

SECURITIES AND EXCHANGE COMMISSION  
(Release No. 34-79491; File No. SR-FICC-2016-007)

December 7, 2016

Self-Regulatory Organizations; Fixed Income Clearing Corporation; Notice of Filing of Proposed Rule Change to Implement a Change to the Methodology Used in the MBSD VaR Model

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Act”),<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> notice is hereby given that on November 23, 2016, the Fixed Income Clearing Corporation (“FICC”) 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 primarily by FICC.<sup>3</sup> 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 change the methodology that FICC uses in the Mortgage-Backed Securities Division’s (“MBSD”) value-at-risk (“VaR”) model from

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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> FICC also filed this proposal as an advance notice pursuant to Section 802(e)(1) of the Payment, Clearing, and Settlement Supervision Act of 2010 and Rule 19b-4(n)(1) under the Act. 15 U.S.C. 5465(e)(1) and 17 CFR 240.19b-4(n)(1). See File No. SR-FICC-2016-801.

one that employs a full revaluation approach to one that would employ a sensitivity approach, as described in greater detail below.<sup>4</sup>

The proposed rule change also consists of amendments to the MBSD Rules in order to (1) revise the definition of VaR Charge to reference an alternative volatility calculation (referred to herein as the Margin Proxy (as defined in Item II(A) below)), which would be employed in the event that the requisite data used to employ the sensitivity approach is unavailable for an extended period of time, (2) revise the definition of VaR Charge to include a minimum amount (the “VaR Floor”) that FICC would employ as an alternative to the amount calculated by the proposed VaR model for portfolios where the VaR Floor would be greater than the model-based charge amount, (3) eliminate two components from the Required Fund Deposit calculation that would no longer be necessary following implementation of the proposed VaR model, and (4) change the margining approach that FICC may employ for certain securities with inadequate historical pricing data from one that calculates charges using a historic index volatility model to one that would employ a simple haircut method, as described in greater detail below.

The proposed sensitivity approach and Margin Proxy methodologies would be reflected in the Methodology and Model Operations Document - MBSD Quantitative Risk Model (the “QRM Methodology”). FICC is requesting confidential treatment of this document and has filed it separately with the Secretary of the Commission.<sup>5</sup>

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<sup>4</sup> Capitalized terms used herein and not defined shall have the meaning assigned to such terms in the MBSD Clearing Rules (“MBSD Rules”) available at [www.dtcc.com/legal/rules-and-procedures.aspx](http://www.dtcc.com/legal/rules-and-procedures.aspx).

<sup>5</sup> See 17 CFR 240.24b-2.

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

FICC is proposing to change the methodology that is currently used in MBSD's VaR model from one that employs a full revaluation approach to one that would employ a sensitivity approach. In connection with this change, FICC is also proposing to (1) amend the definition of VaR Charge to reference that an alternative volatility calculation (referred to herein as the Margin Proxy (as defined in section B below)) would be employed in the event that the requisite data used to employ the sensitivity approach is unavailable for an extended period of time, (2) revise the definition of VaR Charge to include a VaR Floor that FICC would employ as an alternative to the amount calculated by the proposed VaR model for portfolios where the VaR Floor would be greater than the model-based charge amount, (3) eliminate two components from the Required Fund Deposit calculation that would no longer be necessary following implementation of the proposed VaR model, and (4) change the margining approach that FICC may employ for certain securities with inadequate historical pricing data from one that calculates charges

using a historic index volatility model to one that would employ a simple haircut method. These changes are described in more detail below.

***A. The Required Fund Deposit and Clearing Fund Calculation Overview***

A key tool that FICC uses to manage market risk is the daily calculation and collection of Required Fund Deposits from Clearing Members. The Required Fund Deposit serves as each Clearing Member's margin. The aggregate of all Clearing Members' Required Fund Deposits constitutes the Clearing Fund of MBSD, which FICC would access should a defaulting Clearing Member's own Required Fund Deposit be insufficient to satisfy losses to FICC caused by the liquidation of that Clearing Member's portfolio.

The objective of a Clearing Member's Required Fund Deposit is to mitigate potential losses to FICC associated with liquidation of such Member's portfolio in the event that FICC ceases to act for such Member (hereinafter referred to as a "default"). Pursuant to the MBSD Rules, each Clearing Member's Required Fund Deposit amount currently consists of the following components: the VaR Charge, the Coverage Charge, the Deterministic Risk Component, the margin requirement differential ("MRD") and, to the extent appropriate, a special charge.<sup>6</sup> Of these components, the VaR Charge comprises the largest portion of a Clearing Member's Required Fund Deposit amount.

The VaR Charge is calculated using a risk-based margin methodology that is intended to capture the market price risk associated with the securities in a Clearing Member's portfolio. The methodology uses historical market moves to project the

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<sup>6</sup> MBSD Rule 4 Section 2.

potential gains or losses that could occur in connection with the liquidation of a defaulting Clearing Member's portfolio. The methodology assumes that a portfolio would take three days to hedge or liquidate in normal market conditions. The projected liquidation gains or losses are used to determine the amount of the VaR Charge, which is calculated to cover projected liquidation losses at a 99 percent confidence level.<sup>7</sup>

FICC employs daily backtesting to determine the adequacy of each Clearing Member's Required Fund Deposit. The backtesting compares the Required Fund Deposit for each Clearing Member with actual price changes in the Clearing Member's portfolio. The portfolio values are calculated by using the actual positions in such Member's portfolio on a given day and the observed security price changes over the following three days. These backtesting results are reviewed as part of FICC's VaR model performance monitoring and assessment of the adequacy of each Clearing Member's Required Fund Deposit.

