

APPROVED BY

the Supervisory Board
of the Central Counterparty
National Clearing Centre

Protocol № _____ dated ____ _____ 2018

SINGLE LIMIT CALCULATION METHODOLOGY

Moscow, 2018

This Single Limit Calculation Methodology defines the main principles of the calculation of the Single Limit in respect of the Settlement Account (hereinafter referred to as the Single Limit), which is applied in accordance with the Clearing Rules of the Central Counterparty National Clearing Centre (hereinafter referred to as the Clearing Rules) for the sufficiency control of the collateral, owned by the Clearing Member, on the following on-exchange markets, defined by the Clearing Rules:

- on the Securities Market and Deposits Market;
- on the FX Market and Precious Metals Market;
- on the Commodities Market.

1. Terms and definitions

Asset -	security, foreign currency, precious metal or the commodity, trades in which can be cleared by the Clearing House.
Portfolio -	set of obligations and claims of the Clearing Member in all Assets, and also in Russian rubles, under trades, executed with the central counterparty, recorded under the Settlement Account, and Collateral of the Clearing Member in all Assets, and also in Russian rubles, recorded under the Settlement Account.

Terms, not specially defined in this Single Limit Calculation Methodology, shall have the meanings, ascribed to them in the Clearing Rules and in other internal documents of the Clearing House, in laws and in other regulations of the Russian Federation, other acts of the Bank of Russia.

2. General provisions

- 2.1. Authorized executive body of the Clearing House approves this Single Limit Calculation Methodology, its changes and amendments to it, and also determines its effect date.
- 2.2. Single Limit Calculation Methodology, and also all changes and amendments to it, are disclosed on the Clearing House’s website (www.nationalclearingcentre.com) not later than 5 (five) days before its effect date, unless other period of time is determined by the decision of the authorized executive body of the Clearing House.

3. Single Limit

- 3.1. Single Limit is calculated in respect of each Settlement Account of the Clearing Member.
- 3.2. Single Limit is calculated in Russian rubles.
- 3.3. Procedure for the calculation of the Single Limit is the same for Settlement Accounts of all levels.
- 3.4. Single Limit is calculated, taking into account the following:
 - portfolio mark-to-market (hereinafter referred to as the portfolio m-t-m);
 - portfolio market risk;
 - portfolio interest risk;
 - inter asset spread credit.

- 3.5. Single Limit settlement structure may be described as follows:

$$\text{Single Limit} = \text{Portfolio m-t-m} - \text{Portfolio Risk}$$

$$\text{Portfolio Risk} = \text{Portfolio Market risk} + \text{Portfolio Interest risk} - \text{inter asset spread credit}$$

- 3.6. All components of the Single Limit are recalculated in case of risk parameters change, executed within the mark-to-market procedure before or during the trading.

4. Portfolio mark-to-market

- 4.1. Portfolio m-t-m is calculated as the sum of evaluations of obligations and claims and of evaluations of Collateral of the Clearing Member under each Asset, which is included into the Portfolio.

- 4.2. Portfolio m-t-m is calculated as follows:

$$Portfolio\ m-t-m = \sum_{Assets} Evaluation_{Asset} + \sum_{dates} Net\ Position_{rub}(date)$$

$$M-t-m_{Asset} = \sum_{dates} Net\ position_{Asset}(date) \times Forward\ rate_{Asset}(date)$$

$$Net\ position_{Asset}(date) = Collateral + \sum_{trades} Claim_{Asset}^{trade}(date) - \sum_{trades} Obligation_{Asset}^{trade}(date)$$

for securities:

$$Forward\ rate_{Asset}(date) = Settlement\ Price_{Asset} + REPO\ settlement\ rate_{Asset}(date),$$

Settlement Price and REPO settlement rate are the risk parameters, calculated in accordance with the Risk parameters on the securities market calculation methodology;

for the foreign currencies and precious metals:

$$Forward\ rate_{Asset}(date) = Central\ rate_{Asset} + Indicative\ swap\ rate_{Asset}(date),$$

Settlement Price and Indicative swap rate are the risk parameters, calculated in accordance with the Risk parameters on the securities market calculation methodology.

for commodities:

$$Forward\ rate_{Asset}(date) = Settlement\ Price_{Asset} + swap\ Settlement\ Price_{Asset}(date),$$

Settlement Price and swap Settlement Price are the risk parameters, calculated in accordance with the Settlement Price calculation methodology.

- 4.3. Till the moment, when the fixing is calculated, orders to execute fix trades and fix trades are recorded as limited orders and trades according to the relevant Forward rate in respect of the particular asset.

- 4.4. Obligations / claims under derivative contracts, are recorded, taking into account recalculation, made after calculation of obligations to pay variation margin.

