of safety and soundness and the reduction of systemic risk because they are designed to increase the accuracy of OCC's margin requirements while avoiding sudden shocks to OCC's Clearing Members. Finally, the inclusion of a variance floor designed to reduce the likelihood of sudden margin increases resulting from expected corrections in market volatility is consistent with supporting the stability of the broader financial system.

Accordingly, and for the reasons stated, the Commission believes the changes proposed in the Advance Notice are consistent with Section 805(b) of the Clearing Supervision Act.<sup>27</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

---

<sup>27</sup> 12 U.S.C. 5464(b).

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>28</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 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.

---

<sup>28</sup> 17 CFR 240.17Ad-22(e)(6)(i).

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>29</sup>

#### **IV. CONCLUSION**

IT IS THEREFORE NOTICED, pursuant to Section 806(e)(1)(I) of the Clearing Supervision Act, that the Commission DOES NOT OBJECT to the Advance Notice (SR-OCC-2019-801) and that OCC is AUTHORIZED to implement the proposed change as of the date of this notice or the date of an order by the Commission approving proposed rule change SR-OCC-2019-002, whichever is later.

By the Commission.

**Eduardo A. Aleman,**  
*Deputy Secretary.*

---

<sup>29</sup>

Id.

[FR Doc. 2019-10523 Filed: 5/20/2019 8:45 am; Publication Date: 5/21/2019]