THE CLEARING CORPORATION OF INDIA LTD

**Risk Management Department**

**No. RMD/DRVT/23/37** **30/Oct/2023**

**FOR INFORMATION OF ALL MEMBERS**

**Rupee Derivatives Segment**

**Risk Management processes and Margining Methodology**

In terms of Chapter VI – "Margins" of the Regulations of the Rupee Derivatives Segment, the Clearing Corporation prescribes margin requirements for the Rupee Derivatives Segment. CCIL's Notification No. RMD/DRVT/23/13 dated 29/Mar/2023, details the risk management process and margining methodology in this segment. We invite your attention to CCIL's Notification No. CCIL/Legal/23/29 dated 27/Oct/23. As stated therein, the Regulations of the Rupee Derivatives segment have been amended with effect from 27/Nov/23. As part of this amendment, a new Chapter III titled 'Member Common Collateral' (MCC) has been introduced in these Regulations. Consequent to this, Members are advised to take note that Notification No. RMD/DRVT/23/13 dated 29th Mar, 2023 stands revised as below with the enhancements / modifications underlined and deletions presented in 'strike through' font. The changes pertain to replacement of the text 'Securities Segment SGF' by the text MCC (i.e. Member Common Collateral).

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**~~A. Composition of Settlement Guarantee Fund~~**

~~[Reference Chapter III of the Regulations]~~

~~There will be no separate Settlement Guarantee Fund for the Rupee Derivatives Segment. Instead, as stated in Chapter III (A)(2) of the Regulations, a Member of this segment shall authorize Clearing Corporation to consider the unutilized portion of the SGF tendered by such Member for Securities Segment, towards SGF for the Rupee Derivatives Segment. The portion of unutilized SGF so identified shall be~~

~~subject to such provisions of Securities Segment Regulations as notified by Clearing Corporation from time to time. Such authorization shall be deemed to be valid towards the SGF contributed by such a member on account of its Constituents.~~

## A. Initial Margin

1. The initial margin on the outstanding trade portfolios of the members / constituents is based on portfolio Value at Risk (VaR). The margin shall be computed separately for Proprietary Trades of the Clearing Member and for the trades of each of its Constituents and no off set shall be provided between the Proprietary Trades and trades of Constituents or between trades of two Constituents. The detailed process for Initial Margin computation is as under:

i) Outstanding trade portfolio of the members / constituents is split into benchmark-wise groups.

ii) Historical returns series[1] of the Zero curves implied from the Swap curves of the past 1000 days is worked out for standard tenor points. VaR is computed by simulating 1000 swap scenarios as under:

   a. **750 consecutive volatility scaled (EWMA) returns from the most recent period. These returns will be the rolling period return, where scaling will be as under:**

   Exponentially Weighted Moving Average (EWMA) volatilities are calculated for each such tenor point for each day in this historical period. Historical return series of these 750 days is modulated by multiplying each return by the ratio of current EWMA volatility and the historical EWMA volatility.

   And

   b. 250 consecutive un-scaled returns from the period with high market volatility termed as “stress period”. These returns are identified from Aug’ 2008 onwards

[1] Trading on Modified MIFOR benchmark began on Jan 1, 2022 and hence the return series is available from a few days before trading commenced. The historical return series for the Modified MIFOR benchmark for Initial Margin computation is generated from the return series for the MIFOR benchmark for the days before the Modified MIFOR swap rates became available for respective tenors.

subject to availability of reliable market data and are reviewed on a monthly basis.

c. Value of the portfolio of outstanding trades is then simulated using the modulated returns and unscaled return series as mentioned above. The forward rates used for estimating the future cash flows and the discount factors used to discount these projected cash flows are both arrived at by using the same zero rates as mentioned above.

d. Value at Risk is arrived at 99% Confidence level using a holding period of 5 days for portfolio for members as well as constituents.

2. **Spread margin** Spread Margin is added to Portfolio VaR to arrive at Applicable Initial Margin for the trades of a member / constituents. It is computed as under:

a) All trades having same residual maturity and on same benchmark are netted together. All such net trades as above are classified into groups having residual tenors falling into 6-monthly buckets (e.g. 0-6m, >=6m-1yr.................>=9.5yrs – 10yrs)

(b) VaR is computed individually for all such net trades, sum of which is say X. Portfolio VaR is also computed for the entire portfolio (say Y) as well as for above mentioned Group portfolios (sum of which is say Z).

