

Partial Revision of Margin Calculation Method for Listed Derivatives

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Japan Securities Clearing Corporation

I. Purpose

Under JSCC's current clearing structure, the loss compensation framework is structured in such manner that if loss arises as a result of a default of a Clearing Participant in respect of Listed Derivatives trading, such loss shall be compensated with collateral (i.e., margin and Clearing Fund) deposited by the defaulting Clearing Participant, in the first place, and, if there is any shortage, such losses are compensated by the loss compensation contribution from the designated market operator, JSCC's Securities and Similar Contracts Settlement Guarantee Reserve and the Clearing Fund contribution and special clearing charge contribution from Clearing Participants other than defaulting Clearing Participant.

With respect to such loss compensation framework for the Listed Derivatives trading, JSCC will conduct necessary revisions, such as the introduction of margin requirement calculation method taking into account features of market size, etc. of products eligible for clearing and the revision of update frequency of Clearing Fund requirement to further refine such framework in light of the international regulatory environments, such as the CPSS¹-IOSCO Principles for Financial Market Infrastructures (PFMI), etc. and thereby enhance JSCC's international competitiveness.

II. Overview

Item	Overview	Remarks
1. Establishment of Margin Requirement Add-on Scheme according to Risk Amount (Position Holding Level) (1) Purpose	<ul style="list-style-type: none">In Listed Derivatives trading, upon default of a Clearing Participant (JGB	<ul style="list-style-type: none">With respect of Listed Derivatives trading,

¹ Name as of publication of PFMI. Currently known as "CPMI (Committee on Payments and Market Infrastructures)."

Item	Overview	Remarks
<p>(2) Add-on Judgment Criteria and Judgment Method</p> <p>(3) Add-on Charge Calculation</p>	<p>Futures Clearing Participant and Index Futures Clearing Participant only; the same applies hereinafter) holding extremely large position in light of liquidity or position holding level of other Clearing Participants related to the relevant product, period required for liquidation of positions is likely to become longer comparing to a default of other Clearing Participants, and loss arising from such default may not be covered by normal margin requirement. So, to cover excess loss expected as a result of emergence of such risk, JSCC will establish margin requirement add-on scheme.</p> <ul style="list-style-type: none"> • If it is expected that loss exceeding margin requirement may arise from liquidation of position held by a Clearing Participant within the normal holding period, JSCC will charge margin requirement add-on on the relevant Clearing Participant to cover such loss in advance. • Specifically, products subject to clearing are classified into JGB Futures Commodity Group and Index Futures Commodity Group, and then whether or not it is necessary to charge add-on margin requirement is judged based on comparison of outstanding position of each Clearing Participant in each Commodity Group against liquidity of the product subject to clearing (trading volume) (“Liquidity Criteria,” the same applies hereinafter), and measurement of position concentration level (“Concentration Criteria,” the same shall apply hereinafter). • Margin requirement add-on will be the greater of the excess loss based on 	<p>JSCC requests that Clearing Participants and Customers deposit margin as defaulter-pay type collateral, and normal margin requirements are calculated to cover price fluctuation risk for 1 day (holding period) under normal market conditions.</p> <ul style="list-style-type: none"> • Judgment as to whether or not to charge margin requirement add-on is made based on proprietary position and customer portion respectively as of the end of each business day. See Annex for detailed judgment method. • Products under each Commodity Group will be separately designated by JSCC and notified to Clearing Participants in advance.

