

Method of Reflecting Correlations in Calculating Additional IM in Addition to Base IM

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Japan Securities Clearing Corporation

JSCC has specified the method of reflecting correlations concerning the interest rate fluctuations risk for use in calculating an additional Initial Margin in addition to Base IM for positions with a large amount of risks in accordance with the provision set forth in Article 23.3. of its Handling Procedures of Interest Rate Swap Business Rules, as described below.

If the risk amount calculated for each IRS Clearing Participant's Proprietary account or each Customer account according to the classification of tenor buckets (i.e. 1Y, 2Y, 5Y, 7Y, 10Y, 20Y, 30Y and 40Y) ("PV01") exceeds the Base PV01 that is determined based on JSCC's market surveys on its IRS Clearing Participants (which is the PV01 with a certain level of risks specified by JSCC and set forth in Article 29.2. of its Interest Rate Swap Clearing Business Rules), the amount representing such excess, multiplied by Criterial Basis Point which are determined based on market surveys on IRS Clearing Participants as the liquidity risk by the level of PV01, will be deemed as the risk amount for each tenor bucket.

In addition to the correlation coefficients of the day which are calculated based on the daily interest rate fluctuations between tenors for the past six months (or 125 business days), the correlations at the end of each month during the period from April 2008 to March 2009 and the period from October 2012 to September 2013, in which significant fluctuations in correlations were observed (25 points of time), will be taken into account in calculating Liquidity Charge. Of the Liquidity Charges calculated based on the correlations at the 25 points of time, the largest amount will be defined as the additional IM for each proprietary account or Customer account and calculated using the following

formula:

$$LC = \sigma(X) = \sqrt{V(X)} = \sqrt{\sum_{i=1}^d (Q_i C_i)^2 + \sum_{j \neq i} (Q_i C_i)(Q_j C_j) \rho_{ij}}$$

Additional IM for each Yield Curve at each point of time

$LC =$

$X =$ Changes in PV01 for each IRS Clearing Participant's Proprietary account or Customer account

$P_i =$ Risk amount for either one of the accounts (PV01) ($i=1, \dots, d$)

$Q_i = \begin{cases} P_i - \text{Base PV01} & (P_i \geq 0) \\ P_i + \text{Base PV01} & (P_i < 0) \end{cases}$ (The risk amount for such account in excess of Base PV01)

$C_i(P_i) =$ Critical Basis Point (which changes according to the risk amount above)

$\rho_{ij} =$ Correlation coefficient concerning past interest rate fluctuations between tenors

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