Spread Margin will then be computed as 20% (X-Z) + 10 %( Z-Y).

3. **Minimum Initial margin**: The minimum margin rates for swaps is as under:

| **Residual Tenor (Of net notional value)** | **Minimum Margin Rate** |
|---|---|
| 0 to 3 | 0.50% |
| >3 to 5 years | 1.00% |
| >5 Years | 1.75% |

Set offs are allowed for trades in the same benchmark but falling in different residual maturity buckets (For example, if in 0 to 3 years net buy is of Rs.10,000 Crores and in 3 to 5 years net sale is of Rs.2,000 Crores, the minimum margin is calculated as Rs.30 Crores i.e. Rs.50 Crores – Rs. 20 Crores).

If applicable initial margin is lower than the minimum margin computed as above, such minimum margin is collected as initial margin.

Initial Margin (including Spread margin) and minimum initial margin where applicable will be computed separately on each benchmark-wise group of outstanding trades with no margin offsets being permitted across benchmarks.

4. **Step up in Initial Margin for weaker entities**: In terms of para A(4) of Chapter VIII of the Regulations of the Derivatives Segment, CCIL may collect higher Initial Margin from members having lower Counter-party Risk Assessment (CPRA) grades ~~credit ratings~~. The step-up applicable to a member shall also be applied to all constituents clearing trades through such a member.

   In addition to the ~~credit rating/~~ CPRA grading linked margin step-up, the Clearing Corporation may also levy higher margins in case of any regulatory action against the member or deterioration in its financial position or some adverse market report. Such additional step-up factors if imposed on a Clearing Member, shall also apply to all its constituents. Alternatively, Constituent(s) may be charged a higher step-up factor than applicable for its Clearing Member.

## B. MTM valuation and MTM Margin computation

1. End of the day Swap Rates for standard tenors from the below mentioned sources are considered for arriving at the daily Mark to Market values of outstanding IRS/FRA trades.

**MIBOR & MIOIS Benchmark**

- End of day swap Rates will be inferred daily from the trade data reported to CCIL's Trade repository upto 30 minutes after the close of market[2]. The rates inference shall be done from both reported trades and trades done on CCIL's Anonymous Trading Platform for IRS (ASTROID) referenced to the MIBOR Overnight Benchmark. Trades done by constituents shall be excluded for the purpose of swap rate inference. The swap rates will be derived as under:

  i. Weighted average rate of trades done in the last 30 minutes prior to close of market.

  ii. If no trades have been done in the last 30 minutes or if the trades done are identified as outliers, then Weighted average rate of trades done in the last hour prior to close of market shall be considered.

  iii. If no trades have been done in the last hour or if the trades done are identified as outliers, then Weighted average rate of the last 5 trades done in the day (after 12.00 pm) shall be considered.

  iv. If less than 5 trades have been done in the tenor for the day post 12:00 p.m., then Weighted average rate of all the available trades shall be considered.

  v. If there are no trades done post 12:00 p.m. then, as last recourse, the mid of the bid and offer of the last quote on Reuter's 'INROIS' page as the MTM rate for the respective tenor shall be used.

  vi. In case no quotes are available on Reuters 'INROIS', the previous day's MTM rate of the respective tenor shall be repeated.

  vii. If the volatility tracking model has triggered an imposition of Volatility Margin (VM) or has triggered an increase in the existing VM quantum on the day after the latest instance of VM imposition / modification, the

[2] For reported trades, in case of difference in the trade time reported by both the counterparties, the trade time considered will be the earlier of the two

trades done before such a trigger will not be considered for rate inference.

The weights used for computation of the weighted average rate shall be the notional principal of the respective trades.

**MIFOR Benchmark**

- END of the day MIFOR rates published by FBIL for standard tenor one year and below.
- For standard tenor points of two years and beyond, swap rates will be the simple average of all quotes available during the day on Reuters page “INRIRS”.