FICC currently calculates the VaR Charge using a methodology referred to as the "full revaluation" approach. The full revaluation approach employs a historical simulation method to fully reprice each security in a Clearing Member's portfolio using valuation algorithms with prevailing and historical market data. VaR provides an estimate of the possible losses for a given portfolio based on a given confidence level over a particular time horizon. The VaR Charge is calibrated at a 99 percent confidence level based on a 1-year look-back period assuming a three-day liquidation/hedge period. If FICC determines that a security's price history is incomplete and the market price risk

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<sup>7</sup> Unregistered Investment Pool Clearing Members are subject to a VaR Charge with a minimum targeted confidence level assumption of 99.5 percent.

cannot be calculated by the VaR model, then FICC applies an index volatility model until such security's trading history and pricing reflects market risk factors that can be appropriately calibrated from the security's historical data.<sup>8</sup>

***B. Proposed Change to Replace the Methodology Used in the Existing VaR Charge Calculation***

During the volatile market period that occurred during the second and third quarters of 2013, FICC's full revaluation approach did not respond effectively to the levels of market volatility at that time, and the VaR Charge amounts that were calculated using the profit and loss scenarios generated by FICC's full revaluation model did not achieve a 99 percent confidence level. Thus, the VaR Charge and the Required Fund Deposit yielded backtesting deficiencies beyond FICC's risk tolerance, which prompted FICC to employ a supplemental risk charge to ensure that each Clearing Member's VaR Charge would achieve a minimum 99 percent confidence level. This supplemental charge, referred to as the margin proxy (the "Margin Proxy"), ensured that each Clearing Member's VaR Charge was adequate and, at the minimum, mirrored historical price moves.<sup>9</sup> Shortly thereafter, the annual model validation exercise revealed that FICC's prepayment model,<sup>10</sup> which is a component of the full revaluation approach, had failed to

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<sup>8</sup> MBSD Rule 4 Section 2(c).

<sup>9</sup> The Margin Proxy is currently employed to provide supplemental coverage to the VaR Charge, however, under this proposed change, the Margin Proxy would only be employed as an alternative volatility calculation in the event that the requisite data used to employ the sensitivity approach is unavailable for an extended period of time.

<sup>10</sup> Cash flow uncertainty as a result of unscheduled payments of principal (prepayments) is a key investment characteristic of most mortgage-backed securities. The existing VaR model uses a full revaluation approach that fully reprices each instrument under each historically simulated scenario. One

perform as expected due to shifting market dynamics that were not accurately captured by the model.

In connection with the above, FICC performed a review of the existing model deficiencies, examined the root causes of such deficiencies and considered options that would remediate the observed model weaknesses. As a result of this review, FICC is proposing to change MBSD's methodology for calculating the VaR Charge by:

(1) replacing the full revaluation approach with the sensitivity approach,<sup>11</sup> (2) employing the Margin Proxy as an alternative volatility calculation in the event that the requisite data used to employ the sensitivity approach is unavailable for an extended period of time, and (3) establishing a VaR Floor as the VaR Charge to address a circumstance where the proposed VaR model yields a VaR Charge amount that is lower than 5 basis points of the market value of a Clearing Member's gross unsettled positions.<sup>12</sup>

The current full revaluation method uses valuation algorithms, one component of which is FICC's prepayment model, to fully reprice each security in a Clearing Member's portfolio over a range of historically simulated scenarios. While there are benefits to this

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component of this pricing model is FICC's prepayment model. This model was implemented during the first quarter of 2013 and it is described in AN-FICC-2012-09. Securities Exchange Act Release No. 34-68498 (December 20, 2012), 77 FR 76311 (December 27, 2012) (AN-FICC-2012-09).

<sup>11</sup> Two key choices in designing a VaR model are (1) the approach used to generate simulation scenarios (e.g., historical simulation or Monte Carlo) and (2) the approach used to value the portfolio change under the simulated scenarios (e.g., full revaluation approach or sensitivity approach).

<sup>12</sup> Assuming the market value of gross unsettled positions of \$500,000,000, the VaR Floor calculation would be .0005 multiplied by \$500,000,000 = \$250,000. If the VaR model charge is less than \$250,000, then the VaR Floor calculation of \$250,000 would be set as the VaR Charge.

method, some of its deficiencies are that it requires significant historical market data inputs, calibration of various model parameters and extensive quantitative support for price simulations. FICC believes that the proposed sensitivity approach would address these deficiencies because it would leverage external vendor expertise in supplying the market risk attributes, which would then be incorporated by FICC into its model to calculate the VaR Charge. FICC would source security-level risk sensitivity data and relevant historical risk factor time series data from an external vendor for all Eligible Securities.<sup>13</sup> The sensitivity data is generated by the vendor based on its econometric, risk and pricing models. Because the quality of this data is an important component of calculating the VaR Charge, FICC would conduct independent data checks to verify the accuracy and consistency of the data feed received from the vendor. With respect to the historical risk factor time series data, FICC has evaluated the historical price moves and determined which risk factors primarily explain those price changes, a practice commonly referred to as risk attribution. The following risk factors have been incorporated into MBSD's proposed VaR methodology: key rate, convexity, spread, volatility, mortgage basis and time.<sup>14</sup>

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<sup>13</sup> Specified pool trades are mapped to the corresponding positions in to-be-announced securities ("TBAs"). For options on TBAs, it should be noted that FICC's guarantee for options is limited to the intrinsic value of option positions (that is, when the underlying price of the TBA position is above the call price, the option is considered in-the-money and FICC's guarantee reflects this portion of the option's positive value) at the time of a Clearing Member's insolvency. As such, the value change of an option position would be simulated as the change in intrinsic values over the period of risk.