- 4.5. For assets, not accepted as collateral for Partially Secured Trades

- calculation of Net Positions is executed, using adjusted Collateral value:

$$Collateral = Collateral - MAX(MIN(Net\ Position_{Asset} + Collateral; Collateral); 0)$$

- for claims in foreign currencies and precious metals under the trades with the arrived Settlement Date and claims under trades with the arrived Settlement Dates, which may be executed on the basis of active orders are not recorded when calculating Portfolio m-t-m.

- 4.6. If the Clearing Rules for the relevant market stipulate the opportunity to register several Trade Accounts, using one Settlement Account, the calculation is executed under each of the defined Trade Accounts, and then summarized under all defined Trade Accounts.

5. Portfolio Market risk

5.1. Portfolio Market risk portfolio relates to the volatility of exchange rates (prices) of Assets.

5.2. Value of the predicted change of the rate (price) of the Asset is described by the Market risk rate, denominated in per cent.

5.3. Market risk rate in Russian rubles is calculated as follows:

$$\text{Margin rate}(\text{rub.})_{\text{Asset}} = \text{Margin rate}(\%)_{\text{Asset}} \times \text{Price}(\text{rub.})_{\text{Assets}}, \text{ where}$$

$\text{Price}(\text{rub.})_{\text{Asset}}$ is the Settlement price of the security or of the commodity, Central exchange rate of the currency or of the precious metal.

5.4. Portfolio market risk is calculated as follows:

$$\text{Portfolio market risk} = \sum_{\text{Assets}} \text{Market risk}_{\text{Asset}}$$

$$\text{Market risk}_{\text{Asset}} = |\text{Net position}_{\text{Asset}} \times \text{Margin Rate}(\text{rub.})_{\text{Asset}}|, \text{ where}$$

$$\text{Net position}_{\text{Asset}} = \sum_{\text{Dates}} \text{Net position}_{\text{Asset}}(\text{date})$$

5.5. Concentration Risk is recorded using the Concentration Limits: Market risk rate is enlarged if the absolute value of the net position within the Asset exceeds the defined Concentration Limits.

5.6. Market risk, including orders and trades with the settlement according to the fixing price, is calculated in the same way as in respect of limited orders and buy-sell trades in foreign currency, and also the abovementioned orders and trades in plan positions are recorded and netted against obligations in other instruments with this currency.

6. Portfolio interest risk

6.1. Portfolio interest risk relates to the volatility of the asset Forward rate.

6.2. Value of the predicted change of the Asset Forward rate is described by the market risk Margin rates under the Asset, denominated in Russian rubles and set for each Settlement Date.

6.3. Portfolio Interest risk is calculated as follows:

$$\text{Portfolio Interest risk} = \sum_{\text{Assets}} \text{Interest risk}_{\text{Asset}}$$

$$\text{Interest risk}_{\text{Asset}} = \left| \sum_{\text{Dates}} \text{Net position}_{\text{Asset}}(\text{date}) \times \text{Interest risk Margin rate}(\text{rub})_{\text{Asset}}(\text{date}) \right|$$

6.4. Concentration Risk is recorded using Concentration Limits: Interest risk margin rate is enlarged, if the absolute value of the net position in the Asset under the Settlement Date exceeds the defined values of Concentration Limits.

6.5. Interest risk, including orders and trades with the settlement according to the fixing price, is calculated in the same way as the limited orders and buy-sell trades in foreign currency, and also the abovementioned orders and trades in plan positions are recorded and netted against obligations in other instruments with this currency.

7. Inter asset spreads credit

7.1. Inter asset spreads credit is given under the Market risk associated with the Portfolio of obligations / claims and Collateral in Assets, which form the spread group (change of exchange rates (price) of Assets, which form the spread group, has strong and stable connection).

7.2. Inter asset spreads credit associated with the Portfolio is calculated as the sum of discounts for the inter asset spreads in each spread group, formed by Assets, obligations / claims and Collateral in which are included into the Portfolio.

7.3. Inter asset spreads credit is given for the common value of the Market risk associated with Assets, which are included into the spread group.

$$Market Risk^+_{spread\ group} = \sum_{Net\ position\ Asset > 0} Market Risk_{Asset}$$

$$Market Risk_{spread\ group} = \sum_{Net\ Position\ Asset < 0} Market Risk_{Asset}$$

7.4. Size of the inter asset spread credit is calculated by the Inter asset spread credit rate, denominated in per cent.

7.5. Inter asset spread credit in Russian rubles is calculated as follows:

$$Credit(rub.)_{spread\ group} = 2 \times Credit\ rate(\%)_{spread\ group} \times \\ \times \min (Market\ risk^+_{spread\ group}; Market\ Risk_{spread\ group})$$