Outlines of Diversification and Enhancement of Stress Scenarios for Calculation of Clearing Fund in IRS Transactions

February 10, 2015

Japan Securities Clearing Corporation

Item	Description	Remarks
1. Diversification and Enhancement of Stress Scenarios for Calculation of Clearing Fund Requirements	・ JSCC will revise the scheme in order to diversify and enhance stress scenarios for the purpose of refinement of stress scenarios related to JPY denominated IRS, as well as reflection of risk features arising in association with the addition of foreign currency denominated IRS to eligible transactions for Clearing and the introduction of cross margining scheme to stress scenarios.	・ Specific scenarios are to be determined based on trial calculations and the like by the time when the revised scheme becomes effective. ・ Appropriateness of stress scenarios will be reviewed periodically and stress scenarios will be subject to revision as necessary.
(1) Introduction of Historical Scenarios	・ In order to cover risks in various portfolios, diversification of stress scenarios will be achieved by adding historical interest rate fluctuations at the time when extreme market fluctuations were observed in the past as stress scenarios.	・ See Reference 1 for stress scenarios expected to be added at the beginning. ・ Significantly large 5-day fluctuation scenario(s) during each of the subject periods will be added as stress scenarios.
(2) Enhancement of Existing Stress Scenario Generation Method	・ Current principal component analysis (hereinafter “PCA”) methodology will be revised in order to reflect actually observed interest rate fluctuations more precisely as well as to apply this methodology to stress scenarios for foreign currency denominated IRS.	・ The revision on the left enhances scalability of PCA methodology and will make it possible to reflect risk features of the products to stress scenarios by applying such methodology when expanding eligible transactions for Clearing in the future.

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	・ To be specific, the refinement of stress scenarios will be achieved by extending PCA coverage period and reflecting features of fluctuations at the times of both upside and downside interest rate fluctuations.	・ See Reference 2 for hypothetical stress scenarios initially assumed through PCA methodology (methods in (2) and (3)).
(3) Introduction of Hypothetical Scenarios Dealing with Multiple Currencies	・ In association with the addition of foreign currency denominated IRS to eligible transactions for Clearing, stress scenarios for each currency will be generated through PCA methodology mentioned in (2) in order to reflect currency specific risk features to stress scenarios. ・ Moreover, in order to reflect risk features across multiple currencies to stress scenarios, stress scenarios capturing interest rate fluctuations of multiple currencies at the same time will be generated by an application of PCA methodology mentioned in (2).	・ The method on the left makes it possible to avoid the calculation of excessive stress risk amount and to calculate more precise stress scenarios.
(4) Introduction of Scenarios Dealing with Basis Risk between Yield Curves	・ In association with the introduction of cross margining scheme, the fluctuations at the time when widening and shrink of basis between yield curves of JGB Futures, which will be a new risk factor, and JPY 6M-LIBOR are observed will be added as stress scenarios in order to reflect basis risk between such yield curves. ・ Moreover, in order to further refine stress scenarios, stress scenarios reflecting basis risks between yield curves for existing JPY IRS will also be added.	・ See Reference 3 for stress scenarios expected to be added at the beginning.
2. Dealing with Market Liquidity Risk at Stressed	・ In order to cover hedge execution costs at stressed situation (hereinafter “Market Liquidity Risk”) by increase of Initial Margin requirement for liquidity (hereinafter “Liquidity Charge”), JSCC will partially revise Liquidity Charge	・ By revising Liquidity Charge to cover Market Liquidity Risk at stressed situation, coverage of Market Liquidity Risk for large positions will become more precise. So,

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Situation	scheme. ・ To be specific, an assumption for the market survey to Clearing Participants related to Market Liquidity Risk, which will be the basis for the calculation of the Liquidity Charge amount, will be changed to the one expecting stressed situation, and the market survey summarization method will also be changed to the one expecting actual hedge execution.	JSCC will forgo the introduction of the scheme to further increase Initial Margin requirement for Clearing Participants holding such a large position that makes hedge execution difficult.
3. Implementation Timing	・ Aiming at September 2015. (Subject to the authorization by the Commissioner of Financial Services Agency.)	

End of Document

Historical Scenarios Initially Expected to be Added

Event	Timing	Concept
9.11	Around Sept. 2001	• To cover interest rate fluctuation risk related to foreign currency denominated IRS in general
VaR Shock	Around July 2003	• To cover interest rate fluctuation risk related to JPY IRS
Lehman Crisis	Around Sept. 2008	• To cover interest rate fluctuation risk related to IRS denominated in all subject currencies
Euro Crisis	Around Oct. 2009 to 2010	• To specifically cover interest rate fluctuation risk related to EUR denominated IRS
BOJ Quantitative/ Qualitative Monetary Easing	Around April to May 2013	• To cover interest rate fluctuation risk related to JPY IRS

* Largest 5 day fluctuation during each period will be adopted as stress scenario.

Reference 2

Hypothetical Scenarios Initially Expected to be Added

Scenario	Description	JPY	USD	EUR	AUD
Scenario related to JPY	Scenario dealing with JPY IRS (parallel up/down, flattening/steepening, positive butterfly/negative butterfly)	○			
Scenario related to USD	Scenario dealing with USD IRS (parallel up/down, exchange rate fluctuation risk)		○		
Scenario related to EUR	Scenario dealing with EUR IRS (same as above)			○	
Scenario related to AUD	Scenario dealing with AUD IRS (same as above)				○
JPN/US Simultaneous Crisis Scenario	Scenario dealing with simultaneous large interest rate fluctuation occurring in Japan and US (same as above)	○	○		
JPN/Euro Simultaneous Crisis Scenario	Scenario dealing with simultaneous large interest rate fluctuation occurring in Japan and Europe (same as above)	○		○	
Asia Simultaneous Crisis Scenario	Scenario dealing with simultaneous large interest rate fluctuation occurring across Asia (same as above)	○			○
JPN/US/Euro Simultaneous Crisis Scenario	Scenario dealing with simultaneous large interest rate fluctuation occurring in Japan, US and Europe (same as above)	○	○	○	
Worldwide Simultaneous Crisis Scenario	Scenario dealing with simultaneous large interest rate fluctuation occurring worldwide (same as above)	○	○	○	○

○ : Currency covered by hypothetical scenario

Scenarios Dealing with Basis Risks between Yield Curves Initially Expected to be Added

Curves	Scenario	Timing	Description
JGB Futures - JPY 6M-LIBOR	Basis Widen	Around Sept. 2008	• Basis widened by acceleration of escape to quality assets triggered by Lehman Crisis
JGB Futures - JPY 6M-LIBOR	Basis Shrink	Around Oct. 2008	• Basis shrunk with joint rate reduction by 6 central banks
JPY 6M-LIBOR-JPY 6MTIBOR	Basis Widen	Around March 2009	• Basis widened at level exceeding '98 Japan premium triggered by Nikkei 225 hit historical lowest (closing price base)
JPY 6M-LIBOR-JPY 6MTIBOR	Basis Shrink	Around Oct. 2008	• Basis shrunk with Lehman Crisis
Forward Curve – Discount Curve related to JPY IRS	Basis Widen	Around May 2013	• Basis widened with Nikkei 225 hit highest first time in 5 years triggered by BOJ quantitative and qualitative monetary easing
Forward Curve – Discount Curve related to JPY IRS	Basis Shrink	Around Oct. 2012	• Basis shrunk with series of policy rate reductions by other countries