Annexure 'C'

Description of changes in Risk Management processes of Securities Segment

S.No	Process	Change in Process
1.	Yield curve for valuation and computation of margin factors and haircut rates	NSS yield curve will be used in place of NS Yield Curve. NSS yield curve is being developed on a daily basis and the same will be used in valuation and computation of margin factors and haircut rates.
2.	Valuation of SDLs	Use of yield spread for adjustment of illiquidity factor: The process is as under: a) For Valuation of SDLs uniform yield spread (spread over zero coupon yields) across tenors and states will be used to capture the impact of illiquidity etc. b) Yield spread will be arrived at based on trade data (excluding outliers) of SDLs during the month and will be used in the subsequent month. Trades on the date of auction of a security and for 7 days thereafter will not be considered for arriving at yield spread. The yield spread so arrived will be reviewed at the end of each month (within seven days from the end of the month) for using in the subsequent month. c) Yield spread arrived at in (b) above will be notified to the members before being brought into effect. d) In case of any sudden change in the market condition leading to a significant change in the spreads, if revealed through back-testing, yield spread may be changed after duly notifying the members about such change. e) Back-testing of effectiveness of using yield spread will be run and summary of results will be made available to the members on a periodic basis.

3	Valuation of GOI Special Securities	Use of yield spread (spread over zero coupon yields) for adjustment of illiquidity factor. The process to be followed is as under: a) In case of GOI Special Securities (like Oil bonds, FCI bonds etc.) also, the valuation will be done using the uniform yield spread as to be done in case of SDLs. b) Yield spread will be arrived at based on trade data (excluding outliers) in respect of Special Securities during the month and will be used in the subsequent month. The yield spread so arrived will be reviewed at the end of each month (within seven days from the end of the month). c) Yield spread arrived at in (b) above will be notified to the members and will be made effective on the day following the date of notification. d) In case of any sudden change in the market leading to a significant change in the spreads, if revealed through back-testing, yield spread will be changed after duly notifying the members about such change. e) Back-testing of effectiveness of using yield spread will be run and summary of results will be made available to the members on a periodic basis.
4	Valuation of GOI Securities	The process for valuation of GOI Securities will be as under: a) For Securities maturing within a year and T-Bills – No yield spread will be applied. b) For Securities having at least 5 trades during previous month : i) Security-wise illiquidity discounts in rupee terms (LAF), based on average of daily difference between the model price and the weighted average price of the security during the previous month, will be arrived at within seven days from the end of the month.

		ii) LAF arrived at in (i) above will be notified to the members and will be made effective on the day following the date of notification. iii) In case of any sudden change in the market leading to a significant change in the spreads, if revealed through back-testing, LAF will be changed after duly notifying the members about such change. c) For Securities having less than 5 trades during the previous month – Tenor wise yield spreads, for tenors 1-3 years, 3-5 years, 5-10 years, 10-20 years and above 20 years, will be arrived at as is to be done in case of GOI Special Securities and SDLs by grouping the securities in different buckets based on residual maturity. i) Tenor wise yield spreads will be arrived at based on trade data (excluding outliers) of Securities belonging to the tenor buckets during the month. Such spreads will be used in the subsequent month. Trades on the date of auction and for 7 days thereafter will not be considered for arriving at yield spread. The yield spread so arrived at will be reviewed at the end of each month (within seven days from the end of the month) for using in the subsequent month. For tenor buckets where no trades are available for arriving at spread, either the spread used for that tenor during the previous month or spread arrived at by interpolation or extrapolation is to be used. ii) Yield spread arrived at in (i) above will be notified to the members and will be made effective on the day following the date of notification. iii) In case of any sudden change in the market leading to a significant change in the spreads, if reveled through back-testing, yield spread will be changed after duly notifying the members about such change. iv) Back-testing of effectiveness of using yield