Item	Overview	Remarks
<p>Method</p> <p>(4) Account subject to Add-on</p> <p>(5) Treatment when Calculating Intraday Margin</p>	<p>Liquidity Criteria and excess loss based on Concentration Criteria calculated by JSCC.</p> <ul style="list-style-type: none"> • Margin requirement add-on will be charged as an addition to margin requirement for Clearing Participant's proprietary account. • However, if margin requirement add-on has occurred due to position of a specific customer, the Clearing Participant may, with a prior consent of the relevant customer, request margin requirement add-on for the customer account in lieu of add-on for its proprietary account. In this case, JSCC will charge add-on to margin requirement for the customer account according to such request. • When a Clearing Participant is subject to margin requirement add-on in respect of its proprietary account at the time of intraday margin call, such add-on charge shall be added to intraday margin requirement. 	<ul style="list-style-type: none"> • Add-on charge will be calculated for proprietary position and customer position respectively. • See Annex for Liquidity Threshold, Concentration Threshold and excess loss calculation methods. • Add-on charge to margin requirement will be notified to the Clearing Participant subject to such add-on via e-mail. • Similarly as in the case of normal margin requirement, such add-on charge shall be deposited by noon on the next business day following the application of such add-on charge. • Request from Clearing Participant shall be submitted via JSCC-Target.

Item	Overview	Remarks
3. Implementation Date	<ul style="list-style-type: none"> • These revisions will be implemented around summer of 2016. • From viewpoint of smooth transition, JSCC will conduct simulation of margin requirement add-on judgment from around 1 month prior to the implementation date, and notify simulation results to the Clearing Participant which becomes subject to add-on. 	Fund in the amount at least equal to such shortfall by 2:00p.m. on the next business day.

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Initial Margin Requirement Add-on Trigger Judgment and Calculation Method

1. Initial Margin Requirement Add-on Trigger Judgment Method

(1) Determine Liquidity Threshold and Concentration Threshold¹

① Liquidity Threshold Calculation Method

- Threshold for judging necessity of margin requirement add-on under the Liquidity Criteria (hereinafter referred to as “Liquidity Threshold”) is determined for each Commodity Group by classifying commodities² subject to margin requirement add-ons into JGB Futures Commodity Group and Index Futures Commodity Group.
- Specifically, conversion base issue³ is designated for each Commodity Group, and trading volume converted into the equivalent value in the conversion base issue is obtained by multiplying the trading volume of each issue of the covered product on each trading day by the multiplier for converting each issue’s volume/position into the conversion base issue (hereinafter referred to as “Volume/Position Adjustment Multiplier⁴”) (such converted value shall be hereinafter referred to as “Base Issue Equivalent Trading Volume by Issue”).

Volume/Position Adjustment Multiplier :

$$\text{Beta Value}^5 \times \text{Delta Value}^6 \times (\text{Closing Price of Underlying Asset of each Issue} / \text{Closing Price of Underlying Asset of Conversion Base Issue}^7) \times \text{Trading Unit Adjustment Ratio}^8$$

Base Issue Equivalent Trading Volume by Issue : Trading Volume of each issue on a trading day × Volume/Position Adjustment Multiplier for relevant

¹ In principle, Liquidity Threshold and Concentration Threshold are calculated as of the last business day of the previous month as the Calculation Base Date. JSCC will publish Liquidity Threshold and Concentration Threshold on the 1st business day of a month, which shall apply from the judgment made on the 3rd business day of a month (for deposit on 4th business day of a month). However, if JSCC considers necessary, JSCC may revise Liquidity Threshold and Concentration Threshold on an ad hoc basis.

² For the time being, covered products are 10 year JGB Futures, 10 year JGB Futures mini trade and option on 10 year JGB Futures as to JGB Futures Commodity Group and Nikkei 225 Futures, Nikkei 225 mini trades and Nikkei 225 option and TOPIX Futures, TOPIX mini trades and TOPIX option as to Index Futures Commodity Group.

³ For the time being, conversion base issue will be central contract month of 10 year JGB Futures for JGB Futures Commodity Group and nearest contract month of Nikkei 225 Futures for Index Futures Commodity Group.

⁴ Volume/Position Adjustment Multiplier is a variable used in the calculation of Liquidity Threshold, Concentration Threshold and Participant’s Outstanding Position, and JSCC will calculate Volume/Position Adjustment Multiplier for each issue daily and notify it to Clearing Participants.

