2nd Aug, 2021

THE CLEARING CORPORATION OF INDIA LIMITED

Risk Management Department

Consultation Paper

Default Management Resources

1. Introduction

1.1. Central Counterparties (CCPs) maintain prefunded resources to cover the potential losses arising from participant default. These comprise Default Fund contributed by members under the principle of loss mutualisation and CCP's own funds set aside for this purpose (known as the CCP's 'Skin in the Game' or SIG). The size of the Default Fund is generally arrived at based on the probable losses on member portfolios under stress scenarios.

1.2. The sequence in which a CCP applies the above resources (along with the margins contributed by individual members) in the event of a default is known as 'Default Waterfall'. The CCP's SIG and the member contributed Default Fund are expected to incentivize prudent risk management by CCP and its members respectively.

1.3. CCIL determines the quantum of these resources on the basis of a stress testing exercise which is carried out on a daily basis. Presently, in case of Securities (market repo and outright), Securities (Triparty Repo) and Forex Settlement segments, the default fund quantum is set equal to the highest stress loss on account of a member and its affiliates observed in the past six months (known as Cover 1 stress loss), plus the stress loss on account of five weak entities (i.e. entities with short term credit rating of CCIL5 or below) observed on the same day and under the same scenario as the Cover 1 stress loss. In case of Forex Forwards and Rupee Derivatives (Guaranteed Settlement) segments, firstly, the sum of the highest stress loss on account of a member and its affiliates, and the second highest stress loss on account of a member and its affiliates is determined, for each stress scenario. The default fund quantum is set equal to the highest such sum in the past six months (known as

Cover 2 stress loss), plus the stress loss on account of five weak entities on the same day and under same stress scenario as the Cover 2 stress loss.

1.4. The Default Fund quantum in each segment is revised on a monthly basis, or in an event, where the Cover 1 or Cover 2 stress loss, as the case may be, exceeds the prevailing quantum of default fund. Any downward revision in the default fund, during a month end re-computation, is subject to a floor of 85% of the prevailing default fund level.

1.5. An individual member's contribution to the Default Fund is determined based on average positions, average initial margin requirements and highest stress losses on its portfolios during the past six months.

1.6. CCIL's SIG contribution towards the Default Waterfalls for respective segments is a function of the corresponding Default Fund. The SIG requirement is computed as the higher of 25% of Default Fund quantum and the highest contribution made by a member towards Default Fund.

1.7. Thus, the default management resources are generally greater than, or equal to, 1.25 times of the Cover 1/ Cover 2 stress loss in respective clearing segments.

1.8. CCIL's SIG contributions are drawn out of the Settlement Reserve Fund (SRF) which has been specially created for this purpose. The Settlement Reserve Fund represents resources set aside to meet losses arising from participants' default. The current balance in the fund is INR 1,750 crores. Since, the SRF is a Reserve in accounting parlance, the balance in this Reserve gets updated at the end of the financial year as part of annual appropriation of profits. However, as mentioned earlier, the adequacy of total prefunded resources is assessed daily as part of the daily credit stress tests exercise. CCIL's SIG contributions, which are drawn from the SRF, are therefore subject to availability of funds in the SRF.

1.9. In the last 11 years, SRF has increased from INR 210 crores on 31st Mar'10 to INR 1,750 crores on 31st Mar'21, resulting in more than eight fold increase. In the last 4 years, CCIL has transferred INR 750 crores of its profits to the SRF resulting in an increase of SRF from INR 1,000 crores on 31st Mar'17 to INR 1,750 crores on 31st

Mar'21, i.e. an increase of 75%. However, if the balance in SRF is insufficient to meet the requirements as computed in (1.6) above, the SIG contribution across all segments' default waterfall is adjusted downwards on a pro-rata basis to make the contributions equal to the balance available in the SRF. Under such scenario, the overall default management resources could be less than 1.25 times of the Cover 1/ Cover 2 stress loss for all segments.

1.10. CCIL's SIG as percentage of Default Fund has been maintained the same for all segments. It is seen that the lowest ratio of the CCIL's SIG to the corresponding Default Fund till date has been 21.25%. It may be noted that this is a significantly high ratio as compared to that of many other CCPs globally. The ratio of SIG to Default Fund for some international CCPs in various jurisdictions is tabulated in *Annexure 1*. It is also observed that CCIL's SIG contributions have always been higher than the highest Default Fund contribution of any single member.

2. Regulatory requirements

2.1. At minimum, a CCP is required to maintain resources as per the following PFMI guidance:

"…a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions."