		spread will be run and summary of results will be made available to the members on a periodic basis.
5	Valuation of Floating Rate Bonds	Use of YTM based yield spreads against the present methodology of taking next interest reset date as maturity date. YTM based yield spreads polled by FIMMDA for valuation of FRB
6	Margin Factor Computation	Margin factors for all securities excluding GOI Special Securities will continue to be set at 3 day VaR (0.25% is added towards coupon accrual). Additionally, an intra-day volatility component at 50% of the respective margin factor is presently added (will be considered for review when the stepped up margin factors take care of the volatility efficiently). **a) Margin factors for GOI Securities and SDLs will be stepped up as under:** i) For Liquid-Securities having average of more than ten trades (face value>= Rs.5 Cr – Respective 3 day VaR ii) For Semi-liquid securities having average of 1-10 trades(of face value >=5 crores) per day during previous calendar quarter - 1.5 times the respective 3 day VaR iii) For illiquid securities having average of less than 1 trade (of face value>= 5 crores) per day - 2 times the respective VaR number. **b) Margin factors for Special Securities will be stepped up as under**: i) Securities having up to average 10 trades per day – 1.5 times of the respective 3 day VaR ii) Securities having less than average 10 trades per day – 2 times of the respective 3 day VaR. In all cases 0.25% will continue to get added towards accrued coupon.

7	Computation of Hair-cut rates using NSS Yield curve	Hair cut rates of securities will be computed by using NSS yield curve. a) For Securities Segment, the hair cut rate will continue to be set at 3 day VaR (rounded upto next higher integer). b) For CBLO segment, the haircut rate will be at 5 day VaR (rounded up to next higher integer). **Hair cut rates of securities will continue to be stepped up using illiquidity multiplicants as under**: i) For Liquid-Securities having average of more than ten trades (face value>= Rs.5 Cr – No multiplicant will be used ii) For Semi-liquid securities having average of 1-10 trades(of face value >=Rs.5 crores) per day during previous calendar quarter - 1.5 times the respective VaR number(3 day for Securities and 5 day for CBLO) iii) For illiquid securities having average of less than 1 trade (of face value>=Rs.5 crores) per day - 2 times the respective VaR number (3 day for Securities and 5 day for CBLO).
8	Collection of intra-day MTM margin (new process)	At present, MTM margin is computed at EoD. If the loss in margin cover is up to a percentage of the Initial Margin (as notified by CCIL from time to time) due to unusual volatility, intra-day MTM Margin will be computed and collected. For the purpose of computing intra-day MTM margin, intra-day ZCYC, based on current day's trades available at that point of time, will be developed and intra-day MTM prices will be arrived at using this curve after necessary adjustments for illiquidity etc. MTM margin so arrived will be compared with the MTM margin already charged and difference, if any, will be collected as additional MTM margin. Collection of intra-day MTM margin will start after issuing separate notification.
9	Imposition of Volatility Margin (new process)	The process to be followed will be as under: i) Three most liquid securities based on analysis of trades during the previous month are to be identified for tracking volatility during the current month.

		ii) At least one of the securities in the basket should be of long duration (at least of residual maturity of 20 years). If such a security is not in the list of 3 highest traded securities, the security having 3rd highest traded volume in the previous month may be replaced by the highest traded security with residual maturity of 20 years or more. iii) In case of an Auction/Re-issuance of a security during the month, such security is to be considered for inclusion in the basket, if its trade volumes for the 3rd to 5th day are such that it forms a part of the top 3 traded securities, by excluding the existing security in the 3rd position (other than the security indicated in terms of (ii) above). iv) If a security included in the list is in 'When Issued' market, such security will be excluded during the period of "When Issued" trading. v) This process of identification of securities is to be undertaken before 7th day of the current month and the members will be kept advised of the securities selected for this purpose. vi) Volatility margin to be imposed: a) If two out of three securities indicate volatility b) If only two securities in the basket are traded and one security indicates volatility c) If only one security in the basket is traded and indicates volatility. vii) The estimator values for indication of volatility margin will be arrived as under: a) Intra-day difference between high and low prices of the selected securities (Estimator –I) b) Price fluctuation based on the higher of absolute of –

		(MTM price of previous day - low price of current day)/low price of current day **<u>and</u>** (MTM price of previous day – high price of the day)/Low price of the day (Estimator –II) Higher of Estimator I and Estimator II of a Security will be the reference Estimator. viii) Trigger price will be set at one day VaR of the respective security (multiplied by illiquidity multiplicant, if any). ix) Volatality margin will be imposed if the estimator value reaches the trigger value and the quantum of VM will be as under: a) Estimator value =100 % of trigger value - 25% of margin factor b) For every subsequent increase of 50% in estimator value over trigger value - 25% of margin factor. x) Volatility Margin is to be withdrawn at the time of End of the Day risk valuation if the values of the Estimators are at less than 60% of 1-day VaR for one consecutive day for the securities which had earlier indicated increased volatility and caused imposition of volatility margin. xi) Members will be notified about the imposition and withdrawal of volatility margin as and when happens.