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THE CLEARING CORPORATION OF INDIA LTD

CONSULTATION PAPER

Proposal to introduce Electronic Trading Platform (ETP) and Clearing and Settlement services for USD INR FX Options

To,

THE MEMBER BANKS

CCIL, along with its subsidiary Clearcorp, has been offering its pioneer products and services to Indian Financial Market in OTC products for over more than two decades. As a Financial Market Infrastructure provider, it offers various Electronic Trading Platforms (ETPs) and Clearing & Settlement systems in the Money Market, Fixed Income, Forex and the Derivatives markets.

In continuation of its efforts to deepen the OTC derivatives markets in India, CCIL, along with its subsidiary Clearcorp, intends to offer an Electronic Trading Platform (ETP) and Clearing and Settlement services for USD INR FX Options. It is expected to bring transparency and operational efficiency in the market, thereby attracting more market participants, improving liquidity and deepening the market.

For USD INR FX Options, it is proposed to offer:

A. Trading Platform - on Anonymous and RFQ mode

B. CCP Clearing and Settlement System

The relationship between CCIL and its members shall be governed by CCIL's and Clearcorp's Bye Laws, Rules and Regulations.

As the liquidity in the market is mostly concentrated till 1 year, it is proposed to offer the ETP and Clearing Services for trades up to 1 year maturity initially.

A. TRADING PLATFORM:

The trades executed on the ETP shall be taken for CCP clearing from the point of trade. Since the trades shall be novated to CCIL from the time of trade, the proposed FX Option Trading Platform shall be available to the market participants who have taken membership for USD INR FX Options Guaranteed Settlement Segment.

a. Anonymous Order Matching

Similar to the existing ETPs, it is proposed to offer USDINR FX Options ETP on an anonymous basis.

MARKET WATCH SCREENS:

The anonymous order matching shall support 2 Market watch screens:

- (i) The first Market Watch screen would allow anonymous order matching based on appropriate volatility for instruments: ATMF, Risk Reversal (RR) and Butterfly (BF) – both 10 Delta and 25 Delta- for standard market tenors up-to 12 months.
- (ii) The Second Market watch screen would allow 2 types of anonymous order matching:
 - Volatility (Vols.) matching based on **Option Delta** for single option Calls/ Puts
 - Volatility (Vols.) matching based on **Option Strike** for single option Calls/ Puts

b. RFQ based trading:

The Request for Quote (RFQ) screen would allow RFQ orders for standard/ bespoke structures (Spreads/ Range Forward/ Seagulls etc.) to cater to the bespoke hedging needs of Banks arising out of corporate trades.

A.1 ORDER MATCHING MODE:

FIRST MARKET WATCH SCREEN: STANDARD PRODUCTS- ATMF/ RR/ BF

- (i) In the first Market Watch screen, users may place Bid/Offer orders for different instruments and tenors specifying notional amounts and appropriate volatility (volatility for ATMF and Spread for RR and BF).

- (ii) Post the matching of orders based on Vols., the platform shall automatically perform the following steps:
- (a) Calculate Expiration and Settlement dates based on the tenor of the trade, as per the USDINR market conventions in conjunction with the New York and Mumbai calendars.
 - (b) Pick up the current Spot Rate (mid-rate) and Forward Premium (mid-rate) corresponding to the settlement date from the live stream and calculate the forward rate (F).
 - (c) Pick up the USD Deposit rate from the appropriate market data system and calculate the USD Discount factor (USD DF). The INR discount factor needed for the option premium calculation shall be derived from USD DF and points (a) and (b) mentioned above.
 - (d) For ATMF, the strike shall be:
 - i. If the tenor of the option is less than or equal to 9m, then the Strike Rate shall be determined as $K = F$
 - ii. If the tenor is greater than 9m, then as per the market convention (Delta Neutral Straddle), the Strike Rate (K) shall be determined such that the Delta of the Call at Strike K + Delta of the Put at Strike K = 0
 - (e) For an RR trade, which is a vol. spread trade, given the matched RR vol. from the platform and ATM volatility and corresponding delta BF spread references picked from the market data system, the corresponding call/ put option volatilities and strikes will be determined by the platform.
 - (f) For a BF trade assuming zero RR volatility, given the matched BF vol. from the platform and ATM volatility reference picked from the market data system, call/ put option volatilities along with strikes will be determined by the platform. For BF trades, which consist of Strangle and Straddle, the notional amounts of the Straddle options shall be derived to achieve Vega neutrality of the entire structure.
 - (g) For points (d), (e) and (f), the call and put option premiums shall be calculated using Garman Kohlhagen formula.

- (h) For the products resulting into net non-zero delta (say RR), the delta exchange trades shall also be created in the form of delta equivalent Forward trade, along with call and put trades. Post the above calculations, the trading platform shall generate a deal ticket containing all the economic parameters of the underlying trades, including delta hedged trades if required, and also generate a CSV file containing the relevant fields to allow for onwards integration with internal systems of the Members.

