

*Required fields are shown with yellow backgrounds and asterisks.*

Page 1 of \*       **SECURITIES AND EXCHANGE COMMISSION**      File No.\* SR -  - \*   
 WASHINGTON, D.C. 20549      Form 19b-4      Amendment No. (req. for Amendments \*)

Filing by National Securities Clearing Corporation  
 Pursuant to Rule 19b-4 under the Securities Exchange Act of 1934

<b>Initial *</b>	<b>Amendment *</b>	<b>Withdrawal</b>	<b>Section 19(b)(2) *</b>	<b>Section 19(b)(3)(A) *</b>	<b>Section 19(b)(3)(B) *</b>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<b>Rule</b>		
<b>Pilot</b>	<b>Extension of Time Period for Commission Action *</b>	<b>Date Expires *</b>	<input type="checkbox"/> 19b-4(f)(1)	<input type="checkbox"/> 19b-4(f)(4)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="checkbox"/> 19b-4(f)(2)	<input type="checkbox"/> 19b-4(f)(5)	
			<input type="checkbox"/> 19b-4(f)(3)	<input type="checkbox"/> 19b-4(f)(6)	

<b>Notice of proposed change pursuant to the Payment, Clearing, and Settlement Act of 2010</b>	<b>Security-Based Swap Submission pursuant to the Securities Exchange Act of 1934</b>
<b>Section 806(e)(1) *</b>	<b>Section 806(e)(2) *</b>
<input type="checkbox"/>	<input type="checkbox"/>
	<b>Section 3C(b)(2) *</b>
	<input type="checkbox"/>

<b>Exhibit 2 Sent As Paper Document</b>	<b>Exhibit 3 Sent As Paper Document</b>
<input type="checkbox"/>	<input type="checkbox"/>

**Description**

Provide a brief description of the action (limit 250 characters, required when Initial is checked \*).

Adopt the Clearing Agency Model Risk Management Framework.

**Contact Information**

Provide the name, telephone number, and e-mail address of the person on the staff of the self-regulatory organization prepared to respond to questions and comments on the action.

First Name \*       Last Name \*   
 Title \*   
 E-mail \*   
 Telephone \*       Fax

**Signature**

Pursuant to the requirements of the Securities Exchange Act of 1934,

has duly caused this filing to be signed on its behalf by the undersigned thereunto duly authorized.

(Title \*)

Date         
 By      

(Name \*)

NOTE: Clicking the button at right will digitally sign and lock this form. A digital signature is as legally binding as a physical signature, and once signed, this form cannot be changed.

SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

For complete Form 19b-4 instructions please refer to the EFFF website.

**Form 19b-4 Information \***

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The self-regulatory organization must provide all required information, presented in a clear and comprehensible manner, to enable the public to provide meaningful comment on the proposal and for the Commission to determine whether the proposal is consistent with the Act and applicable rules and regulations under the Act.

**Exhibit 1 - Notice of Proposed Rule Change \***

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The Notice section of this Form 19b-4 must comply with the guidelines for publication in the Federal Register as well as any requirements for electronic filing as published by the Commission (if applicable). The Office of the Federal Register (OFR) offers guidance on Federal Register publication requirements in the Federal Register Document Drafting Handbook, October 1998 Revision. For example, all references to the federal securities laws must include the corresponding cite to the United States Code in a footnote. All references to SEC rules must include the corresponding cite to the Code of Federal Regulations in a footnote. All references to Securities Exchange Act Releases must include the release number, release date, Federal Register cite, Federal Register date, and corresponding file number (e.g., SR-[SRO]-xx-xx). A material failure to comply with these guidelines will result in the proposed rule change being deemed not properly filed. See also Rule 0-3 under the Act (17 CFR 240.0-3)

**Exhibit 1A- Notice of Proposed Rule Change, Security-Based Swap Submission, or Advance Notice by Clearing Agencies \***

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The Notice section of this Form 19b-4 must comply with the guidelines for publication in the Federal Register as well as any requirements for electronic filing as published by the Commission (if applicable). The Office of the Federal Register (OFR) offers guidance on Federal Register publication requirements in the Federal Register Document Drafting Handbook, October 1998 Revision. For example, all references to the federal securities laws must include the corresponding cite to the United States Code in a footnote. All references to SEC rules must include the corresponding cite to the Code of Federal Regulations in a footnote. All references to Securities Exchange Act Releases must include the release number, release date, Federal Register cite, Federal Register date, and corresponding file number (e.g., SR-[SRO]-xx-xx). A material failure to comply with these guidelines will result in the proposed rule change, security-based swap submission, or advance notice being deemed not properly filed. See also Rule 0-3 under the Act (17 CFR 240.0-3)

**Exhibit 2 - Notices, Written Comments, Transcripts, Other Communications**

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Exhibit Sent As Paper Document

Copies of notices, written comments, transcripts, other communications. If such documents cannot be filed electronically in accordance with Instruction F, they shall be filed in accordance with Instruction G.

**Exhibit 3 - Form, Report, or Questionnaire**

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Exhibit Sent As Paper Document

Copies of any form, report, or questionnaire that the self-regulatory organization proposes to use to help implement or operate the proposed rule change, or that is referred to by the proposed rule change.

**Exhibit 4 - Marked Copies**

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The full text shall be marked, in any convenient manner, to indicate additions to and deletions from the immediately preceding filing. The purpose of Exhibit 4 is to permit the staff to identify immediately the changes made from the text of the rule with which it has been working.

**Exhibit 5 - Proposed Rule Text**

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The self-regulatory organization may choose to attach as Exhibit 5 proposed changes to rule text in place of providing it in Item I and which may otherwise be more easily readable if provided separately from Form 19b-4. Exhibit 5 shall be considered part of the proposed rule change.

**Partial Amendment**

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If the self-regulatory organization is amending only part of the text of a lengthy proposed rule change, it may, with the Commission's permission, file only those portions of the text of the proposed rule change in which changes are being made if the filing (i.e. partial amendment) is clearly understandable on its face. Such partial amendment shall be clearly identified and marked to show deletions and additions.

## **1. Text of the Proposed Rule Change**

(a) The proposed rule change of the National Securities Clearing Corporation (“NSCC”) would formalize the Clearing Agency Model Risk Management Framework (“Framework”) of NSCC and its affiliates Fixed Income Clearing Corporation (“FICC,” and together with NSCC, the “CCPs”) and The Depository Trust Company (“DTC,” and together with the CCPs, the “Clearing Agencies”), as described below. In this regard, the Framework would apply to DTC, NSCC and both of FICC’s divisions, the Government Securities Division (“GSD”) and the Mortgage-Backed Securities Division (“MBSD”). The Framework would be maintained by the Clearing Agencies in compliance with Rule 17Ad-22 (e)(4)(i), (e)(4)(vii), (e)(6)(iii), (e)(6)(vi), (e)(6)(vii), and (e)(7)(vii) under the Securities Exchange Act of 1934, as amended (“Act”), as described below.<sup>1</sup>

Although the Clearing Agencies would consider the Framework to be a rule, the proposed rule change does not require any changes to the Rules, By-Laws and Organization Certificate of DTC (“DTC Rules”), the Rulebook of GSD (“GSD Rules”), the Clearing Rules of MBSD (“MBSD Rules”), or the Rules & Procedures of NSCC (“NSCC Rules”), as the Framework would be a standalone document.<sup>2</sup>

(b) Not applicable.

(c) Not applicable.

## **2. Procedures of the Self-Regulatory Organization**

(a) The proposed rule change was approved by the Risk Committee of the Board of Directors of each of DTC, FICC, and NSCC (collectively, “Boards”) at a meeting duly called and held on December 20, 2016.