<sup>14</sup> These risk factors are defined as follows:

- key rate measures the sensitivity of a price change to changes in interest rates;



FICC’s proposal to use third-party risk factor data requires that FICC take steps to mitigate potential model risk. FICC has reviewed a description of the vendor’s calculation methodology and the manner in which the market data is used to calibrate the vendor’s models. FICC understands and is comfortable with the vendor’s controls, governance process and data quality standards. Additionally, FICC would conduct an independent review of the vendor’s release of a new version of the model. As described in the QRM Methodology, to the extent that the vendor changes its model and methodologies that produce the risk factors and risk sensitivities, the effect of these changes to FICC’s proposed sensitivity approach would be reviewed by FICC. Future changes to the QRM Methodology would be subject to a proposed rule change pursuant to the Act Rule 19b-4 (“Rule 19b-4”).<sup>15</sup> Modifications to the proposed VaR model may be subject to a proposed rule change pursuant to Rule 19b-4<sup>16</sup> and/or an advance notice filing pursuant to Section 806(e)(1) of Title VIII of the Dodd-Frank Wall Street Reform

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- convexity measures the degree of curvature in the price/yield relationship of key interest rates;
  - spread is the yield spread that is added to a benchmark yield curve to discount a TBA’s cash flows to match its market price, which takes into account a credit premium and the option-like feature of mortgage-backed-securities due to prepayment;
  - volatility reflects the implied volatility observed from the swaption market to estimate fluctuations in interest rates, which impact the prepayment assumptions;
  - mortgage basis captures the basis risk between the prevailing mortgage rate and a blended Treasury rate, which impacts borrowers’ refinance incentives and the model prepayment assumptions; and
  - time risk factor accounts for the time value change (or carry adjustment) over the assumed liquidation period.

<sup>15</sup> See 17 CFR 240.19b-4.

<sup>16</sup> Id.

and Consumer Protection Act, entitled the Payment, Clearing, and Settlement Supervision Act of 2010,<sup>17</sup> and Rule 19b-4(n)(1)(i) under the Act.<sup>18</sup>

Under the proposed approach, a Clearing Member's portfolio risk sensitivities would be calculated by FICC as the aggregate of the security level risk sensitivities weighted by the corresponding position market values. The portfolio risk sensitivities and the vendor supplied historical risk factor time series data would then be used by FICC's risk model to calculate the VaR Charge for each Clearing Member. More specifically, FICC would look at the historical changes of the chosen risk factors during the look-back period in order to generate risk scenarios to arrive at the market value changes for a given portfolio. A statistical probability distribution would be formed from the portfolio's market value changes.

The proposed sensitivity approach differs from the current full revaluation method mainly in how the market value changes are calculated. The full revaluation method accounts for changes in properties of mortgage-backed securities that change over time by incorporating certain historical data<sup>19</sup> to calibrate the model that generates a simulated interest rate curve. This data is used to create a distribution of returns per TBA. The proposed sensitivity approach, by comparison, would simulate the market value changes of a Clearing Member's portfolio under a given market scenario as the sum of the portfolio risk factor exposure multiplied by the corresponding risk factor movements.

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<sup>17</sup> See 12 U.S.C. 5465(e)(1).

<sup>18</sup> See 17 CFR 240.19b-4(n)(1)(i).

<sup>19</sup> Such historical data may include TBA prices, 3-day movements of interest, option-adjusted spreads, current interest term structure and swaption volatilities.

The sensitivity approach would provide three key benefits. First, the sensitivity approach incorporates both historical data and current risk factor sensitivities while the full revaluation approach is calibrated with only historical data. The proposed sensitivity approach integrates both observed risk factor changes and current market conditions to more effectively respond to current market price moves that may not be reflected in the historical price moves. This is evidenced in FICC's independent validation of the proposed model and the backtesting results. The risk factor data is sourced from an industry-leading vendor risk model with trading quality accuracy. As part of the assessment of the proposed VaR model, the independent validation of the proposed model indicated that the proposed sensitivity approach would address deficiencies observed in the existing model by leveraging external vendor expertise, which FICC does not need to develop in-house, in supplying the market risk attributes that would then be incorporated by FICC into its model to calculate the VaR Charge. FICC has also performed backtesting to validate the performance of the proposed model and determine the impact on the VaR Charge. Based on FICC's review of the backtesting results and the impact study, the sensitivity approach provides better coverage on volatile days and a material improvement in margin coverage, while not significantly increasing the overall Clearing Fund. Results of the analysis indicate that the proposed sensitivity approach would be more responsive to changing market dynamics and that it would not negatively impact FICC or its Clearing Members.

The second benefit of the proposed sensitivity approach is that it would provide more transparency to Clearing Members. Since Clearing Members typically use risk factor analysis for their own risk and financial reporting such Members would have

comparable data and analysis to assess the variation in their VaR Charge based on changes in the market value of their portfolios. Thus, Clearing Members would be able to simulate the VaR Charge to a closer degree than under the existing VaR model.

The third benefit of the proposed sensitivity approach is that it provides FICC with the ability to increase the look-back period used to generate the risk scenarios from 1 year to 10 years plus, to the extent applicable, an additional stressed period<sup>20</sup> without material re-calibration of the VaR model. The extended look-back period would be used to ensure that the historical simulation is inclusive of stressed market periods.