2.2. RBI has recommended that CCIL's default management resources should at all times be, at least, equal to 1.25 times of the Cover 1/ Cover 2 stress loss for respective segments. To achieve this, the Regulator has suggested that in case, the balance in

CCIL's SRF is insufficient to maintain this prescribed level, the shortfall may be met by the members by making additional default fund contributions.

3. Proposal

3.1. In the light of RBI's advice, we propose the following:

a. For each segment, the Clearing Corporation shall at all times maintain the prefunded resources equivalent to 1.25 times the sum of the Cover 1/Cover 2 stress loss, as the case may be, and the losses on account of five weak entities observed on the same day and under same scenario as the Cover 1/Cover 2 stress loss. The prefunded resources shall comprise member contributed Default Fund and the CCIL's SIG drawn from the SRF.

b. The prefunded resources for a segment shall be reviewed at the end of each month as per the extant process or in an event the Cover 1/Cover 2 stress loss exceeds 80% of the total resources.

c. During the end-of-the-month re-computation of prefunded resources subsequent to approval of annual profit appropriation to SRF by CCIL, the SRF balance shall be pro-rata allocated to each segment in the proportion of the minimum Default Fund quantum (explained below) at the time, but subject to a cap of 25% of minimum Default Fund quantum or highest minimum contribution required amongst members, whichever is higher. The balance allocated towards a segment shall be the SIG available for the segment. Any unallocated balance shall be termed as the free SRF balance.

d. During each revision of prefunded resources, firstly, the minimum Default Fund quantum shall be computed as the sum of the Cover 1 or the Cover 2 stress loss, as the case may be, and the losses on account of five weak entities observed on the same day and under the same scenario as the Cover 1/Cover 2 stress loss. Member-wise minimum Default Fund requirement shall also be computed as per the extant approach, i.e. based on average Initial Margins, average positions and highest stress losses of the members in the past six months.

e. CCIL's SIG requirement shall be computed as higher of 25% of minimum Default Fund quantum or the highest of the minimum contribution required amongst all members, but capped at the SIG available for the segment plus the availability of free SRF balance.

f. The final Default Fund quantum shall be computed as the total prefunded resource requirement (as per (a) above) ***less*** the CCIL's SIG contribution (as per (e) above), but subject to a floor equal to the minimum Default Fund quantum. Member-wise contribution shall be computed as per the extant approach. Members shall make contributions as per these requirements.

g. In an event of a downward revision in prefunded resources requirement for any segment, the resultant excess contributions from SIG will be treated as free SRF balance and will be utilized proportionately to make good of the deficit in SIG contribution in any other segment, if any.

3.2. An illustration of the proposed approach is shown in Annexure 2.

3.3. As per the ongoing practice, on an annual basis, CCIL may decide on augmenting the balance in the SRF, based on default fund projections and the availability of resources for appropriation.

4. All Members and other interested entities are requested to send their comments and feedback on the suggested approach for sizing the Default Management resources. The feedback may be sent to us latest by 23rd Aug 2021 at rmd@ccilindia.co.in for attention of Chief Risk Officer, CCIL with subject as "*Consultation Paper: Default Management Resources*."

5. If any clarification is required on any aspect of this paper, please feel free to contact Mr. Nandan Pradhan, VP, Risk Management at 022 - 6154 6422 or Mr. Bhavin Desai, SM, Risk Management at 022 - 6154 6437.

Annexure 1

SIG to Default Fund ratio of various CCPs

(as per CCP's Public Quantitative disclosures)

Sl No	CCP Name	SIG/DF ratio*
1	LCH SA	0.65%
2	LCH	1.01%
3	OCC	1.36%
4	Eurex Clearing	2.61%
5	CME	3.33%
6	NASDAQ	10.87%
7	Shanghai Clearing House	28.59%
8	SGX DC	41.75%

*In cases where resources are segregated by CCP at clearing service level or by currency, the resources are aggregated for determining the ratio.

Annexure 2

Illustration of the proposed approach for a segment

A	Prefunded resources requirement:		
	a1: Cover 1/Cover 2 stress loss	95	
	a2: Stress losses on account of five weak entities	5	
	Prefunded resources required (1.25 x [a1+a2])		**125**
B	Minimum Default Fund quantum (80% of [A])		**100**
	b1: Highest of the minimum contribution required amongst all members (assume)	10	
C	CCIL's SIG requirement:		
	c1: 25% of [B]	25	
	c2: highest of the minimum contribution required amongst all members (=[b1])	10	
	c3: higher of [c1] and [c2]	25	
	c4: SIG allocated to the segment plus free SRF balance (assume)	22	
	CCIL's SIG requirement (lower of [c3] and [c4])		**22**
D	Final Default Fund quantum (higher of [A - C] and [B])		**103**

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