## **3. Self-Regulatory Organization’s Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change**

### **(a) Purpose**

The Clearing Agencies are proposing to formalize the Framework in order to facilitate compliance with Rule 17Ad-22 (e)(4)(i), (e)(4)(vii), (e)(6)(iii), (e)(6)(vi), (e)(6)(vii), and

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<sup>1</sup> 17 CFR 240.17Ad-22 (e)(4)(i), (e)(4)(vii), (e)(6)(iii), (e)(6)(vi), (e)(6)(vii), and (e)(7)(vii). Each of DTC, NSCC and FICC is a “covered clearing agency” as defined in Rule 17Ad-22(a)(5), and must comply with subsection (e) of Rule 17Ad-22. References to Rule 17Ad-22(e)(6) and its subparagraphs cited herein, and compliance therewith, apply to the CCPs only and do not apply to DTC.

<sup>2</sup> Capitalized terms not defined herein are defined in the DTC Rules, NSCC Rules, GSD Rules or MBSD Rules, as applicable, available at <http://dtcc.com/legal/rules-and-procedures>.

(e)(7)(vii) under the Act.<sup>3</sup> The Framework would set forth the model risk management practices adopted by the Clearing Agencies, which have been designed to assist the Clearing Agencies in identifying, measuring, monitoring, and managing the risks associated with the design, development, implementation, use, and validation of quantitative models. The Framework would be owned and managed by the Clearing Agencies' risk management area generally responsible for model validation ("Model Validation")<sup>4</sup> and control matters, the DTCC Model Validation and Control Group ("MVC"), on behalf of each Clearing Agency, with review and oversight by senior management and the Boards, as described below.<sup>5</sup>

The Framework would provide that (i) any change to the Framework must be approved by the Boards or such committees as may be delegated authority by the Boards from time to time pursuant to their charters, (ii) MVC shall review this Framework no less frequently than annually, and (iii) any and all changes to this Framework are subject to regulatory review and approval. The Framework would (i) articulate the Clearing Agencies' model risk management framework; and (ii) describe the Clearing Agencies' model risk reporting and escalation processes.

The Clearing Agencies have adopted the following definition for the term "model":

"[M]odel" refers to a quantitative method, system, or approach that applies statistical, economic, financial, or mathematical theories, techniques, and assumptions to process input data into quantitative estimates. A "model" consists of three components: an information input component, which delivers assumptions and data to the model; a processing component, which transforms inputs into estimates; and a reporting component, which translates the estimates into useful business information. The definition of "model" also covers quantitative approaches whose inputs are partially or wholly qualitative or based on expert judgment, provided that the output is quantitative in

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<sup>3</sup> Supra note 1.

<sup>4</sup> "Model Validation" has the meaning set forth in Rule 17Ad-22(a)(9) under the Act, which provides that "*Model validation* means an evaluation of the performance of each material risk management model used by a covered clearing agency (and the related parameters and assumptions associated with such models), including initial margin models, liquidity risk models, and models used to generate clearing or guaranty fund requirements, performed by a qualified person who is free from influence from the persons responsible for the development or operation of the models or policies being validated." See Rule 17Ad-22(a)(9), supra note 1.

<sup>5</sup> The parent company of the Clearing Agencies is The Depository Trust & Clearing Corporation ("DTCC"). DTCC operates on a shared services model with respect to the Clearing Agencies. Most corporate functions are established and managed on an enterprise-wide basis pursuant to intercompany agreements under which it is generally DTCC that provides a relevant service to a Clearing Agency.

nature.<sup>6</sup>

The term “Model Risk,” as defined in the Framework, would refer to the potential for adverse consequences from decisions based on incorrect or misused Model outputs and reports,<sup>7</sup> and primarily occurring due to (i) fundamental errors in the design/development of Models; (ii) incorrect Model input or assumptions; (iii) erroneous implementation of Models; (iv) unauthorized and/or incorrect changes to Models; (v) changes in market conditions rendering existing Models unfit for their intended purpose; and (vi) misuse of or overreliance on Models. The Framework is designed to minimize the Clearing Agencies’ potential for financial loss, inaccurate financial or regulatory reporting, misaligned business strategies, and/or damage to their respective reputations resulting from a failure to properly manage Model Risk.

Any model developed for use by any of the Clearing Agencies and meeting the above definition for the term “Model” would be subject to tracking within each Clearing Agency’s Model inventory (“Model Inventory”). The Framework would describe how a Model Inventory survey is conducted at least annually across the Clearing Agencies to confirm the Model Inventory is current. During this survey period, all Clearing Agency business areas and support functions that intend to develop models for Clearing Agency use would submit a list of their planned models to MVC in order for MVC to review and assess whether such planned models meet the definition of “Model” under the Framework.

The Framework would outline how MVC would assign a materiality/complexity index rating to each Model when it is added to a Model Inventory, which rating would impact the Model’s validation in terms of prioritization and approval authority. All Model materiality/complexity index assignments would be reviewed at least annually by MVC, as well as by the committee specifically created by the Clearing Agencies to address Model Risk governance matters, the DTCC Model Risk Governance Committee (“MRGC”).

The Framework would describe the initial and periodic validation protocols that would be applicable to all Models in the Model Inventory. As required by regulatory requirements, all Model Validations would be performed by qualified persons who are free from influence from the persons responsible for the development or operation of the Models being validated. MVC, which is responsible for performing all Model Validations, is functionally separate from all Clearing Agency areas that develop or operate Models. The head of MVC directly reports to the head of the DTCC Group Chief Risk Office, rather than to anyone that is in charge of developing or operating Models for the Clearing Agencies.

Each new Model would undergo a full Model Validation (unless provisionally approved, as discussed below) pursuant to which MVC would verify that the Model is performing as expected in accordance with its design objectives and business purpose. The full Model

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<sup>6</sup> See Supervisory Guidance on Model Risk Management, SR Letter 11-7, dated April 4, 2011, issued by the Board of Governors of the Federal Reserve System and the Office of the Comptroller of the Currency, at 3.

<sup>7</sup> Id.

Validation standards for any new Model would include, but not be limited to, the following core Model Validation activities:

- evaluation of the Model development documentation and testing;
- evaluation of Model theory and assumptions, and identification of potential limitations;
- evaluation of data inputs and parameters;
- review of numerical implementation including replication for certain key Model components, which would vary from Model to Model;
- independent testing: sensitivity analysis, stress testing, and benchmarking, as appropriate; and
- evaluation of Model outputs, Model performance, and back testing.

Full Model Validation would be applied under the following circumstances: (i) for all new Models prior to their use in production; (ii) during periodic Model Validations (as described below); and (iii) when Model changes are made that require independent Model Validation (as further described below).

All Models approved for use in production would also be subject to periodic Model Validations for purposes of confirming that the Models continue to operate as intended, identifying any deficiencies that would call into question the continuing validity of any such Model's original approval and evaluating whether the Model and its prior validation remain valid within the dynamics of current market conditions.

In this regard, the Framework would describe that MVC would perform a Model Validation for each Clearing Agency Model approved for use in production not less than annually (or more frequently as may be contemplated by such Clearing Agency's established risk management framework), including each credit risk Model,<sup>8</sup> liquidity risk Model,<sup>9</sup> and in the case of FICC and NSCC, as central counterparties, on their margin systems and related Models.<sup>10</sup>

Periodic Model Validations would follow full Model Validation standards. In certain cases, MVC may determine extra Model Validation activities are warranted based on previous Model Validation work and findings, changes in market conditions, or because performance monitoring of a particular Model warrants extra validation.

Occasionally, an active Model may require changes in either structure or technique. Details for any Model change request would be provided to MVC for review and a determination of whether full Model Validation is required.

The Framework would outline the approval process applicable to all new Models.

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<sup>8</sup> Rule 17Ad-22(e)(4)(vii). See supra note 1.

<sup>9</sup> Rule 17Ad-22(e)(7)(vii). See supra note 1.