FICC would have the ability to include an additional period of historically observed stressed market conditions to a 10-year look-back period if FICC observes that (1) the results of the model performance monitoring are not within FICC's 99th percentile confidence level or (2) the 10-year look-back period does not contain sufficient stressed market conditions. While FICC could extend the 1-year look-back period in the existing full revaluation approach to a 10-year look-back period, the performance of the model could deteriorate if current market conditions are materially different than indicated in the historical data. Additionally, since the full revaluation method requires FICC to maintain in-house complex pricing models and mortgage prepayment models, enhancing these models to extend the look-back period to include 10-years of historical

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<sup>20</sup> Under the proposed model, the 10-year look-back period would include the 2008/2009 financial crisis scenario. To the extent that an equally or more stressed market period does not occur when the 2008/2009 financial crisis period is phased out from the 10-year look-back period (e.g., from September 2018 onward), FICC would continue to include the 2008/2009 financial crisis scenario in its historical scenarios. However, if an equally or more stressed market period emerges in the future, FICC may choose not to augment its 10-year historical scenarios with those from the 2008/2009 financial crisis.

data involves significant model development. The sensitivity approach, on the other hand, would incorporate a longer look-back period of 10 years, which would allow the proposed model to capture periods of historical volatility.

On an annual basis, FICC would assess whether an additional stressed period should be included. This assessment would include a review of (1) the largest moves in the dominating market risk factor of the proposed VaR model, (2) the impact analyses resulting from the removal and/or addition of a stressed period and (3) the backtesting results of the proposed look-back period. As described in the QRM Methodology, approval by FICC's Model Risk Governance Committee ("MRGC") and, to the extent necessary, the Management Risk Committee ("MRC") would be required to determine when to apply an additional period of stressed market conditions to the look-back period and the appropriate historical stressed period to utilize if it is not within the current 10-year period.

Finally, FICC does not believe that its engagement of the vendor would present a conflict of interest to FICC because the vendor is not an existing Clearing Member nor are any of the vendor's affiliates existing Clearing Members. To the extent that the vendor or any of its affiliates submit an application to become a Clearing Member, FICC will negotiate an appropriate information barrier with the applicant in an effort to prevent a conflict of interest from arising. An affiliate of the vendor currently provides an existing service to FICC, however, this arrangement does not present a conflict of interest because the existing agreement between FICC and the vendor, and the existing agreement between FICC and the vendor's affiliate each contain provisions which limit the sharing of confidential information.

### ***C. Proposed Change to Establish a VaR Floor***

FICC is proposing to amend the definition of VaR Charge to include a VaR Floor. The VaR Floor would be employed as an alternative to the amount calculated by the proposed model for portfolios where the VaR Floor would be greater than the model-based charge amount. FICC's proposal to establish a VaR Floor seeks to address the risk that the proposed VaR model may calculate too low a VaR Charge for certain portfolios where the VaR model applies substantial risk offsets among long and short positions in different classes of mortgage-backed securities that have a high degree of historical price correlation. Because this high degree of historical price correlation may not apply in future changing market conditions,<sup>21</sup> FICC believes that it is prudent to apply a VaR Floor that is based upon the market value of the gross unsettled positions in the Clearing Member's portfolio in order to protect FICC against such risk in the event that FICC is required to liquidate a large mortgage-backed securities portfolio in stressed market conditions.

### ***D. Vendor Data Disruption***

As noted above, FICC intends to source certain sensitivity data and risk factor data from a vendor. FICC's Quantitative Risk Management, Vendor Risk Management, and Information Technology teams have conducted due diligence of the vendor in order to evaluate its control framework for managing key risks. FICC's due diligence included

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<sup>21</sup> For example, and without limitation, certain classes of mortgage-backed securities may have highly correlated historical price returns despite having different coupons. However, if future mortgage market conditions were to generate substantially greater prepayment activity for some but not all such classes, these historical correlations could break down, leading to model-generated offsets that would not adequately capture a portfolio's risk.

an assessment of the vendor’s technology risk, business continuity, regulatory compliance, and privacy controls. FICC has existing policy and procedures for data management that includes market data and analytical data provided by vendors. These policies and procedures do not have to be amended in connection with this proposed rules change. FICC also has tools in place to assess the quality of the data that it receives from vendors.

Rule 1001(c)(1) of Regulation Systems Compliance and Integrity (“SCI”) requires FICC to establish, maintain, and enforce reasonably designed written policies and procedures that include the criteria for identifying responsible SCI personnel, the designation and documentation of responsible SCI personnel, and escalation procedures to quickly inform responsible SCI personnel of potential SCI events.<sup>22</sup> Further, pursuant to Rule 1002 of Regulation SCI, each responsible SCI personnel is responsible for determining when there is a reasonable basis to conclude that a SCI event has occurred, which will trigger certain obligations of an SCI entity with respect to such SCI events.<sup>23</sup> FICC has existing policies and procedures which reflect established criteria that must be used by responsible SCI personnel to determine whether a disruption to, or significant downgrade of, the normal operation of FICC’s risk management system has occurred as defined under Regulation SCI. These policies and procedures do not have to be amended in connection with this proposed rule change. In the event that the vendor fails to provide the requisite sensitivity data and risk factor data, the responsible SCI personnel would

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<sup>22</sup> See 17 CFR 242.1001(c)(1).

<sup>23</sup> See 17 CFR 242.1002.

determine whether a SCI event has occurred and FICC would fulfill its obligations with respect to the SCI event.

In connection with FICC's proposal to source data for the proposed sensitivity approach, FICC is also proposing procedures that would govern in the event that the vendor fails to provide sensitivity data and risk factor data. If the vendor fails to provide any data or a significant portion of the data timely, FICC would use the most recently available data on the first day that such data disruption occurs. If it is determined that the vendor will resume providing data within five (5) business days, management would determine whether the VaR Charge should continue to be calculated by using the most recently available data along with an extended look-back period or whether the Margin Proxy should be invoked, subject to the approval of DTCC's Group Chief Risk Officer or his/her designee. If it is determined that the data disruption will extend beyond five (5) business days, the Margin Proxy would be applied, subject to the approval of the MRC followed by notification to FICC's Board Risk Committee.