SECOND MARKET WATCH SCREEN: SINGLE OPTION DEALS (CALLS/ PUTS)

For Vols. matching based on Option Delta/ Strike:

- (i) The screen shall permit the traders to place orders based on specific delta or strike for both calls and puts containing the notional amounts, implied volatilities (vols.) and Expiration and settlement dates (up to 12 M).
- (ii) Once the vols. for a given Expiration Date are matched for a given Delta (D) or Strike (K), Spot rate, Forward premium, forward rate, USD DF and INR DF shall be derived.
- (iii) The system shall calculate the relevant strikes, premium amounts and appropriate forward delta exchange transaction.
- (iv) Post the above calculations, the trading platform shall generate a deal ticket containing all the economic parameters of the underlying trades, including delta hedged trades, and also generate a CSV file containing the relevant fields to allow for onwards integration with internal systems of the Members.

A.2 RFQ MODE:

The RFQ module would enable a negotiated transaction on an RFQ basis for most of the vanilla options and option structures executed in the market- **SINGLE OPTIONS/ BESPOKE STRUCTURES (SPREADS/ RANGE FORWARDS/ SEAGULLS etc.)**

- (i) The traders would have the option to call for quote from a single counterparty or broadcast their RFQ order to a group of members.
- (ii) While placing the RFQ orders, the member would call for:

- Quotes for option premium against a structure (Single Option/ RF/ Spread/Seagull etc.): The member shall input the Notional and strikes for all legs and keep the premium field either blank or input an indicative premium. The respondent bank(s) can place their counter offer on the premium.
 - Quotes for strike (one leg) against input premium: For 2 leg structures (Spreads and RF) or 3 leg structures (Seagulls), the member shall input the structure premium and strikes for 1 or 2 legs respectively and keep the remaining leg strike field blank or input an indicative strike level. The respondent bank(s) can place their counter offer on the strike.
- (iii) The traders shall be able to do negotiation based on the respondent users' quotation through an order form only. Once the premium/ strike is matched, the platform shall generate a deal ticket containing all the economic parameters of the underlying trades, and also generate a CSV file containing the relevant fields to allow for onwards integration with internal systems of the Members.
- (iv) For the RFQ based facility, the originator member shall have the option to either request for the quotation (premium/ strikes) to the structure with delta hedge or without the delta hedge, and the counter member can respond accordingly.

Along with the GUI, the platform shall also offer ability to trade through APIs.

B. RISK MANAGEMENT & SETTLEMENT SYSTEM:

B.1 CCP RISK MANAGEMENT:

CCP clearing shall be provided to trades done either on the trading platform or the bilateral trades reported to CCIL having maturity till 12 months.

The trades done on Clearcorp's ETP shall be taken for Clearing and settlement post conclusion of the trade on the platform. The trades done bilaterally and reported to TR shall also be taken for CCP Clearing and Settlement, if both the counterparties to the trade opt for Guaranteed Settlement services and post required margin prescribed by CCIL.

The CCP risk management would be based on the portfolio margin and shall include both the option trades and the delta hedged forward trades. The risk management framework would broadly be as under:

- a. The Initial Margin would be computed on a portfolio basis. A possible approach could be to calculate IM using a Volatility weighted Historical Simulation VAR at 99%

confidence with a 5 days Margin Period of Risk (MPOR) or on Expected Shortfall method. VaR based on Monte Carlo simulation may also be explored.

- b. In addition to Initial Margin, on volatile days, Volatility Margin could be imposed
- c. Daily MTM margin would be based on the end of the day market data of Spot, Forward, Implied Volatilities and SOFR Rates, and Intraday MTM would be charged based on the market data at that time.
- d. Concentration Margin: As in case of other derivative products cleared by CCIL, Concentration margin would be levied on participants having significant exposure in the segment.
- e. Members shall be required to contribute towards a dedicated Default Fund for FX Options segment. The sizing of the Default Fund shall be based on the daily stress testing results as per the Cover 2 standards. The usage of Default Management resources shall be as per a Default Waterfall, similar to other segments. For the purpose of Default Management, CCIL may conduct a default management auction, allocation or tear up of trades.
- f. Since the trades that are matched anonymously on the platform shall be deemed to have been accepted for CCP clearing, certain order level checks such as Single Order Limits, limits on Accumulated Order levels, automatic invocation of Risk Reduction Mode on breach of margins etc. will be incorporated in the trading platform.
- g. Portfolio Greeks based position limits may apply.

B.2 SETTLEMENT SYSTEM:

- (a) The settlement of Option premium, in INR, shall be done on the trade effective date (T+2 working days after the Trade Date).
- (b) For Option Exercise/ Expiry mechanism, CCIL may choose either a standard cut-off time like Tokyo cut or of a time specified by Benchmark Administrator as the cut-off time. To avoid any ambiguity in the spot rate to be used for the exercise at expiry, we propose to take FBIL fixing for the expiry date as the reference data. This would align with exotic Option derivative trades and NDF trades which also use FBIL fixing.
- (c) To make the settlement process seamless, we propose to auto exercise the options which are in the money on the expiry date.
- (d) The exercise of an option shall follow gross or physical settlement mechanism i.e. the exercise of an option will result in a spot transaction on the settlement date.