<sup>10</sup> Rule 17Ad-22(e)(6)(vi) and (vii). See supra note 1.

The DTCC Quantitative Risk Management Financial Engineering Unit, which is functionally separate from MVC, would be responsible for developing, testing, and signing-off on new Clearing Agency Models and enhancements to existing Clearing Agency Models before submitting any such Model to MVC for Model Validation and approval.

All new Clearing Agency Models, and all material changes to existing Clearing Agency Models, would undergo Model Validation by MVC and be approved prior to business use. In cases where such Model's materiality is "Medium" or "High," such Model Validation would be reviewed by the MRGC and recommended by the MRGC to the Clearing Agencies' management level committee responsible for model risk management matters, the Management Risk Committee ("MRC"), for approval.

The Framework would provide that provisional approvals with respect to new Clearing Agency Models and material changes to existing Clearing Agency Models may be issued to allow a Model to be published for urgent business use prior to MVC's Model Validation thereof. Provisional approval requests for a Model along with appropriate control measures would be presented by the applicable DTCC personnel responsible for the development or operation of the Model<sup>11</sup> to MVC and the MRGC for review. Models may be provisionally approved by MVC for a limited period, not to exceed six months unless also approved by the MRGC. MVC would track all such provisional approvals and oversee compliance with control measures and provisional approval periods.

Each periodic Model Validation would be presented to the MRGC for its review, and its recommendation for approval to the MRC. The Framework would provide that MRC approval must be obtained in order for any such periodic validation to be deemed complete.

All findings that result from a new Model Validation, a change Model Validation, a periodic Model Validation, or in connection with implementation of a new Model or Model change, would be centrally tracked by MVC. The status of findings resolution for approved Models would be reported to the MRGC on a monthly basis. Where there is a finding related to Model implementation errors, the applicable Model Owner would report such findings/incidents in accordance with the policies and procedures of the Operational Risk Management unit ("ORM") within the Group Chief Risk Office. If an adverse Model Validation finding cannot be resolved, the Model Owner would work with MVC and ORM to submit the finding for risk acceptance in accordance with ORM policies and procedures.

In addition to periodic validation, MVC would be responsible for Model performance monitoring and for each Clearing Agency's backtesting process, which would be integral parts of each Clearing Agency's model risk management framework.<sup>12</sup>

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<sup>11</sup> Such personnel would be defined in the Framework as "Model Owners."

<sup>12</sup> Model performance monitoring is the process of (i) evaluating an active Model's ongoing performance based on theoretical tests, (ii) monitoring the Model's parameters through the use of threshold indicators, and/or (iii) backtesting using actual historical

As part of Model performance monitoring, on at least a monthly basis, sensitivity analysis would be performed by MVC on each of the CCP's margin Model, the key parameters and assumptions for backtesting would be reviewed, and modifications would be considered to ensure the CCP's backtesting practices are appropriate for determining the adequacy of the applicable CCP's margin resources.

MVC would prepare Model performance monitoring reports on a monthly basis. Model performance monitoring, which includes review of risk-based Models used to calculate margin requirements and relevant parameters/threshold indicators, sensitivity analysis, and model backtesting results would be subject to review by the MRGC, which will escalate serious performance concerns to the MRC.

In circumstances where the products cleared or the markets served by a CCP display high volatility or become less liquid, or when the size or concentration of positions held by the applicable CCP's Members increases or decreases significantly, such sensitivity analysis and review of key model parameters and assumptions would be conducted more frequently than monthly.

VaR and Clearing Fund requirement ("CFR") coverage backtesting for the CCPs would be performed by MVC on a daily basis or more frequently.<sup>13</sup> CFR coverage would be backtested on an overall basis and for individual Members and families of affiliated Members. DTC backtesting would be performed by MVC on a daily basis for collateral group<sup>14</sup> Collateral Monitor coverage, collateral group level haircut<sup>15</sup> coverage and Security-level haircut coverage.

Thresholds for all backtests would be established for the rolling 12-month period coverage computed as the number of instances without deficiency over the total number of backtest instances, where deficiency is defined as the loss amount that exceeds the measure being tested (i.e., VaR, CFR, Collateral Monitor, or haircut rate). Thresholds would be set as follows:

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data/realizations to test a Value at Risk ("VaR") Model's predictive power.

<sup>13</sup> VaR Model backtesting tests Model performance at a specified confidence level, while the CFR backtest tests margin sufficiency in case of a Member default.

<sup>14</sup> A DTC Participant with multiple accounts may group its accounts into "families" (i.e., "collateral groups") and instruct DTC to allocate a specified portion of its overall Collateral Monitor and Net Debit Cap to each family. All accounts that a Participant designates as belonging to a common collateral group share a single Collateral Monitor and single Net Debit Cap. See Securities Exchange Act Release No. 38201 (January 23, 1997), 62 FR 4561 (January 30, 1997) (SR-DTC-96-17).

<sup>15</sup> A haircut represents a percentage decrease applied to a Security's Market Value solely for purposes of determining the Collateral Value of the Security. See DTC Settlement Service Guide, available at <http://www.dtcc.com/~media/Files/Downloads/legal/service-guides/Settlement.pdf>, at 5.



Applicable to	Backtesting Risk Metrics	Threshold
CCPs	Overall CFR Coverage	99%
	VaR Model Coverage	99%
	Member Level CFR Coverage	99%
	Family Level CFR Coverage	99%
DTC	Collateral Group Collateral Monitor Coverage	99%
	Collateral Group Level Haircut Coverage	99%
	Security-Level Haircut Coverage	95%

The CFR coverage thresholds have been set to meet applicable regulatory requirements that require a CCP to cover its credit exposure to its participants by establishing a risk-based margin system that, among other things calculates margin sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default.<sup>16</sup> The collateral group Collateral Monitor coverage threshold, among other controls, has been set to support the requirement that DTC maintain sufficient financial resources to cover its credit exposures to each participant fully with a high degree of confidence.<sup>17</sup> The “VaR Model Coverage”, “Collateral Group Level Haircut Coverage”, and “Security-Level Haircut Coverage” have been set and are designed for Model performance monitoring purposes.

The MRGC would be the primary forum for MVC’s regular reporting of Model Validation activities and material Model Risks identified through regular Model performance monitoring. Reports and recommendations with respect to Model Risk management would be made to the MRC.

Periodic reporting to the Risk Committee of the Clearing Agencies’ Boards (“BRC”) with regard to Model Risk matters may include:

- Updates of Model Validation findings and the status of annual validations.
- Updates on significant Model Risk matters, and on compliance matters with respect to Model Risk policies and procedures (including the Framework).
- Escalation of Model Risk matters as set forth in the market risk tolerance statement, which establishes the Clearing Agencies’ Model Risk tolerances (“Market Risk Tolerance Statement”), and subsequent, regular updates with respect thereto.

<sup>16</sup> See 17 CFR 240.17Ad-22(e)(6)(iii). 17 CFR 240.17Ad-22(a)(13) defines the term “potential future exposure” to mean the maximum exposure estimated to occur at a future point in time with an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure.

<sup>17</sup> See 17 CFR 240.17Ad-22(e)(4)(i). See *supra* note 1.

On at least a monthly basis, the key metrics relating to Model backtesting would be reviewed by the Market and Liquidity Risk Management unit within the Group Chief Risk Office and MVC, and reported to the MRC. Threshold breaches would be reviewed by the Managing Directors within the Financial Risk Management area (including the Market and Liquidity Risk Management unit) of the Group Chief Risk Office, and in the case of CFR Coverage breaches by the CCPs and Collateral Group Collateral Monitor Coverage by DTC, escalated to the BRC in accordance with the Market Risk Tolerance Statement. The Managing Director of the Market and Liquidity Risk Management unit within the Group Chief Risk Office would be responsible for reviewing the Market Risk Tolerance Statement on at least an annual basis. The BRC would review and approve the Market Risk Tolerance Statement at least annually.

