**APPROVED**

by the resolution of the Supervisory Board

of the Moscow Exchange

on 18th of June, 2021 (Minutes No3)

Registered by Central Bank of Russian Federation

on 23th of July, 2021

**FX Market Discrete Auction Parameters of the Moscow Exchange**

Present FX Market Discrete Auction Parameters of the Moscow Exchange (hereinafter, Discrete Auction Parameters) are the integral part of the FX and Precious Metals Market Trading Rules of the Moscow Exchange. They are approved by the authorized body of the Moscow Exchange and determine the discrete auction parameters, including duration of discrete auction, aggregate parameters of orders subject to which discrete auction is considered valid; procedure of determining the price of discrete auction and other parameters agreed by the Moscow Exchange with the Bank of Russia.

1. A discrete auction shall be held within 15 (fifteen) minutes from the moment determined in a directive from the Bank of Russia. A discrete auction shall comprise the following stages:

* Stage 1: orders collection (from the auction start till the 9th minute);
* Stage 2: end of orders collection (the 10th minute);
* Stage 3: orders submission by the Bank of Russia (from the end of orders collection till the 14th minute);
* Stage 4: determination of the price at which transactions will be made as a result of the auction (discrete auction price), transactions making, auction results processing and announcement (the 15th minute).

Trading Members shall submit and cancel their orders at Stage 1 and 2 of the auction.

Stage 2 of the auction shall end at the moment when orders collection finishes, which the trading system determines at a random point of time with a uniformly distributed random numbers generator.

At Stage 3 of the auction, the Bank of Russia alone shall submit orders. The Bank of Russia may submit no orders.

At Stage 4 of the auction, the discrete auction price shall be determined, transactions made, and auction results processed and announced.

Trading Members shall not withdraw, place or alter their orders at Stage 3 and Stage 4 of the auction.

The Exchange shall send the discrete auction results to the Bank of Russia and publish them on its website.

1. Orders submitted to the trading system (hereinafter the "TS") shall form the basis to determine the discrete auction price provided that the TS has orders with aggregate parameters meeting the following conditions:

* the number of Trading Members that submitted orders is not less than 2 (two)
* total demand is at least 1 (one) lot
* total supply is at least 1 (one) lot.

Upon agreement with the Bank of Russia, the Exchange may set other conditions for aggregate orders parameters to consider a discrete auction valid.

1. A discrete auction price shall be determined as follows:
   1. Each buy order shall be split into minimal lots, with subsequent calculation of the running total aggregate demand (potentially satisfied volume - Vsum) and the average weighted purchase price (Pbuy avg(Vsum)) corresponding to this volume in the price descending order and the order number (ID\_OBuy) ascending order.
   2. Each sell order shall be split into minimal lots, with subsequent calculation of the running total aggregate supply (potentially satisfied volume - Vsum) and the average weighted selling price (Psell avg(Vsum)) corresponding to this volume in the price and order number (ID\_Osell) ascending order.
   3. The minimal aggregate demand (supply) volume to meet the requirement that the average weighted buying rate should be equal to or greater than the average weighted selling rate (the difference being greater than zero or equal to zero) shall be calculated per the following formula:

Vs = max (Vsum: Pbuy avg(Vsum) ≥ Psell avg(Vsum)).

* 1. Orders within the aggregate volume of lots determined pursuant to paragraph 3.3 shall be fulfilled at the lot price (Price) calculated per the following formula:

Price = if (BS = B; Price = Pbuy – D/2; Psell + D/2),

wherein BS stands for the type of order (B – buy, S – sell), and D stands for the difference between the average weighted rates calculated per the formula:

D = ((Pbuy avg(Vsum) – Psell avg(Vsum)) ≥0).

The lot price (Price) shall be rounded to six decimal places.

The volume in the conjugate currency of the lot shall be calculated as a product of the discrete auction minimal lot volume and the lot price (Price).

After the calculation of the lot price (Price) and the rouble equivalent, the Bank of Russia may submit orders.

* 1. Upon the end of Stage 3, transactions in the TS shall be made at the discrete auction price that is calculated as the lot price (Price) adjusted to the rouble net position calculated per paragraph 3.6.

Members' orders may be satisfied in part; the final volumes shall be calculated per the following formula:

Vnew = Count (Vsum: Pbuy avg(Vsum) ≥ Psell avg(Vsum)),

RUB = Sum (RUB: Pbuy avg(Vsum) ≥ Psell avg(Vsum)).

If several different members submit several orders at the price to be satisfied, such orders shall be satisfied in the sequence they were submitted to the trading system. Upon the end of a discrete auction, all orders that were partially fulfilled or not fulfilled shall be deleted from the TS.

* 1. The rouble net position (NettoRUB) shall be calculated based on all discrete auction orders.

If NettoRUB > 0, the maximum price buy order shall be reduced by N lots, where N= ABS(ROUNDUP(NettoRUB/1000/D/2;0).

N – number of lots required to adjust NettoRUB,

ABS – absolute value function,

ROUNDUP( ;0) – rounding function to the nearest integer larger in module,

NettoRUB – rouble net position.

The remaining N lots shall be put on auction again with the new price adjusted for NettoRUB. Price = (RUB – ((Qty-N)\*Pbuy\*1000) – NettoRUB) / 1000.

If NettoRUB < 0, the minimum price sell order shall be reduced by N lots. The remaining N lots shall be put on auction again with the new price adjusted for NettoRUB. Price = (RUB - ((Qty-N)\*Psell\*1000) + NettoRUB) / 1000.

RUB – volume in roubles,

Qty – number of lots,

Pbuy – buy order price,

Psell – sell order price,

If the volume of the maximum price buy order (the minimum price sell order) is   
less than or equal to N lots, it shall be put to auction again with the new price adjusted per the formulas below:

Price = Pbuy - NettoRUB/1000/N\*Qty, where NettoRUB > 0 (for buy orders),

Price = Psell + NettoRUB/1000/N\*Qty, where NettoRUB < 0 (for sell orders).

If the volume in one maximum price buy order (minimum price sell order) is not sufficient to adjust N lots, the next in queue maximum price buy orders (minimum price sell orders) are also adjusted until the required number of lots (N) is not adjusted.

1. The terms that are not specifically defined in these Moscow Exchange FX Market Discrete Auction Parameters shall have the meanings set out in the legislation of the Russian Federation, the FX and Precious Metals Market Trading Rules of the Moscow Exchange, and other internal documents of the Exchange.