- (e) The spot transaction between CCIL and the counterparty shall be transmitted to the CCIL's Forex Segment for further processing and settlement on the Option's original settlement date.
- (f) On the Option settlement date (T+2 working days post Option Exercise date), the net settlement of underlying notional amounts (USD vs INR depending on the side of the trade) shall be done as per PVP mode.
- (g) A daily report containing the details of the option trades expiring on the next working day shall be made available to the Members in the CCIL reports browser.

C. CONCLUSION:

It is proposed to offer a **Trading Platform along with CCP Clearing and Settlement system** for USDINR FX Options. The complete solution would handle end-to-end trading and settlement life cycle of Options trades [**Standard Products/ Single Options/ Multi Option Strategies**]. Once the Options trader's order (based on Vols.) has been input into the platform and matched with a counter order, the onward activities of calculation of Expiration & Settlement Dates, Forward Premium, Strike Rates, Option Premiums, Delta hedge amount etc. shall automatically be done by the system and deal tickets and CSV reports shall be generated for onward linkage with their internal systems of the Members. The trades would be accepted for Clearing and Settlement including the delta hedged trades, thereby providing the benefits of Central Clearing such as risk reduction, capital efficiency and multilateral netting. Further, the option premium settlement on T+2 days after the Trading day as well as the Option's Expiry and Settlement along with the FX forwards as a part of the delta hedge is proposed to be merged with the existing Forex settlement to provide the operational efficiency to the members.

D. FEEDBACK FROM MEMBERS:

CCIL is a user owned organization and it sincerely believes in developing its products and services which help in the development of Indian Financial Market and are used by all its members. It bestows great significance to the feedback received from its esteemed members and therefore, solicits the views of the Members on the features of the proposed ETP and CCP clearing and settlement services for USDINR FX Options as mentioned in the above consultation paper. The valuable feedback shall be taken into consideration while development of the products and services.

FEEDBACK QUESTIONNAIRE:

The Members are requested to send their feedback/ views to the following questions:

1. Market Conventions to be used:
 - a. ATMF definition: Strike = Forward up to 9m maturity and Delta Neutral Straddle(DNS) after 9m maturity
 - b. Delta: Percentage Delta or Premium-adjusted Delta. Even though premiums would finally be settled in INR, the delta assumed in the volatility smile is premium adjusted.
2. It is proposed to use ATMF reference rate (in both RR and BF trades) and BF reference rate (in RR trade) as the mid values out of a market data system until the proposed platform has enough liquidity.
3. It is proposed to use Modified MIFOR discount rate for Option Valuation. The Modified MIFOR discount rate shall be derived from the USD depo rate and the corresponding tenor forward premium, and these data points shall be taken from some Market data provider.
4. To avoid any ambiguity in the spot rate to be used for the exercise at expiry, we propose to take FBIL fixing for the expiry date as the reference data. This would align with exotic Option derivative trades and NDF trades which also use FBIL fixing. It is envisaged that the shift from Tokyo cut to the proposed Mumbai cut at FBIL fixing rate would allow expiry/ exercising of the option trades via a straight through process (STP) without a need of member users' intervention. We solicit the members' views on whether to introduce the Mumbai cut for Option exercise/ expiry or to use the Tokyo cut, as hitherto.
5. In continuation of the point 4, it is envisaged that the exercise of an option on the platform would follow gross or physical settlement i.e. the exercise of an option on the platform shall result in a spot transaction being booked automatically. This would make the process of exercising of the options smooth, without any need of human intervention. We solicit the members' views on whether the members would like to have a short time window on the expiry date and expiry time to decide which trades to exercise with respect to a certain threshold of the spot level. All other trades beyond the threshold would be exercised automatically.
6. Since we propose to include delta hedging for trades as part of automated process post vols. matching, we propose to implement delta hedging using standard forward

contracts or through synthetic forwards. We solicit the members' views on whether it is all right to use Forwards as a delta hedge instrument or use Synthetic Forward trade (consisting of call and put) for delta hedging.

7. Forward contracts which are auto booked by the platform on the trade date for delta hedging options is proposed to be margined together with the underlying option portfolio. Post the trade date, subsequent forward trades that are done to delta hedge the underlying option portfolio and are currently cleared in the Forex Forward clearing segment of CCIL may be taken for margining together with underlying option portfolio based on proper tagging of trades.

Members are requested to send their comments and feedback on the proposal to us latest by June 10, 2024 at drvtrading@ccilindia.co.in for attention of the HOD-Derivatives, CCIL with Subject line as: **"Consultation Paper: Electronic Trading Platform (ETP) and Clearing and Settlement services for USD INR FX Options"**. In case you need any clarifications on the consultation paper, the members may contact the following CCIL officials:

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