With respect to any proposed change to any backtesting methodology, prior to implementation thereof (and before any reporting thereof in any management and regulatory report), a description of the proposed change and impact study results would be presented to the MRGC for review and approval. If the impact study results reflect that implementation of the methodology would negatively impact any existing risk tolerance threshold range, such results would be escalated by the MRGC to the MRC, and subsequently to the BRC, for approval prior to implementation.

All Model performance concerns would be escalated by MVC to the MRGC, including Model performance enhancement concerns. The MRGC may further recommend certain such matters for further escalation to the MRC and/or the BRC.

(b) Statutory Basis

The Clearing Agencies believe that the proposed rule change is consistent with the requirements of the Act and the rules and regulations thereunder applicable to a registered clearing agency. In particular, the Clearing Agencies believe that the Framework is consistent with Section 17A(b)(3)(F) of the Act,<sup>18</sup> as well as Rule 17Ad-22(b)(4)<sup>19</sup> and Rule 17Ad-22(e)(4)(vii), (e)(6)(iii), (e)(6)(vi), (e)(6)(vii) and (e)(7)(vii) thereunder,<sup>20</sup> for the reasons described below.

Section 17A(b)(3)(F) of the Act<sup>21</sup> requires, inter alia, that the rules of a clearing agency be designed to promote the prompt and accurate clearance and settlement of securities transactions. As described in greater detail above, the Framework would describe the process by which the Clearing Agencies identify, measure, monitor, and manage the risks associated with the design, development, implementation, use, and validation of quantitative models. The quantitative models covered by the Framework would be applied by the Clearing Agencies, as

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<sup>18</sup> 15 U.S.C. 78q-1(b)(3)(F).

<sup>19</sup> 17 CFR 240.17Ad-22(b)(4). See supra note 1.

<sup>20</sup> Supra note 1.

<sup>21</sup> 15 U.S.C. 78q-1(b)(3)(F).

applicable, to evaluate and address their respective risk exposures associated with their settlement activity and allow them to continue the prompt and accurate clearance and settlement of securities. In this regard, the Framework would facilitate their ability to develop models that would be applied to evaluate and address risk exposure, and allow them to continue the prompt and accurate clearance and settlement of securities. Therefore, the Clearing Agencies believe that the Framework is consistent with the requirements of Section 17A(b)(3)(F) of the Act.<sup>22</sup>

Rule 17Ad-22(b)(4) under the Act<sup>23</sup> requires, inter alia, that a covered clearing agency that is a central counterparty establish, implement, maintain, and enforce policies and procedures reasonably designed to provide for an annual Model Validation consisting of evaluating the performance of the clearing agency's margin models and the related parameters and assumptions associated with such models by a qualified person who is free from influence from the persons responsible for the development or operation of the models being validated. As described in the Framework and as described above, MVC is an area that is functionally separate from all areas within NSCC and FICC that develop and operate models. Pursuant to the Framework, MVC would perform a Model Validation on all approved margin systems and related Models for NSCC and FICC, not less than annually. Therefore, NSCC and FICC believe the Framework is consistent with Rule 17Ad-22(b)(4) under the Act.<sup>24</sup>

Rule 17Ad-22(e)(4)(vii)<sup>25</sup> and (e)(7)(vii)<sup>26</sup> under the Act requires, inter alia, that a covered clearing agency establish, implement, maintain and enforce written policies and procedures reasonably designed to perform Model Validations on its credit risk models and liquidity risk models not less than annually or more frequently as may be contemplated by the clearing agency's risk management framework established pursuant to Rule 17Ad-22(e)(3).<sup>27</sup> As discussed above, the Framework would describe the Clearing Agencies' Model Risk validation process, which would be performed not less than annually on its credit risk models and liquidity risk models. Therefore, the Clearing Agencies believe that the Framework is consistent with Rule 17Ad-22(e)(4)(vii)<sup>28</sup> and (e)(7)(vii)<sup>29</sup> under the Act.

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<sup>22</sup> Id.

<sup>23</sup> Supra note 19.

<sup>24</sup> Id.

<sup>25</sup> 17 CFR 240.17Ad-22(e)(4) (in particular, 17 C.F.R. 240.17Ad-22(e)(4)(vii)). See supra note 1.

<sup>26</sup> 17 CFR 240.17Ad-22(e)(7) (in particular, 17 C.F.R. 240.17Ad-22(e)(7)(vii)). See supra note 1.

<sup>27</sup> 17 CFR 240.17Ad-22(e)(3). See supra note 1.

<sup>28</sup> Supra note 25.

Rule 17Ad-22(e)(6)(iii) under the Act<sup>30</sup> requires that a covered clearing agency that is a central counterparty establish, implement, maintain and enforce written policies and procedures reasonably designed to cover its credit exposures to its participants by establishing a risk-based margin system that at a minimum, inter alia, calculates margin sufficient to cover its potential future exposure<sup>31</sup> to participants in the interval between the last margin collection and the close out of positions following a participant default. As discussed above, the CFR coverage thresholds have been set at 99 percent. Therefore, the Clearing Agencies believe that the Framework is consistent with Rule 17Ad-22(e)(6)(iii) under the Act.<sup>32</sup>

Rule 17Ad-22(e)(6)(vi) under the Act<sup>33</sup> requires, inter alia, that a covered clearing agency that is a central counterparty establish, implement, maintain and enforce written policies and procedures reasonably designed to (a) conduct backtests of its margin model at least once each day using standard predetermined parameters and assumptions, (b) conduct a sensitivity analysis of its margin model and a review of its parameters and assumptions for backtesting on at least a monthly basis, and consider modifications to ensure the backtesting practices are appropriate for determining the adequacy of such central counterparty's margin resources, (c) conduct a sensitivity analysis of its margin model and a review of its parameters and assumptions for backtesting more frequently than monthly during periods of time when the products cleared or markets served display high volatility or become less liquid, or when the size or concentration of positions held by such central counterparty's participants increases or decreases significantly and (d) report the results of its analyses under (b) and (c) to appropriate decision makers at the central counterparty, including but not limited to, its risk management committee or Board, and using these results to evaluate the adequacy of and adjust its margin methodology, model parameters, and any other relevant aspects of its credit risk management framework. As discussed above, the Framework would provide that (a) the CCPs would perform VaR and CFR backtesting on a daily basis, (b) as part of Model performance monitoring, on at least a monthly basis, sensitivity analysis would be performed by MVC on each of the margin Models of the CCPs, the key parameters and assumptions for backtesting would be reviewed, and modifications would be considered to ensure the applicable CCP's backtesting practices are appropriate for determining the adequacy of the applicable CCP's margin resources, (c) MVC would, in circumstances where the products cleared or the markets served by the applicable CCP display high volatility or become less liquid, or when the size or concentration of positions held by the

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<sup>29</sup> Supra note 26.

<sup>30</sup> 17 CFR 240.17Ad-22(e)(6) (in particular, 17 C.F.R. 240.17Ad-22(e)(6)(iii)). See supra note 1.

<sup>31</sup> 17 CFR 240.17Ad-22(a)(13) defines the term "potential future exposure" to mean the maximum exposure estimated to occur at a future point in time with an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure.

<sup>32</sup> Supra note 30.