⁵ Beta Value is a coefficient to convert each subject issue to the conversion base issue, and JSCC will calculate the correlation coefficient between each subject issue and the conversion base issue daily, and notify it to Clearing Participants.

⁶ Delta Value is a coefficient to convert the option into futures, and JSCC will calculate it daily, and notify it to Clearing Participants.

⁷ For the time being, Settlement Price for the central contract month of 10 year JGB Futures is used as the closing price of the underlying assets for JGB Futures Commodity Group.

⁸ Trading Unit Adjustment Ratio is obtained as “Trading Unit of each Issue / Trading Unit of Conversion Base Issue.”

issue on that trading day

- Then, Base Issue Equivalent Trading Volumes by Issue are aggregated by each Commodity Group, which will be the base trading volume for each Commodity Group on each trading day (hereinafter referred to as “Base Trading Volume by Commodity Group”).

Base Trading Volume by Commodity Group : Sum total, by each Commodity Group, of Base Issue Equivalent Trading Volumes by Issue on a trading day

- Lastly, average of Base Trading Volume by Commodity Group for each trading day during past 60-day period counting backwards from Calculation Base Date is obtained, and Liquidity Threshold is obtained by multiplying such average by multiplier prescribed by JSCC (hereinafter referred to as “Liquidity Threshold Calculation Multiplier”).

Liquidity Threshold : Average Base Trading Volume by Commodity Group for each trading day during past 60-day period × Liquidity Threshold Calculation Multiplier⁹

② Concentration Threshold Calculation Method

- Threshold for judging necessity of margin requirement add-on under the Concentration Criteria (hereinafter referred to as “Concentration Threshold”) is determined for each combination of Commodity Group and Trade Type by classifying commodities² subject to margin add-ons into JGB Futures Commodity Group and Index Futures Commodity Group, and then further classifying each Commodity Group into Futures and Option (Trade Type).
- Specifically, similarly as in the case of calculation of Liquidity Threshold, conversion base issue is designated for each Commodity Group³, and outstanding position converted into the equivalent value in the conversion base issue is obtained by multiplying the outstanding position of each issue of each covered product on Calculation Base Date by the Volume/Position Adjustment Multiplier⁴ (such converted value shall be hereinafter referred to as “Base Issue Equivalent Outstanding Position for each Issue”).

Base Issue Equivalent Outstanding Position for each Issue :

Outstanding Position of each Issue on Calculation Base Date × Volume/Position Adjustment Multiplier on the relevant Calculation Base Date

- Then, Base Issue Equivalent Outstanding Positions for each issue are aggregated by each combination of Commodity Group and Trade Type, which will be the base outstanding position for each combination of Commodity Group and Trade Type (hereinafter referred to as “Base Outstanding Position by Commodity Group/Trade Type”).

Base Outstanding Position by Commodity Group/Trade Type (Futures) :

⁹ JSCC will set such multiplier and notify it to Clearing Participants.

Sum total, by each Commodity Group, of Base Issue Equivalent Outstanding Positions for each issue of Futures on the Calculation Base Date

Base Outstanding Position by Commodity Group/Trade Type (Option) :

Sum total, by each Commodity Group, of Base Issue Equivalent Outstanding Position for each issue of Option Transactions on the Calculation Base Date.

- Lastly, Concentration Threshold will be obtained by multiplying Base Outstanding Position by Commodity Group/Trade Type by the multiplier designated by JSCC (hereinafter referred to as “Concentration Threshold Calculation Multiplier”).