The Margin Proxy would be calculated as follows: (i) risk factors would be calculated using historical market prices of benchmark TBA securities and (ii) each Clearing Member's portfolio exposure would be calculated on a net position across all products and for each securitization program (i.e., Federal National Mortgage Association ("Fannie Mae") and Federal Home Loan Mortgage Corporation ("Freddie Mac") conventional 30-year mortgage-backed securities, Government National Mortgage Association ("Ginnie Mae") 30-year mortgage-backed securities, Fannie Mae and Freddie Mac conventional 15-year mortgage-backed securities, and Ginnie Mae 15-year mortgage-backed securities). The Margin Proxy would be used to calculate the VaR



Charge by multiplying the risk factor for the Fannie Mae and Freddie Mac conventional 30-year mortgage-backed securities (“base risk factor”), which is the dominant and most liquid portion of the products cleared by FICC, by the absolute value of the Clearing Member’s net position across all products, plus the sum of each risk factor spread to the base risk factor multiplied by the absolute value of its corresponding position.<sup>24</sup>

FICC would calculate the Margin Proxy on a daily basis and the Margin Proxy method would be subject to monthly performance review by the MRGC. FICC would monitor the performance of the calculation on a monthly basis to ensure that it could be used in the circumstance described above. Specifically, FICC would monitor each Clearing Member’s Required Fund Deposit and the aggregate Clearing Fund requirements versus the requirements calculated by Margin Proxy. FICC would also backtest the Margin Proxy results versus the three-day profit and loss based on actual market price moves. If FICC observes material differences between the Margin Proxy calculations and the aggregate Clearing Fund requirement calculated using the proposed

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<sup>24</sup> To illustrate the Margin Proxy calculation, consider an example where a Clearing Member has a portfolio with a net long position across all products of \$2 billion, and the base risk factor is 0.015. Further assume the Clearing Member has a net short position of \$30 million in Fannie Mae and Freddie Mac conventional 15-year mortgage-backed securities, and the corresponding risk factor spread to the base risk factor is 0.006; a net short position of \$500 million in Ginnie Mae 30-year mortgage-backed securities, and the corresponding risk factor spread is 0.005; and a net long position of \$120 million in Ginnie Mae 15-year mortgage-backed securities, and the corresponding risk factor spread is 0.007. In order to generate the Margin Proxy calculation, FICC would multiply the base risk factor by the absolute value of the Clearing Member’s net position across all products, plus the sum of each risk factor spread of the subsequent products multiplied by absolute value of the position for the respective product (i.e.,  $([\text{base risk factor}] * \text{ABS}[\text{portfolio net position}]) + ([\text{CONV15 spread risk factor}] * \text{ABS}[\text{CONV15 net position}]) + ([\text{GNMA30 spread risk factor}] * \text{ABS}[\text{GNMA30 net position}]) + ([\text{GNMA15 Spread Risk Factor}] * \text{ABS}[\text{GNMA15 Net Position}]))$ ). The resulting Margin Proxy amount would be \$33.52 million.

VaR model, or if the Margin Proxy's backtesting results do not meet FICC's 99 percent confidence level, management may recommend remedial actions to the MRGC, and to the extent necessary the MRC, such as increasing the look-back period and/or applying an appropriate historical stressed period to the Margin Proxy calibration.

***E. Proposed Change to Replace the Historic Index Volatility Model with a Haircut Method to Measure the Risk Exposure of Securities That Lack Historical Data***

Occasionally, portfolios contain classes of securities that reflect market price changes not consistently related to historical risk factors. The value of these securities is often uncertain because the securities' market volume varies widely, thus the price histories are limited. Since the volume and price information for such securities is not robust, a historical simulation approach would not generate VaR Charge amounts that adequately reflect the risk profile of such securities. Currently, MBSD Rule 4 provides that FICC may use a historic index volatility model to calculate the VaR component of the Required Fund Deposit for these classes of securities. FICC is proposing to amend Rule 4 to replace the historic index volatility model with a haircut method.

FICC believes that the haircut method would better capture the risk profile of these securities because the lack of adequate historical data makes it difficult to map such securities to a historic index volatility model. FICC is proposing to calculate the component of the Required Fund Deposit applicable to these securities by applying a fixed haircut level to the gross market value of the positions. FICC has selected an initial haircut of 1 percent based on its analysis of a five-year historical study of three-day returns during a period that such securities were traded. This percentage would be reviewed annually or more frequently if market conditions warrant and updated, if necessary, to ensure sufficient coverage.

Currently, the classes of securities that lack adequate historical data include balloon Fannie Mae 7-year securities, balloon Freddie Mac 5-year securities and balloon Freddie Mac 7-year securities. FICC has no exposure to these security classes as of the filing date of this proposed rule change and has had negligible exposure over the last several years. However, prudent risk management dictates that FICC maintain appropriate rules to cover potential future exposures.

***F. Proposed Change to Eliminate the Coverage Charge Component and the Margin Requirement Differential Component***

FICC is also proposing to eliminate the Coverage Charge and MRD components from MBSD's Required Fund Deposit calculation. Both components are based on historical portfolio activity, which may not be indicative of a Clearing Member's current risk profile, but were determined by FICC to be appropriate to address potential shortfalls in margin charges under the existing VaR model.

As part of the development and assessment of the sensitivity approach for MBSD's proposed VaR model, FICC obtained an independent validation of the proposed model by an external party, backtested the model's performance and analyzed the impact of the margin changes. Results of the analysis indicated that the proposed sensitivity approach would be more responsive to changing market dynamics and a Clearing Member's portfolio composition coverage than the existing model. The model validation and backtesting analysis also demonstrated that the proposed sensitivity model would provide sufficient margin coverage on a standalone basis. Because testing and validation of MBSD's proposed VaR model show a material improvement in margin coverage, FICC believes that the Coverage Charge and MRD components are no longer necessary.