<sup>33</sup> 17 CFR 240.17Ad-22(e)(6) (in particular, 17 C.F.R. 240.17Ad-22(e)(6)(vi)). See supra note 1.

applicable CCP's Members increases or decreases significantly, sensitivity analysis and review of key model parameters and assumptions would be conducted more frequently than monthly, and (d) each CCP would report the results of its analyses under (b) and (c) to key decision makers, including but not limited to the MRC and/or BRC, as discussed above. Therefore NSCC and FICC believe the Framework is consistent with Rule 17Ad-22(e)(6)(vi) under the Act.<sup>34</sup>

Rule 17Ad-22(e)(6)(vii) under the Act<sup>35</sup> requires, inter alia, that a covered clearing agency that is a central counterparty establish, implement, maintain and enforce written policies and procedures reasonably designed to perform Model Validations on its margin system and related models not less than annually or more frequently as may be contemplated by the clearing agency's risk management framework established pursuant to Rule 17Ad-22(e)(3).<sup>36</sup> As discussed above, the Framework would describe the Model Risk validation processes of the CCPs, which would be performed not less than annually on their margin system and related models. Therefore, NSCC and FICC believe that the Framework is consistent with Rule 17Ad-22(e)(6)(vii) under the Act.<sup>37</sup>

#### **4. Self-Regulatory Organization's Statement on Burden on Competition**

None of the Clearing Agencies believe that the Framework would have any impact, or impose any burden, on competition because the proposed rule change reflects the existing framework that the Clearing Agencies employ to manage model risk, and would not effectuate any changes to the Clearing Agencies' model risk management tools as they currently apply to their respective Members or Participants.

#### **5. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others**

The Clearing Agencies have not solicited or received any written comments relating to this proposal. The Clearing Agencies will notify the Commission of any written comments received by the Clearing Agencies.

#### **6. Extension of Time Period for Commission Action**

The Clearing Agencies do not consent to an extension of the time period specified in Section 19(b)(2) of the Act for Commission action.<sup>38</sup>

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<sup>34</sup> Id.

<sup>35</sup> 17 CFR 240.17Ad-22(e)(6) (in particular, 17 C.F.R. 240.17Ad-22(e)(6)(vii)). See supra note 1.

<sup>36</sup> Supra note 27.

<sup>37</sup> Supra note 35.

<sup>38</sup> 15 U.S.C. 78s(b)(2).

**7. Basis for Summary Effectiveness Pursuant to Section 19(b)(3) or for Accelerated Effectiveness Pursuant to Section 19(b)(2) or Section 19(b)(7)(D)**

- (a) Not applicable.
- (b) Not applicable.
- (c) Not applicable.
- (d) Not applicable.

**8. Proposed Rule Change Based on Rules of Another Self-Regulatory Organization or of the Commission**

While the proposed rule change is not based on the rules of another self-regulatory organization or of the Commission, the Framework is applicable to each of the Clearing Agencies, and each of the Clearing Agencies has filed similar proposed rule changes concurrently with this filing.

**9. Security-Based Swap Submissions Filed Pursuant to Section 3C of the Act**

Not applicable.

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

Not applicable.

**11. Exhibits**

Exhibit 1 – Not applicable.

Exhibit 1A – Notice of proposed rule change for publication in the Federal Register.

Exhibit 2 – Not applicable.

Exhibit 3 – Not applicable.

Exhibit 4 – Not applicable.

Exhibit 5 – Clearing Agency Model Risk Management Framework. **Omitted and filed separately with the Commission. Confidential treatment of this Exhibit 5 is requested by each of the Clearing Agencies pursuant to 17 CFR 240.24b-2.**

**EXHIBIT 1A**

SECURITIES AND EXCHANGE COMMISSION  
(Release No. 34-[\_\_\_\_\_]; File No. SR-NSCC-2017-008)

[DATE]

Self-Regulatory Organizations; National Securities Clearing Corporation; Notice of Filing of a Proposed Rule Change to Adopt the Clearing Agency Model Risk Management Framework

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934, as amended (“Act”)<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> notice is hereby given that on June \_\_, 2017, National Securities Clearing Corporation (“NSCC”) filed with the Securities and Exchange Commission (“Commission”) the proposed rule change as described in Items I, II and III below, which Items have been prepared by the clearing agency. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Clearing Agency’s Statement of the Terms of Substance of the Proposed Rule Change

The proposed rule change would adopt the Clearing Agency Model Risk Management Framework (“Framework”) of NSCC and its affiliates Fixed Income Clearing Corporation (“FICC,” and together with NSCC, the “CCPs”) and The Depository Trust Company (“DTC,” and together with the CCPs, the “Clearing Agencies”), described below. The Framework would be maintained by the Clearing Agencies in compliance with Rule 17Ad-22 (e)(4)(i), (e)(4)(vii), (e)(6)(iii), (e)(6)(vi), (e)(6)(vii), and (e)(7)(vii), under the Act, as described below.<sup>3</sup>

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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> 17 CFR 240.17Ad-22 (e)(4)(i), (e)(4)(vii), (e)(6)(iii), (e)(6)(vi), (e)(6)(vii), and

Although the Clearing Agencies would consider the Framework to be a rule, the proposed rule change does not require any changes to the DTC Rules, By-laws and Organizational Certificate (“DTC Rules”), the Rulebook of the Government Securities Division of FICC (“GSD Rules”), the Clearing Rules of the Mortgage-Backed Securities Division of FICC (“MBSD Rules”), or the Rules & Procedures of NSCC (“NSCC Rules”), as the Framework would be a standalone document.<sup>4</sup>

II. Clearing Agency’s Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the clearing agency included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. The clearing agency has prepared summaries, set forth in sections A, B, and C below, of the most significant aspects of such statements.

(A) Clearing Agency’s Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

1. Purpose

The Clearing Agencies are proposing to formalize the Framework in order to facilitate compliance with Rule 17Ad-22 (e)(4)(i), (e)(4)(vii), (e)(6)(iii), (e)(6)(vi),

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(e)(7)(vii). Each of DTC, NSCC and FICC is a “covered clearing agency” as defined in Rule 17Ad-22(a)(5), and must comply with subsection (e) of Rule 17Ad-22. References to Rule 17Ad-22(e)(6) and its subparagraphs cited herein, and compliance therewith, apply to the CCPs only and do not apply to DTC.

<sup>4</sup> Capitalized terms not defined herein are defined in the DTC Rules, GSD Rules, MBSD Rules, or NSCC Rules, as applicable, available at <http://dtcc.com/legal/rules-and-procedures>.



(e)(6)(vii), and (e)(7)(vii) under the Act<sup>5</sup>. The Framework would set forth the model risk management practices adopted by the Clearing Agencies, which have been designed to assist the Clearing Agencies in identifying, measuring, monitoring, and managing the risks associated with the design, development, implementation, use, and validation of quantitative models. The Framework would be owned and managed by the Clearing Agencies' risk management area generally responsible for model validation ("Model Validation")<sup>6</sup> and control matters, the DTCC Model Validation and Control Group ("MVC"), on behalf of each Clearing Agency, with review and oversight by senior management and the Boards, as described below.<sup>7</sup>

The Framework would provide that (i) any change to the Framework must be approved by the Boards or such committees as may be delegated authority by the Boards from time to time pursuant to their charters, (ii) MVC shall review this Framework no less frequently than annually, and (iii) any and all changes to this Framework are subject to regulatory review and approval. The Framework would (i) articulate the Clearing

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<sup>5</sup> Supra note 3.

<sup>6</sup> "Model Validation" has the meaning set forth in Rule 17Ad-22(a)(9) under the Act, which provides that "*Model validation* means an evaluation of the performance of each material risk management model used by a covered clearing agency (and the related parameters and assumptions associated with such models), including initial margin models, liquidity risk models, and models used to generate clearing or guaranty fund requirements, performed by a qualified person who is free from influence from the persons responsible for the development or operation of the models or policies being validated." See Rule 17Ad-22(a)(9), supra note 3.

<sup>7</sup> The parent company of the Clearing Agencies is The Depository Trust & Clearing Corporation ("DTCC"). DTCC operates on a shared services model with respect to the Clearing Agencies. Most corporate functions are established and managed on an enterprise-wide basis pursuant to intercompany agreements under which it is generally DTCC that provides a relevant service to a Clearing Agency.