However, in case such quotes are not available for one or more tenors on Reuters page “INRIRS”, CCIL shall determine the MIFOR swap curve for that day from the Modified MIFOR swap curve using its internal models.

**MMIFOR Benchmark**

Modified MIFOR swap curve will be constructed as under:

- For standard tenor one year and below, swap rates will be computed using the mid of the USD SOFR OIS swap rates on Reuter’s ‘USDSROIS’ page and mid of USD/INR forward premia on Reuter’s ‘INR 1F’ page at close of market hours. The USD/INR forward premia (%) will be calculated using the spot rate of the interbank trade (with a value of USD 1 million or more) on CCIL's FX clear platform concluded at close of market based on the market timings as notified by RBI.
- For standard tenor points of two years and beyond, swap rates will be the mid of the bid and offer of the last quote (5:00 PM) on Reuter’s ‘INRMODIRS’ page.

If for some reason such rate is not available, CCIL will be using rates from other sources as considered appropriate by it. Use of any such rate (/s) will however be communicated by CCIL to its members of this segment with the reason for such deviation.

2. Swap Rates for other tenors are arrived at through linear interpolation / extrapolation of the rates available for the standard tenor points immediately preceding and succeeding such tenor.
3. The implied zero curve is then arrived from the swap curve using bootstrapping.
4. All trades of a member / constituent on a benchmark are re-valued using implied swap zero Curve for the benchmark and the net value is taken as MTM value of the portfolio of outstanding trades of the member / constituent.
5. The forward rates used for estimating the future cash flows and the discount factors used to discount these projected cash flows are both arrived at by using the same zero rates as mentioned above. For trades referenced to the Modified MIFOR benchmark, however, the immediate next cash flow is estimated using an INR rate derived from the Reuters “USDSROIS” page (as cited in para C 1 above) combined with the FBIL published forward premia for a Rate Record Date corresponding to the cash flow’s reset date.
6. Half of the bid-offer spread is reduced from the floating side cash-flows for a buyer and added to the floating side cash-flow for a seller. At present, the bid offer spread is treated as NIL.
7. In terms of Clause C (2.4), of Chapter VIII of the Regulations, if the aggregate of MTM value for a member / constituent for a benchmark shows MTM loss, such amount is collected as MTM margin from the member / constituent. The aggregate of such MTM margin across all benchmarks will be the MTM margin obligation of the member / constituent. The MTM margin on account of the cash flow due for settlement will be released when the settlement is completed. In the event of

settlement shortage however, such amount will continue to remain blocked till the shortage is replenished.

8. In terms of Clause E (1) of Chapter VIII of the Regulations, if the aggregate of MTM value for a member / constituent for a benchmark shows MTM gain, then the member's / constituent's margin account will be credited with the MTM gain amount reduced by a prescribed haircut and the same will be allowed to be treated as Margin Made Available by the member for its own account / for its constituent account respectively. The hair-cut on MTM gains will be 5% and the same may be revised in the future after due notification. The aggregate of such MTM gain across all benchmarks in the form of margin made available can be used against margin requirements in the Derivatives segment as well as in any other segment which draws margins from MCC ~~Securities Segment SGF~~ by such member / constituent.

9. In terms of Clause E (2) of Chapter VIII, such margin credit mentioned in paragraph 8 above will be withdrawn on the day of settlement of the particular position having MTM gain. In terms of Clause E (3) of Chapter VIII, if there is a margin shortfall as a result of such withdrawal of margin credit on account of settlement, CCIL will hold back settlement proceeds to the extent of such shortfall in margin.

   In cases, where the withdrawal of margin credit on account of settlement results in a margin shortfall in a constituent's account, Clearing Corporation shall block the margin account of its Clearing member to the extent of the shortfall. In case such blocking of margins results in a margin shortfall in the account of the Clearing member, CCIL will hold back settlement proceeds of the Clearing member to the extent of such shortfall.

   In terms of Clause E (4), such, withheld settlement proceeds will be released on replenishment of the margin shortfall.

10. In terms of clause E (4), if the member fails to replenish the shortfall by the end of the day of such withholding, such withheld settlement proceeds is credited by CCIL

to the ~~SGF~~ MCC account of the member ~~in the Securities Settlement Segment~~ without any further notice to the member.