Concentration Threshold (Futures) : Base Outstanding Position by Commodity Group/Trade Type (Futures) × Concentration Threshold Calculation Multiplier⁹

Concentration Threshold (Option) : Base Outstanding Position by Commodity Group/Trade Type (Option) × Concentration Threshold Calculation Multiplier⁹

(2) Quantify Outstanding Position Held by each Clearing Participant to be Used for Judgment¹⁰① Quantify Outstanding Position Held by each Clearing Participant to be Used for Judgment based on Liquidity Criteria¹⁰

- Outstanding position of a Clearing Participant as of the end of a trading day (hereinafter referred to as “as of EOD”) is classified into JGB Futures Commodity Group and Index Futures Commodity Group, to quantify outstanding position for judgment based on Liquidity Criteria by each Commodity Group.
- Specifically, first of all, outstanding position converted into the equivalent value in the conversion base issue is calculated by multiplying outstanding position of each issue held by a Clearing Participant by the Volume/Position Adjustment Multiplier⁴ (hereinafter referred to as “Adjusted Outstanding Position by Issue”).

Adjusted Outstanding Position by Issue :

Outstanding Position for each Issue as of EOD on a Trading day × Volume/Position Adjustment Multiplier for that Trading day

- Then, Adjusted Outstanding Positions by each Issue is aggregated by Commodity Group for each of Proprietary Account and Customer Accounts, to obtain outstanding position held by a Participant to be used for judgment based on Liquidity Criteria (hereinafter referred to as “Participant’s Outstanding Position for Liquidity Based Judgment”) for each Commodity Group.

Participant’s Outstanding Position for Liquidity Based Judgment :

Sum total, by each Commodity Group, of Adjusted Outstanding Position by Issue on a Trading day

② Quantify Outstanding Position Held by each Clearing Participant to be Used for Judgment based on Concentration Criteria¹⁰

- Outstanding position of a Clearing Participant as of EOD is classified into JGB Futures Commodity Group and Index Futures Commodity Group, and each Commodity Group is further classified into Futures and Options, to quantify position for judgment based on Concentration Criteria by each combination of Commodity Group and Trade Type.
- Specifically, first of all, Adjusted Outstanding Position by Issue is obtained by multiplying outstanding position of each issue held by a Clearing Participant by the Volume/Position Adjustment Multiplier⁴.
- Then, Adjusted Outstanding Position by each Issue is aggregated by each combination of Commodity Group and Trade Type for each of the Proprietary Account and Customer Accounts, to obtain outstanding position held by each Participant to be used for judgment based on Concentration Criteria for each combination of Commodity Group and Trade Type (hereinafter referred to as “Participant’s Outstanding Position for Concentration Based Judgment”).

Participant’s Outstanding Position for Concentration Based Judgment (Futures) :

¹⁰ Positions held by each Participants shall be quantified separately by each of Proprietary and Customers, and used for judgment based on respective criteria.

Sum total, by each Commodity Group, of Adjusted Outstanding Position by each Issue in Futures on a Trading day

Participant's Outstanding Position for Concentration Based Judgment (Option) :

Sum total, by each Commodity Group, of Adjusted Outstanding Position by each Issue in Option Transactions on a Trading day

(3) Judgment of Whether or not to Charge Margin Requirement Add-on

① Judgment Based on Liquidity Criteria

- Liquidity Base Holding Period is obtained by dividing Participant's Outstanding Position for Liquidity Based Judgment¹¹ obtained in (2), ① for each Commodity Group by Liquidity Threshold for the relevant Commodity Group determined in (1), ①.

Liquidity Base Holding Period : Participant's Outstanding Position for Liquidity Based Judgment for each Commodity Group / Liquidity Threshold for that Commodity Group

- If holding period is longer than 1 as a result of the above calculation, it is judged that margin add-on based on Liquidity Criteria is required.

Liquidity Base Holding Period > 1

② Judgment Based on Concentration Criteria

- Concentration Base Holding Period is obtained by dividing Participant's Outstanding Position for Concentration Based Judgment¹² obtained in (2), ② for each combination of Commodity Group and Trade Type by Concentration Threshold for the relevant combination of Commodity Group and Trade Type determined in (1), ②.