Agencies' model risk management framework; and (ii) describe the Clearing Agencies' model risk reporting and escalation processes.

The Clearing Agencies have adopted the following definition for the term "model":

"[M]odel" refers to a quantitative method, system, or approach that applies statistical, economic, financial, or mathematical theories, techniques, and assumptions to process input data into quantitative estimates. A "model" consists of three components: an information input component, which delivers assumptions and data to the model; a processing component, which transforms inputs into estimates; and a reporting component, which translates the estimates into useful business information. The definition of "model" also covers quantitative approaches whose inputs are partially or wholly qualitative or based on expert judgment, provided that the output is quantitative in nature.<sup>8</sup>

The term "Model Risk," as defined in the Framework, would refer to the potential for adverse consequences from decisions based on incorrect or misused Model outputs and reports,<sup>9</sup> and primarily occurring due to (i) fundamental errors in the design/development of Models; (ii) incorrect Model input or assumptions; (iii) erroneous implementation of Models; (iv) unauthorized and/or incorrect changes to Models; (v) changes in market conditions rendering existing Models unfit for their intended purpose; and (vi) misuse of or overreliance on Models. The Framework is designed to minimize the Clearing Agencies' potential for financial loss, inaccurate financial or regulatory

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<sup>8</sup> See Supervisory Guidance on Model Risk Management, SR Letter 11-7, dated April 4, 2011, issued by the Board of Governors of the Federal Reserve System and the Office of the Comptroller of the Currency, at 3.

<sup>9</sup> Id.

reporting, misaligned business strategies, and/or damage to their respective reputations resulting from a failure to properly manage Model Risk.

Any model developed for use by any of the Clearing Agencies and meeting the above definition for the term “Model” would be subject to tracking within each Clearing Agency’s Model inventory (“Model Inventory”). The Framework would describe how a Model Inventory survey is conducted at least annually across the Clearing Agencies to confirm the Model Inventory is current. During this survey period, all Clearing Agency business areas and support functions that intend to develop models for Clearing Agency use would submit a list of their planned models to MVC in order for MVC to review and assess whether such planned models meet the definition of “Model” under the Framework.

The Framework would outline how MVC would assign a materiality/complexity index rating to each Model when it is added to a Model Inventory, which rating would impact the Model’s validation in terms of prioritization and approval authority. All Model materiality/complexity index assignments would be reviewed at least annually by MVC, as well as by the committee specifically created by the Clearing Agencies to address Model Risk governance matters, the DTCC Model Risk Governance Committee (“MRGC”).

The Framework would describe the initial and periodic validation protocols that would be applicable to all Models in the Model Inventory. As required by regulatory requirements, all Model Validations would be performed by qualified persons who are free from influence from the persons responsible for the development or operation of the Models being validated. MVC, which is responsible for performing all Model

Validations, is functionally separate from all Clearing Agency areas that develop or operate Models. The head of MVC directly reports to the head of the DTCC Group Chief Risk Office, rather than to anyone that is in charge of developing or operating Models for the Clearing Agencies.

Each new Model would undergo a full Model Validation (unless provisionally approved, as discussed below) pursuant to which MVC would verify that the Model is performing as expected in accordance with its design objectives and business purpose. The full Model Validation standards for any new Model would include, but not be limited to, the following core Model Validation activities:

- evaluation of the Model development documentation and testing;
- evaluation of Model theory and assumptions, and identification of potential limitations;
- evaluation of data inputs and parameters;
- review of numerical implementation including replication for certain key Model components, which would vary from Model to Model;
- independent testing: sensitivity analysis, stress testing, and benchmarking, as appropriate; and
- evaluation of Model outputs, Model performance, and back testing.

Full Model Validation would be applied under the following circumstances: (i) for all new Models prior to their use in production; (ii) during periodic Model Validations (as described below); and (iii) when Model changes are made that require independent Model Validation (as further described below).

All Models approved for use in production would also be subject to periodic

Model Validations for purposes of confirming that the Models continue to operate as intended, identifying any deficiencies that would call into question the continuing validity of any such Model's original approval and evaluating whether the Model and its prior validation remain valid within the dynamics of current market conditions.

In this regard, the Framework would describe that MVC would perform a Model Validation for each Clearing Agency Model approved for use in production not less than annually (or more frequently as may be contemplated by such Clearing Agency's established risk management framework), including each credit risk Model,<sup>10</sup> liquidity risk Model,<sup>11</sup> and in the case of FICC and NSCC, as central counterparties, on their margin systems and related Models.<sup>12</sup>

Periodic Model Validations would follow full Model Validation standards. In certain cases, MVC may determine extra Model Validation activities are warranted based on previous Model Validation work and findings, changes in market conditions, or because performance monitoring of a particular Model warrants extra validation.

Occasionally, an active Model may require changes in either structure or technique. Details for any Model change request would be provided to MVC for review and a determination of whether full Model Validation is required.

The Framework would outline the approval process applicable to all new Models.

The DTCC Quantitative Risk Management Financial Engineering Unit, which is functionally separate from MVC, would be responsible for developing, testing, and

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<sup>10</sup> Rule 17Ad-22(e)(4)(vii). See supra note 3.

<sup>11</sup> Rule 17Ad-22(e)(7)(vii). See supra note 3.

<sup>12</sup> Rule 17Ad-22(e)(6)(vi) and (vii). See supra note 3.

signing-off on new Clearing Agency Models and enhancements to existing Clearing Agency Models before submitting any such Model to MVC for Model Validation and approval.

All new Clearing Agency Models, and all material changes to existing Clearing Agency Models, would undergo Model Validation by MVC and be approved prior to business use. In cases where such Model's materiality is "Medium" or "High," such Model Validation would be reviewed by the MRGC and recommended by the MRGC to the Clearing Agencies' management level committee responsible for model risk management matters, the Management Risk Committee ("MRC"), for approval.

The Framework would provide that provisional approvals with respect to new Clearing Agency Models and material changes to existing Clearing Agency Models may be issued to allow a Model to be published for urgent business use prior to MVC's Model Validation thereof. Provisional approval requests for a Model along with appropriate control measures would be presented by the applicable DTCC personnel responsible for the development or operation of the Model<sup>13</sup> to MVC and the MRGC for review. Models may be provisionally approved by MVC for a limited period, not to exceed six months unless also approved by the MRGC. MVC would track all such provisional approvals and oversee compliance with control measures and provisional approval periods.

Each periodic Model Validation would be presented to the MRGC for its review, and its recommendation for approval to the MRC. The Framework would provide that MRC approval must be obtained in order for any such periodic validation to be deemed complete.

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<sup>13</sup> Such personnel would be defined in the Framework as "Model Owners."

All findings that result from a new Model Validation, a change Model Validation, a periodic Model Validation, or in connection with implementation of a new Model or Model change, would be centrally tracked by MVC. The status of findings resolution for approved Models would be reported to the MRGC on a monthly basis. Where there is a finding related to Model implementation errors, the applicable Model Owner would report such findings/incidents in accordance with the policies and procedures of the Operational Risk Management unit (“ORM”) within the Group Chief Risk Office. If an adverse Model Validation finding cannot be resolved, the Model Owner would work with MVC and ORM to submit the finding for risk acceptance in accordance with ORM policies and procedures.

In addition to periodic validation, MVC would be responsible for Model performance monitoring and for each Clearing Agency’s backtesting process, which would be integral parts of each Clearing Agency’s model risk management framework.<sup>14</sup>

As part of Model performance monitoring, on at least a monthly basis, sensitivity analysis would be performed by MVC on each of the CCP’s margin Model, the key parameters and assumptions for backtesting would be reviewed, and modifications would be considered to ensure the CCP’s backtesting practices are appropriate for determining the adequacy of the applicable CCP’s margin resources.