**C. Crystallized Settlement Obligations**

1. Discounted value of any amount determined as payable or receivable by the Member / constituent due to early termination is termed as Crystallized Settlement Obligation. This is classified into two groups, viz. Crystallized Settlement Obligation for the day and for other days.

2. Crystallized Settlement Obligation payable by a member / constituent is treated as a margin liability of the member / constituent. The Crystallized Settlement Obligation receivable by a member/ constituent, on the other hand, is treated like a margin credit available to the member/ constituent.

3. The amount of Crystallized Settlement Obligation Receivable for the day is treated as nil when the settlement file is sent for settlement. If such reduction in Crystallised Settlement Obligation Receivable could cause margin shortfall for a member, the corresponding amount is held back from the settlement amount till replenishment of margin shortfall. If it were to result in a Margin shortfall in the constituent's account, Clearing Corporation shall block the margin account of its clearing member to the extent of the shortfall. In case such blocking of margins results in a margin shortfall in the account of the Clearing member, CCIL will hold back settlement proceeds of the Clearing member to the extent of such shortfall. If the replenishment of shortfall does not happen till the end of the day, the amount is credited to ~~Securities Segment SGF~~ MCC account of the member.

4. The amount of Crystallized Settlement Obligation Payable for the day for a member / constituent is treated as nil when the settlement is over in the account of the member. In the event of settlement shortage however, such amount will be transferred to Margin Held Back for Default account of the member and its constituents.

5. Moreover, if the settlement for the day is not over till the processing for End of the day MTM margin calculation for the day, settlement obligation Payable for the day together with possible interest costs on such amount in case of default will be transferred from MTM margin collected from such Member and its constituents to their respective Crystallized Settlement Obligation Account.

## D. Concentration Margin

1. Concentration Margin shall be applicable separately for portfolio of IRS trades referenced to MIBOR/MIOIS benchmark and portfolio of IRS trades referenced to MIFOR/MMFOR benchmark.

2. For a benchmark portfolio, Concentration Margin (CM) shall be levied on a member / constituent in the event of any of the following two parameters exceeding certain pre-specified threshold(s):
   a. Initial margin (IM) of the member / constituent
   b. Gross position of the member / constituent

3. Each of the above parameters shall have two sets of thresholds, hereinafter referred to as Level 1 thresholds and Level 2 thresholds.

4. The threshold levels corresponding to each parameter shall be determined based on a certain percentage of average daily value of the two parameters cited in (2) above, computed across all members and constituents in the preceding month separately for MIBOR/MIOIS and MIFOR/MMFOR benchmarks. These percentages are as tabulated below:

| | **Level 1 thresholds** | | **Level 2 thresholds** | |
|---|---|---|---|---|
| **Parameter →** | **Initial Margin (IM)** | **Gross Position** | **Initial Margin (IM)** | **Gross Position** |

| | | | | |
|---|---|---|---|---|
| For imposition | 8% | 8% | 15% | 15% |
| For partial reduction/ withdrawal* | 6% | 6% | 13% | 13% |

*as may be applicable

5. At the end of each month, the threshold values in money terms, applicable for subsequent month shall be determined and intimated to the members / constituents through a report.

6. CM will be levied at 15% of IM, in the event the 'Level 1 threshold for imposition' corresponding to any one or both of the parameters is breached.

7. However, CM will be levied at 20% of IM, in the event the 'Level 2 threshold for imposition' corresponding to any one or both of the parameters is breached. In such case, CM shall continue to be in force at '20% of IM' till such time that the IM and/or the Gross Position of the member / constituent, as the case maybe, drops below the 'Level 2 threshold for reduction / withdrawal' of the respective parameter. CM shall be revised from '20% of IM' to '15% of IM' when such 'Level 2 threshold(s) for reduction / withdrawal' is attained.

8. Furthermore, CM shall continue to be in force at '15% of IM' till such time that the IM and/or the Gross Position of the member / constituent, as the case maybe, drops below the 'Level 1 threshold for withdrawal' of the respective parameter. CM shall be fully withdrawn when such 'Level 1 threshold(s) for withdrawal' is attained.