### ***G. Description of the Proposed Changes to the Text of the MBSD Rules***

The proposed changes to the MBSD Rules are as follows:

- Delete the term “Coverage Charge” from Rule 1 because FICC is proposing to eliminate this component from the Clearing Fund calculation.
- Delete the references to the Coverage Charge and the MRD in Rule 4 Section 2(c) because FICC is proposing to eliminate these components from the Clearing Fund calculation.
- Amend the term “VaR Charge” to reflect that (x) an alternative volatility calculation would be employed in the event that the requisite data used to employ the sensitivity approach is unavailable for an extended period of time and (y) the VaR Floor would be utilized as the VaR Charge if the proposed VaR methodology yields an amount that is lower than 5 basis points of the market value of a Clearing Member’s gross unsettled positions.
- Replace the reference to the “historic index volatility model” with “haircut method” in Rule 4 Section 2 to reflect the method that would be used for classes of securities where the volatility is less amendable to statistical analysis.

### ***H. Description of the QRM Methodology***

The QRM Methodology document provides the methodology by which FICC would calculate the VaR Charge with the proposed sensitivity approach as well as other components of the Required Fund Deposit calculation. The document specifies (i) the model inputs, parameters, assumptions and qualitative adjustments, (ii) the calculation used to generate Required Fund Deposit amounts, (iii) additional calculations used for

benchmarking and monitoring purposes, (iv) theoretical analysis, (v) the process by which the VaR methodology was developed as well as its application and limitations, (vi) internal business requirements associated with the implementation and ongoing monitoring of the VaR methodology, (vii) the model change management process and governance framework (which includes the escalation process for adding a stressed period to the VaR calculation), and (viii) the Margin Proxy calculation.

## 2. Statutory Basis

Section 17A(b)(3)(F) of the Act, requires, in part, that the rules of a clearing agency be designed “to assure the safeguarding of securities and funds which are in the custody or control of the clearing agency or for which it is responsible”.<sup>25</sup>

The proposed rule change, which has been described in detail above, consists of proposals to (1) implement the sensitivity approach in order to correct the existing deficiencies in the existing VaR methodology, (2) establish the Margin Proxy as a back-up to the sensitivity approach, (3) establish a VaR Floor as the minimum VaR Charge, (4) apply a haircut to securities that have market price changes that are not consistently related to historical risk factors, and (5) remove the Coverage Charge component and the MRD component from the Required Fund Deposit calculation. These changes have been designed to assure the safeguarding of securities and funds that are in the custody or control of FICC or for which it is responsible. The changes would enable FICC to better limit its credit exposure to Clearing Members arising out of the activity in their portfolios. The proposed changes would work collectively to help ensure that FICC would collect adequate margin from its Clearing Members. Therefore, FICC believes the

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<sup>25</sup> See 15 U.S.C. 78q-1(b)(3)(F).

proposed changes would serve to safeguard the securities and funds that are in the custody and control of FICC or for which it is responsible.

In addition, FICC believes that the proposed rule changes are consistent with the requirements of Rules 17Ad-22(b)(1) and (b)(2) under the Act.<sup>26</sup> Rule 17Ad-22(b)(1) requires a registered clearing agency that performs central counterparty services to establish, implement, maintain and enforce written policies and procedures reasonably designed to measure its credit exposures to its participants at least once a day and limit its exposures to potential losses from defaults by its participants under normal market conditions so that the operations of the clearing agency would not be disrupted and non-defaulting participants would not be exposed to losses that they cannot anticipate or control.<sup>27</sup> Taken together, the proposed changes referenced in the previous paragraph would continue FICC's practice of measuring its credit exposures at least once a day and would collectively enhance the risk-based margining framework whose objective would be to calculate each Clearing Member's Required Fund Deposit such that in the event of a Clearing Member's default, its own Required Fund Deposit would be sufficient to mitigate potential losses to FICC associated with the liquidation of such defaulted Clearing Member's portfolio.

Rule 17Ad-22(b)(2) under the Act requires a registered clearing agency that performs central counterparty services to establish, implement, maintain and enforce written policies and procedures reasonably designed to use margin requirements to limit its credit exposures to participants under normal market conditions and use risk-based

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<sup>26</sup> See 17 CFR 240.17Ad-22(b)(1) and (b)(2).

<sup>27</sup> See 17 CFR 240.17Ad-22(b)(1).

models and parameters to set margin requirements and review such margin requirements and the related risk-based models and parameters at least monthly.<sup>28</sup> The proposed changes referenced above in the second paragraph of this section would collectively constitute a risk-based model and parameters that would establish margin requirements for Clearing Members. This risk-based model and parameters would use margin requirements to limit FICC's credit exposure to its Clearing Members by enabling FICC to identify the risk posed by a Clearing Member's unsettled portfolio and to quickly adjust and collect additional deposits as needed to cover those risks. In order to mitigate counterparty exposure to each Clearing Member, under the proposed rule changes, FICC would calculate the VaR of the unsettled obligations of each Member to a 99 percent confidence interval with a three-day liquidation hedge/horizon, as the basis for its Clearing Fund requirement.

Because the proposed changes are designed to calculate each Clearing Member's Required Fund Deposit at a 99 percent confidence level, FICC believes each Clearing Member's Required Fund Deposit would cover its own losses in the event that such Member defaults under normal market conditions.