MVC would prepare Model performance monitoring reports on a monthly basis. Model performance monitoring, which includes review of risk-based Models used to

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<sup>14</sup> Model performance monitoring is the process of (i) evaluating an active Model’s ongoing performance based on theoretical tests, (ii) monitoring the Model’s parameters through the use of threshold indicators, and/or (iii) backtesting using actual historical data/realizations to test a Value at Risk (“VaR”) Model’s predictive power.

calculate margin requirements and relevant parameters/threshold indicators, sensitivity analysis, and model backtesting results would be subject to review by the MRGC, which will escalate serious performance concerns to the MRC.

In circumstances where the products cleared or the markets served by a CCP display high volatility or become less liquid, or when the size or concentration of positions held by the applicable CCP's Members increases or decreases significantly, such sensitivity analysis and review of key model parameters and assumptions would be conducted more frequently than monthly.

VaR and Clearing Fund requirement ("CFR") coverage backtesting for the CCPs would be performed by MVC on a daily basis or more frequently.<sup>15</sup> CFR coverage would be backtested on an overall basis and for individual Members and families of affiliated Members. DTC backtesting would be performed by MVC on a daily basis for collateral group<sup>16</sup> Collateral Monitor coverage, collateral group level haircut<sup>17</sup> coverage and Security-level haircut coverage.

Thresholds for all backtests would be established for the rolling 12-month period

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<sup>15</sup> VaR Model backtesting tests Model performance at a specified confidence level, while the CFR backtest tests margin sufficiency in case of a Member default.

<sup>16</sup> A DTC Participant with multiple accounts may group its accounts into "families" (i.e., "collateral groups") and instruct DTC to allocate a specified portion of its overall Collateral Monitor and Net Debit Cap to each family. All accounts that a Participant designates as belonging to a common collateral group share a single Collateral Monitor and single Net Debit Cap. See Securities Exchange Act Release No. 38201 (January 23, 1997), 62 FR 4561 (January 30, 1997) (SR-DTC-96-17).

<sup>17</sup> A haircut represents a percentage decrease applied to a Security's Market Value solely for purposes of determining the Collateral Value of the Security. See DTC Settlement Service Guide, available at <http://www.dtcc.com/~media/Files/Downloads/legal/service-guides/Settlement.pdf>, at 5.



coverage computed as the number of instances without deficiency over the total number of backtest instances, where deficiency is defined as the loss amount that exceeds the measure being tested (i.e., VaR, CFR, Collateral Monitor, or haircut rate). Thresholds would be set as follows:

<b>Applicable to</b>	<b>Backtesting Risk Metrics</b>	<b>Threshold</b>
CCPs	Overall CFR Coverage	99%
	VaR Model Coverage	99%
	Member Level CFR Coverage	99%
	Family Level CFR Coverage	99%
DTC	Collateral Group Collateral Monitor Coverage	99%
	Collateral Group Level Haircut Coverage	99%
	Security-Level Haircut Coverage	95%

The CFR coverage thresholds have been set to meet applicable regulatory requirements that require a CCP to cover its credit exposure to its participants by establishing a risk-based margin system that, among other things calculates margin sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default.<sup>18</sup>

The collateral group Collateral Monitor coverage threshold, among other controls, has been set to support the requirement that DTC maintain sufficient financial resources to cover its credit exposures to each participant fully with a high degree of confidence.<sup>19</sup>

The “VaR Model Coverage”, “Collateral Group Level Haircut Coverage”, and “Security-Level Haircut Coverage” have been set and are designed for Model performance

<sup>18</sup> See 17 CFR 240.17Ad-22(e)(6)(iii). 17 CFR 240.17Ad-22(a)(13) defines the term “potential future exposure” to mean the maximum exposure estimated to occur at a future point in time with an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure.

<sup>19</sup> See 17 CFR 240.17Ad-22(e)(4)(i). See *supra* note 3.

monitoring purposes.

The MRGC would be the primary forum for MVC's regular reporting of Model Validation activities and material Model Risks identified through regular Model performance monitoring. Reports and recommendations with respect to Model Risk management would be made to the MRC.

Periodic reporting to the Risk Committee of the Clearing Agencies' Boards ("BRC") with regard to Model Risk matters may include:

- Updates of Model Validation findings and the status of annual validations.
- Updates on significant Model Risk matters, and on compliance matters with respect to Model Risk policies and procedures (including the Framework).
- Escalation of Model Risk matters as set forth in the market risk tolerance statement, which establishes the Clearing Agencies' Model Risk tolerances ("Market Risk Tolerance Statement"), and subsequent, regular updates with respect thereto.

On at least a monthly basis, the key metrics relating to Model backtesting would be reviewed by the Market and Liquidity Risk Management unit within the Group Chief Risk Office and MVC, and reported to the MRC. Threshold breaches would be reviewed by the Managing Directors within the Financial Risk Management area (including the Market and Liquidity Risk Management unit) of the Group Chief Risk Office, and in the case of CFR *Coverage* breaches by the CCPs and Collateral Group Collateral Monitor Coverage by DTC, escalated to the BRC in accordance with the Market Risk Tolerance Statement. The Managing Director of the Market and Liquidity Risk Management unit within the Group Chief Risk Office would be responsible for reviewing the Market Risk

Tolerance Statement on at least an annual basis. The BRC would review and approve the Market Risk Tolerance Statement at least annually.

With respect to any proposed change to any backtesting methodology, prior to implementation thereof (and before any reporting thereof in any management and regulatory report), a description of the proposed change and impact study results would be presented to the MRGC for review and approval. If the impact study results reflect that implementation of the methodology would negatively impact any existing risk tolerance threshold range, such results would be escalated by the MRGC to the MRC, and subsequently to the BRC, for approval prior to implementation.

All Model performance concerns would be escalated by MVC to the MRGC, including Model performance enhancement concerns. The MRGC may further recommend certain such matters for further escalation to the MRC and/or the BRC.

## 2. Statutory Basis

The Clearing Agencies believe that the proposed rule change is consistent with the requirements of the Act and the rules and regulations thereunder applicable to a registered clearing agency. In particular, the Clearing Agencies believe that the Framework is consistent with Section 17A(b)(3)(F) of the Act,<sup>20</sup> as well as Rule 17Ad-22(b)(4)<sup>21</sup> and Rule 17Ad-22(e)(4)(vii), (e)(6)(iii), (e)(6)(vi), (e)(6)(vii) and (e)(7)(vii) thereunder,<sup>22</sup> for the reasons described below.

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<sup>20</sup> 15 U.S.C. 78q-1(b)(3)(F).

<sup>21</sup> 17 CFR 240.17Ad-22(b)(4). See supra note 3.

<sup>22</sup> Supra note 3.

Section 17A(b)(3)(F) of the Act<sup>23</sup> requires, inter alia, that the rules of a clearing agency be designed to promote the prompt and accurate clearance and settlement of securities transactions. As described in greater detail above, the Framework would describe the process by which the Clearing Agencies identify, measure, monitor, and manage the risks associated with the design, development, implementation, use, and validation of quantitative models. The quantitative models covered by the Framework would be applied by the Clearing Agencies, as applicable, to evaluate and address their respective risk exposures associated with their settlement activity and allow them to continue the prompt and accurate clearance and settlement of securities. In this regard, the Framework would facilitate their ability to develop models that would be applied to evaluate and address risk exposure, and allow them to continue the prompt and accurate clearance and settlement of securities. Therefore, the Clearing Agencies believe that the Framework is consistent with the requirements of Section 17A(b)(3)(F) of the Act.<sup>24</sup>

Rule 17Ad-22(b)(4) under the Act<sup>25</sup> requires, inter alia, that a covered clearing agency that is a central counterparty establish, implement, maintain, and enforce policies and procedures reasonably designed to provide for an annual Model Validation consisting of evaluating the performance of the clearing agency's margin models and the related parameters and assumptions associated with such models by a qualified person who is free from influence from the persons responsible for the development or operation of the models being validated. As described in the Framework and as described above, MVC is

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<sup>23</sup> 15 U.S.C. 78q-1(b)(3)(F).