9. For a benchmark, if the Clearing Corporation were to conduct a portfolio compression exercise in terms of its Notification No. RMD/DS/PC/16/10 dated 22-Feb-17, the threshold levels for applicability of concentration margin in such

benchmark shall be revised intra month based on Initial Margin and gross position levels of all members and constituents as at the end of the day of completion of the portfolio compression cycle. Moreover, at the time of the monthly revision of thresholds at the end of the month in which a portfolio compression cycle is run, the Initial Margin and gross position levels of all members and constituents on the days preceding the day of completion of the portfolio compression cycle shall not be considered for the computations.

10. The threshold percentages and the rate at which the Concentration Margin is collected shall be reviewed by CCIL at least once annually.

11. Concentration margin shall be blocked from ~~Securities segment Settlement Guarantee Fund (SGF)~~ the MCC account after advising the concerned members. Imposition of Concentration Margin may result in margin shortfall, if the available ~~SGF~~ MCC balance is inadequate to cover the increased margin requirements. Failure by a member to replenish such shortfall in its account, within one hour from the time of imposition shall invite levy of penal charges, as applicable.

## E. Replenishment Level and Rejection Level

[Reference Chapter VI (A) para (2) and (3) of the Regulations].

Clearing Corporation shall make a margin call to the member when the margin utilisation exceeds 90% of the margin made available for this segment (i.e. if the available ~~SGF~~ MCC is lower than the amount of Total Margin x 100 / 90). Moreover, Clearing Corporation will stop acceptance of further trades if such trades will cause the margin utilisation to exceed 95% of the margin made available for this segment for a member / constituent.

## F. Frequency of exposure check

[Reference Chapter IV (G)(1) of the Regulations]

Eligible Interest Rate Swap trades are subjected to check for adequacy of margins for both the counterparties to the trade on a trade by trade basis. The 'Exposure Check' process is carried out on an online basis till the cut-off time (6:00 pm at present). Trades reported after the cut-off time will be taken up for exposure check on the next working day. Any trade remaining un-accepted during the online exposure check will be taken up for re-evaluation at the time of cut-off.

## G. Incremental MTM Margin

[Reference Chapter VI (B) (2) of the Regulations]

The amount of Incremental MTM margin will become payable at 9-00 A.M. of the next business day (including Saturdays). Thus while the margin will be debited / reduction in MTM gain will be effected immediately on assessment of the same at the end of the day, in case of a resultant shortfall in margin, members are required to fund their and / or their constituent's margin account by 9-00 AM on the next business day. Failure by a member to replenish the margin shortfall in its account by 9-00 AM on the next business day will attract penalty in terms of para C (3) of Chapter VI of the Regulations of the Rupee Derivatives and Rupee Derivatives (Guaranteed Settlement) Segment.

## H. Volatility Margin and Intra-day MTM Margin

[Reference Chapter VI (B)(3) of the Regulations]

1. In case of sudden increase in volatility in exchange and/or interest rates, Volatility Margin will be imposed by Clearing Corporation at a rate notified by Clearing Corporation at the time of its imposition.

2. Volatility Margin, if applicable, will be imposed immediately after notifying to the members. Imposition of Volatility Margin may result in margin shortfall if available

~~SGF~~ MCC balance is inadequate to cover the increased margin requirements. Failure by a member to replenish such shortfall in its account, within one hour from the time of imposition shall invite levy of penal charges, as applicable.

3. Irrespective of whether Volatility Margin is imposed or not, on any day of high volatility, if loss in portfolio value of a member is higher than 30% of total of Initial Margin, Volatility Margin and Concentration margin collected, such loss may also be collected by Clearing Corporation as MTM margin on intraday basis.

4. If applicable, the Intra-day MTM margin/Gain reduction shall be collected immediately. Imposition of intra-day MTM Margin may result in margin shortfall if available ~~SGF~~ MCC balance is inadequate to cover the increased margin requirements. Failure by a member to replenish such shortfall in its account, within one hour from the time of imposition shall invite levy of penal charges, as applicable.

The revised approach, as above, shall be effective from **27th Nov' 2023** and supersedes our Notification No. RMD/DRVT/23/13 dated 29th Mar, 2023 in this regard.

**For The Clearing Corporation of India Ltd**

**Sd/-**

**Managing Director**

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