Concentration Base Holding Period (Futures) :

Participant's Outstanding Position for Concentration Based Judgment (Futures) for each Commodity Group / Concentration Threshold for that Commodity Group (Futures)

Concentration Base Holding Period (Option) :

Participant's Outstanding Position for Concentration Based Judgment (Option) for each Commodity Group / Concentration Threshold for that Commodity Group (Option)

- If either or both of the Concentration Base Holding Periods is longer than 1 as a result of the above calculation, it is judged that margin add-on based on Concentration Criteria is required.

Concentration Base Holding Period (Futures) > 1

and/or

¹¹ Recalculation will be performed after excluding positions for which cross margining is requested and has become effective as of 19 : 00.

<u>Concentration Base Holding Period (Option) > 1</u>

2. Margin Requirement Add-On Charge Determination Method

(1) Calculation of Expected Excess Loss

① Calculation of Expected Excess Loss based on Liquidity Criteria

- When margin requirement add-on is judged as necessary based on Liquidity Criteria, an excess holding period expected for the liquidation of positions held by the relevant Participant (hereinafter referred to as “Liquidity Based Expected Excess Holding Period”) is obtained.

$$\text{Liquidity Based Expected Excess Holding Period} : \sqrt{\text{LiquidityBaseHoldingPeriod}} - 1 \text{ (floored at 0)}$$

- Expected excess loss based on Liquidity Criteria is obtained by multiplying Participant’s Outstanding Position for Liquidity Based Judgment obtained for each Commodity Group by Price Scan Range for the conversion base issue applicable on the trigger date (hereinafter referred to as “PSR”) and Liquidity Based Expected Excess Holding Period.

Expected Excess Loss based on Liquidity Criteria :

$$\text{Participant’s Outstanding Position for Liquidity Based Judgment} \times \text{PSR of Conversion Base Issue} \times \text{Liquidity Based Expected Excess Holding Period}$$

② Calculation of Expected Excess Loss based on Concentration Criteria

- When margin requirement add-on is judged as necessary based on Concentration Criteria, an excess holding period expected for the liquidation of positions held by the relevant Participant (hereinafter referred to as “Concentration Based Expected Excess Holding Period”) is obtained for each combination of Commodity Group and Trade Type.

$$\text{Concentration Based Expected Excess Holding Period (Futures)} : \sqrt{\text{ConcentrationBaseHoldingPeriod (Futures)}} - 1 \text{ (floored at 0)}$$

$$\text{Concentration Based Expected Excess Holding Period (Option)} : \sqrt{\text{ConcentrationBaseHoldingPeriod (Option)}} - 1 \text{ (floored at 0)}$$

- Expected excess loss based on Concentration Criteria is obtained as sum total of the value obtained by multiplying each Participant’s Outstanding Position for Concentration Based Judgment (for Futures and for Option) calculated separately by each Commodity Group by PSR for the conversion base issue applicable on

the trigger date and Concentration Based Expected Excess Holding Period.

Expected Excess Loss Based on Concentration Criteria (Futures) :

Participant's Outstanding Position for Concentration Based Judgment (Futures) × PSR for Conversion Base Issue × Concentration Based Expected Excess Holding Period (Futures)

Expected Excess Loss Based on Concentration Criteria (Option) :

Participant's Outstanding Position for Concentration Based Judgment (Option) × PSR for Conversion Base Issue × Concentration Based Expected Excess Holding Period (Option)

Expected Excess Loss Based on Concentration Criteria :

Expected Excess Loss Based on Concentration Criteria (Futures)+ Expected Excess Loss Based on Concentration Criteria (Option)

(2) Determination of Margin Requirement Add-on Charge

- Margin requirement add-on charge is greater of the Expected Excess Loss Based on Liquidity Criteria and the Expected Excess Loss Based on Concentration Criteria obtained above.

Margin Requirement Add-on Charge :

Max (Expected Excess Loss Based on Liquidity Criteria, Expected Excess Loss Based on Concentration Criteria)

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