<sup>24</sup> Id.

<sup>25</sup> Supra note 21.

an area that is functionally separate from all areas within NSCC and FICC that develop and operate models. Pursuant to the Framework, MVC would perform a Model Validation on all approved margin systems and related Models for NSCC and FICC, not less than annually. Therefore, NSCC and FICC believe the Framework is consistent with Rule 17Ad-22(b)(4) under the Act.<sup>26</sup>

Rule 17Ad-22(e)(4)(vii)<sup>27</sup> and (e)(7)(vii)<sup>28</sup> under the Act requires, inter alia, that a covered clearing agency establish, implement, maintain and enforce written policies and procedures reasonably designed to perform Model Validations on its credit risk models and liquidity risk models not less than annually or more frequently as may be contemplated by the clearing agency's risk management framework established pursuant to Rule 17Ad-22(e)(3).<sup>29</sup> As discussed above, the Framework would describe the Clearing Agencies' Model Risk validation process, which would be performed not less than annually on its credit risk models and liquidity risk models. Therefore, the Clearing Agencies believe that the Framework is consistent with Rule 17Ad-22(e)(4)(vii)<sup>30</sup> and (e)(7)(vii)<sup>31</sup> under the Act.

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<sup>26</sup> Id.

<sup>27</sup> 17 CFR 240.17Ad-22(e)(4) (in particular, 17 C.F.R. 240.17Ad-22(e)(4)(vii)). See supra note 3.

<sup>28</sup> 17 CFR 240.17Ad-22(e)(7) (in particular, 17 C.F.R. 240.17Ad-22(e)(7)(vii)). See supra note 3.

<sup>29</sup> 17 CFR 240.17Ad-22(e)(3). See supra note 3.

<sup>30</sup> Supra note 27.

<sup>31</sup> Supra note 28.

Rule 17Ad-22(e)(6)(iii) under the Act<sup>32</sup> requires that a covered clearing agency that is a central counterparty establish, implement, maintain and enforce written policies and procedures reasonably designed to cover its credit exposures to its participants by establishing a risk-based margin system that at a minimum, inter alia, calculates margin sufficient to cover its potential future exposure<sup>33</sup> to participants in the interval between the last margin collection and the close out of positions following a participant default. As discussed above, the CFR coverage thresholds have been set at 99 percent. Therefore, the Clearing Agencies believe that the Framework is consistent with Rule 17Ad-22(e)(6)(iii) under the Act.<sup>34</sup>

Rule 17Ad-22(e)(6)(vi) under the Act<sup>35</sup> requires, inter alia, that a covered clearing agency that is a central counterparty establish, implement, maintain and enforce written policies and procedures reasonably designed to (a) conduct backtests of its margin model at least once each day using standard predetermined parameters and assumptions, (b) conduct a sensitivity analysis of its margin model and a review of its parameters and assumptions for backtesting on at least a monthly basis, and consider modifications to ensure the backtesting practices are appropriate for determining the adequacy of such central counterparty's margin resources, (c) conduct a sensitivity analysis of its margin

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<sup>32</sup> 17 CFR 240.17Ad-22(e)(6) (in particular, 17 C.F.R. 240.17Ad-22(e)(6)(iii)). See supra note 3.

<sup>33</sup> 17 CFR 240.17Ad-22(a)(13) defines the term “potential future exposure” to mean the maximum exposure estimated to occur at a future point in time with an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure.

<sup>34</sup> Supra note 32.

<sup>35</sup> 17 CFR 240.17Ad-22(e)(6) (in particular, 17 C.F.R. 240.17Ad-22(e)(6)(vi)). See supra note 3.

model and a review of its parameters and assumptions for backtesting more frequently than monthly during periods of time when the products cleared or markets served display high volatility or become less liquid, or when the size or concentration of positions held by such central counterparty's participants increases or decreases significantly and (d) report the results of its analyses under (b) and (c) to appropriate decision makers at the central counterparty, including but not limited to, its risk management committee or Board, and using these results to evaluate the adequacy of and adjust its margin methodology, model parameters, and any other relevant aspects of its credit risk management framework. As discussed above, the Framework would provide that (a) the CCPs would perform VaR and CFR backtesting on a daily basis, (b) as part of Model performance monitoring, on at least a monthly basis, sensitivity analysis would be performed by MVC on each of the margin Models of the CCPs, the key parameters and assumptions for backtesting would be reviewed, and modifications would be considered to ensure the applicable CCP's backtesting practices are appropriate for determining the adequacy of the applicable CCP's margin resources, (c) MVC would, in circumstances where the products cleared or the markets served by the applicable CCP display high volatility or become less liquid, or when the size or concentration of positions held by the applicable CCP's Members increases or decreases significantly, sensitivity analysis and review of key model parameters and assumptions would be conducted more frequently than monthly, and (d) each CCP would report the results of its analyses under (b) and (c) to key decision makers, including but not limited to the MRC and/or BRC, as discussed above. Therefore NSCC and FICC believe the Framework is consistent with Rule 17Ad-

22(e)(6)(vi) under the Act.<sup>36</sup>

Rule 17Ad-22(e)(6)(vii) under the Act<sup>37</sup> requires, inter alia, that a covered clearing agency that is a central counterparty establish, implement, maintain and enforce written policies and procedures reasonably designed to perform Model Validations on its margin system and related models not less than annually or more frequently as may be contemplated by the clearing agency's risk management framework established pursuant to Rule 17Ad-22(e)(3).<sup>38</sup> As discussed above, the Framework would describe the Model Risk validation processes of the CCPs, which would be performed not less than annually on their margin system and related models. Therefore, NSCC and FICC believe that the Framework is consistent with Rule 17Ad-22(e)(6)(vii) under the Act.<sup>39</sup>

(B) Clearing Agency's Statement on Burden on Competition

None of the Clearing Agencies believe that the Framework would have any impact, or impose any burden, on competition because the proposed rule change reflects the existing framework that the Clearing Agencies employ to manage model risk, and would not effectuate any changes to the Clearing Agencies' model risk management tools as they currently apply to their respective Members or Participants.

(C) Clearing Agency's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

The Clearing Agencies have not solicited or received any written comments

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<sup>36</sup> Id.

<sup>37</sup> 17 CFR 240.17Ad-22(e)(6) (in particular, 17 C.F.R. 240.17Ad-22(e)(6)(vii)). See supra note 3.

<sup>38</sup> Supra note 29.

<sup>39</sup> Supra note 37.



relating to this proposal. The Clearing Agencies will notify the Commission of any written comments received by the Clearing Agencies.

III. Date of Effectiveness of the Proposed Rule Change, and Timing for Commission Action

Within 45 days of the date of publication of this notice in the Federal Register or within such longer period up to 90 days (i) as the Commission may designate if it finds such longer period to be appropriate and publishes its reasons for so finding or (ii) as to which the clearing agency consents, the Commission will:

- (A) by order approve or disapprove such proposed rule change, or
- (B) institute proceedings to determine whether the proposed rule change

should be disapproved.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. 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](mailto:rule-comments@sec.gov). Please include File Number SR-NSCC-2017-008 on the subject line.

Paper Comments:

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

All submissions should refer to File Number SR SR-NSCC-2017-008. 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 proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change 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 a.m. and 3:00 p.m. Copies of the filing also will be available for inspection and copying at the principal office of NSCC and on DTCC's website (<http://dtcc.com/legal/sec-rule-filings.aspx>). 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-NSCC-2017-008 and should be submitted on or before [insert date 21 days from publication in the Federal Register].

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.<sup>40</sup>

Secretary

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<sup>40</sup> 17 CFR 200.30-3(a)(12).

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