FICC believes that the proposed changes are consistent with Rules 17Ad-22(e)(4) and (e)(6) of the Act, which were recently adopted by the Commission.<sup>29</sup> Rule 17Ad-

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<sup>28</sup> See 17 CFR 240.17Ad-22(b)(2).

<sup>29</sup> The Commission adopted amendments to Rule 17Ad-22, including the addition of new section 17Ad-22(e), on September 28, 2016. See Securities Exchange Act Release No. 78961 (September 28, 2016), 81 FR 70786 (October 13, 2016) (S7-03-14). The amendments to Rule 17ad-22 become effective on December 12, 2016. Id. FICC is a "covered clearing agency" as defined in Rule 17Ad-22(a)(5) and must comply with new section (e) of Rule 17Ad-22 by April 11, 2017. Id.

22(e)(4) will require FICC to establish, implement, maintain and enforce written policies and procedures reasonably designed to effectively identify, measure, monitor, and manage its credit exposures to participants and those exposures arising from its payment, clearing, and settlement processes.<sup>30</sup> The proposed changes referenced above in the second paragraph of this section would enhance FICC's ability to identify, measure, monitor and manage its credit exposures to Clearing Members and those exposures arising from its payment, clearing, and settlement processes. Therefore, FICC believes the proposed changes are consistent with the requirements of Rule 17Ad-22(e)(4), promulgated under the Act, cited above.

Rule 17Ad-22(e)(6) will require FICC to 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 is monitored by management on an ongoing basis and regularly reviewed, tested, and verified.<sup>31</sup> FICC's proposal to (1) implement the sensitivity approach in order to correct the existing deficiencies in the existing VaR methodology, (2) establish the Margin Proxy as a back-up to the sensitivity approach, (3) establish a VaR Floor as the minimum VaR Charge, and (4) apply a haircut to securities that have market price changes that are not consistently related to historical risk factors would help FICC to cover its credit exposures to Clearing Members because these proposed changes establish a risk-based margin system that would be monitored by FICC management on an ongoing basis and

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<sup>30</sup> See Exchange Act Release No. 78961 (September 28, 2016), 81 FR 70786 (October 13, 2016) (S7-03-14).

<sup>31</sup> Id.



regularly reviewed, tested, and verified. Therefore, FICC believes that the proposed changes are consistent with the requirements of Rule 17Ad-22(e)(6), promulgated under the Act, cited above.

For these reasons, FICC believes that the proposed rule changes are consistent with the requirements of the Act and the rules and regulations promulgated thereunder applicable to FICC, in particular Section 17A(b)(3)(F) of the Act,<sup>32</sup> Rules 17Ad-22(b)(1) and (b)(2), and Rules 17Ad-22(e)(4) and (e)(6) promulgated under the Act,<sup>33</sup> because the changes provide FICC with the ability to better manage the risks associated with a Clearing Member's portfolio, in a manner that assures the safeguarding of securities and funds that are in the custody or control of FICC or for which it is responsible.

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

FICC believes that the proposed rule change could have an impact upon competition because implementation of the risk management changes that comprise the proposed rule change would produce changes in the daily calculations of Clearing Members' Required Fund Deposits and thus will either increase or decrease Clearing Members' Required Fund Deposits for each day when compared to the methodology that FICC currently uses. The proposed methodology could both burden competition and promote competition, at different points in time, by altering Clearing Members' Required Fund Deposits. At any point in time when the proposed methodology produces relatively greater increases in Required Fund Deposits for Clearing Members that have lower

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<sup>32</sup> See 15 U.S.C. 78q-1(b)(3)(F).

<sup>33</sup> See 17 CFR 240.17Ad-22(b)(1) and (b)(2). See Exchange Act Release No. 78961 (September 28, 2016), 81 FR 70786 (October 13, 2016) (S7-03-14).

operating margins or higher costs of capital than other Clearing Members, the proposed change would burden competition. Conversely, when such Clearing Members' Required Fund Deposits are reduced because of the proposed methodology, the change would promote competition. Because (i) all Clearing Members are expected to experience both increases and decreases in Required Fund Deposits compared to the amounts that would be calculated using the current methodology, depending on each Clearing Member's particular portfolio and market conditions, and (ii) no particular category of Clearing Member is expected to experience materially greater increases or decreases than other Clearing Members, FICC believes that the proposed change will not impose a significant burden on competition.

FICC believes that any burden on competition that is created by the proposed rule change is necessary in furtherance of the Act because, as described above, the MBSD Rules must be designed to assure the safeguarding of securities and funds that are in its custody or control or for which it is responsible.<sup>34</sup> The proposed rule change would support FICC's compliance with Rules 17Ad-22(b)(1) and (2), which require FICC to employ policies and procedures reasonably designed to limit its credit exposures to participants and use risk-based models and parameters to set margin requirements.<sup>35</sup> The proposed rule change would also support FICC's compliance with Rules 17Ad-22(e)(4) and (e)(6), which will require FICC to employ policies and procedures reasonably designed to (x) effectively identify, measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes, and

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<sup>34</sup> See 15 U.S.C. 78q-1(b)(3)(F).

<sup>35</sup> See 17 CFR 240.17Ad-22(b)(1) and (2).

(y) cover its credit exposures to its participants by establishing a risk-based margin system that is monitored by management on an ongoing basis and regularly reviewed, tested, and verified.<sup>36</sup> FICC believes that the risk management changes that comprise the proposed rule change are also appropriate in furtherance of the Act because they enhance FICC's methodology for calculating margin requirements by implementing an improved risk-based approach that provides better coverage for FICC with respect to its credit exposures to Clearing Members while reducing Clearing Members' Required Fund Deposits when averaged across time. The financial impact of and risk management benefit of each change is further described below.

Utilization of the proposed sensitivity approach instead of a full revaluation approach is expected generally to generate higher VaR Charges during volatile market periods and lower VaR Charges during normal market conditions. While the degree of impact depends upon each Clearing Member's particular portfolio, Clearing Members that submit similar portfolios will have similar impacts to their VaR Charges during both volatile and normal market conditions. To the extent that a Clearing Member's portfolio may pose a greater risk to FICC than would have been captured under the full revaluation approach, such Clearing Member will have higher VaR Charges, particularly during volatile market conditions. FICC believes that any burden on competition that derives from such increased VaR Charges is necessary in furtherance of the Act because the improved approach corrects the deficiencies in the existing model and it provides better margin coverage for FICC.

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<sup>36</sup> See Securities Exchange Act Release No. 78961 (September 28, 2016), 81 FR 70786 (October 13, 2016) (S7-03-14).

FICC conducted a study of the impact of implementing the proposed sensitivity approach on each Clearing Member's portfolio. The study, which covered two and a half years, revealed that the sensitivity approach is more responsive to changing market conditions. In addition, FICC observed that Clearing Members with portfolios reflecting similar net long/short positions, products and maturity characteristics had similar levels of sensitivity to risk factors, which resulted in comparable Required Fund Deposit amounts.

FICC also backtested the performance of the proposed sensitivity approach from January 2013 to February 2016. This analysis revealed that, under the proposed sensitivity approach, the backtesting coverage would have increased for Clearing Members that comprise over 80 percent of FICC's clearance and settlement activity, despite the fact that the average total Required Fund Deposit amount would have been lower for that time period under the proposed model. This improvement was observed for each Clearing Member with respect to its portfolio, product and maturity levels—most notably in the Fannie Mae 30-year products and Freddie Mac 30-year products, which represent approximately 62 percent of FICC's TBA risk exposure. Implementing the proposed sensitivity approach improves the risk-based model that FICC employs to set margin requirements and better limits FICC's credit exposures to participants. FICC therefore believes that any burden on competition that derives from implementing the sensitivity approach is necessary in furtherance of FICC's obligations under the Act and Rules 17Ad-22(b) and (e).<sup>37</sup>

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<sup>37</sup> See 17 CFR 240.17Ad-22(b). See Securities Exchange Act Release No. 78961 (September 28, 2016), 81 FR 70786 (October 13, 2016) (S7-03-14).

Implementation of the proposed Margin Proxy establishes an alternative methodology that would be used to calculate the VaR Charge in the event of a disruption in the availability of vendor data needed to operate the VaR model with a high degree of confidence using the sensitivities approach. Invocation of the Margin Proxy would likely produce slightly higher VaR Charges for Clearing Members compared to the VaR model if reliable data were available because it would reduce certain risk offsets among portfolio positions. The Margin Proxy is expected to be invoked rarely. Additionally, FICC's ongoing monitoring of the Margin Proxy will ensure that the Margin Proxy, if invoked, would calculate VaR Charges that are reasonably consistent with the sensitivity approach. FICC believes that any burden on competition from the availability of the Margin Proxy as an alternative that FICC may invoke under limited circumstances is appropriate in furtherance of the Act because it ensures that FICC will continue to have a methodology that it could use to calculate the VaR Charge in the event that a vendor data disruption reduces the reliability of the VaR model, thereby better limiting FICC's credit exposures to participants under such circumstances.

The proposed removal of the Coverage Charge and MRD, as a component of the risk management changes that comprise the proposed rule change, would reduce Clearing Members' Required Fund Deposits by eliminating charges that are no longer necessary following implementation of the other changes that comprise the proposed rule change. FICC believes that any burden on competition that derives from eliminating the Coverage Charge and MRD is appropriate in furtherance of the Act because the proposed changes support FICC's implementation of policies and procedures reasonably designed to limit its credit exposures to participants and use of risk-based models to set margin

requirements. FICC believes that it should not maintain elements of the prior model that are no longer necessary and would unnecessarily increase Clearing Members' Required Fund Deposits.

The proposed haircut method approach for securities with inadequate historical pricing data could result in higher Required Fund Deposit amounts for portfolios with these classes of securities. FICC believes that any burden on competition that derives from implementing this change is appropriate in furtherance of the Act because the haircut approach provides a better assessment of the risks associated with these securities and therefore would enhance FICC's ability to limit its credit exposures to participants.

Finally, the proposed VaR Floor establishes a minimum VaR Charge for Clearing Members that have portfolios with long and short positions in different classes of mortgage-backed securities that have a high degree of historical price correlation. Implementing the VaR Floor will likely increase Required Fund Deposits for such Clearing Members because such portfolios might generate a lower VaR Charge using the VaR model alone. FICC believes that any burden on competition that derives from this change is necessary in furtherance of the Act because the proposed VaR Floor addresses the risk that the proposed VaR model may calculate too low a VaR Charge for such portfolios. The proposed VaR Floor would protect FICC in the event that FICC is required to liquidate a large mortgage-backed securities portfolio in stressed market conditions and therefore would enhance FICC's ability to limit its credit exposures to participants.

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

Written comments relating to the proposed rule changes have not been solicited or received. FICC will notify the Commission of any written comments received by FICC.

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 self-regulatory organization 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.

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

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-FICC-2016-007 on the subject line.

Paper Comments:

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

All submissions should refer to File Number SR-FICC-2016-007. 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 am and 3:00 pm. Copies of the filing also will be available for inspection and copying at the principal office of FICC and on FICC's website (<http://www.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-FICC-2016-007 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>38</sup>

Eduardo A. Aleman  
Assistant Secretary

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<sup>38</sup> 17 CFR 200.30-3(a)(12).