Please find attached:

☑ Principles of Initial Margin Calculation

APPROVED

by the Executive Board
Bank National Clearing Centre (Joint-stock company)
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PRINCIPLES OF INITIAL MARGIN CALCULATION

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Article 1. Definitions

Clearing Center	Bank National Clearing Centre (Joint-stock company).
Clearing Rules	the Clearing Rules of the Clearing Center including Part I. Common part and Part V. Clearing Rules of the Derivatives Market.
Settlement Firm	a set of clearing register sections united in the Clearing Center's records.
Instrument	a futures contract with a specific underlying asset and predetermined settlement date.
Exchange	Moscow Exchange and/or Moscow Energy Exchange and/or NME.
Organised Trading Rules	rules that set out the procedure for regulated trading in contracts being the derivative financial instruments on the Moscow Exchange Derivatives Market, the Moscow Energy Exchange and the Section of standardized contracts on cereals, leguminous plants, and industrial crops at NME.

Terms are used herein as defined in law of the Russian Federation, the Clearing Rules, Specifications of the Instruments and the Organised Trading Rules.

Article 2. General overview

2.1. This document sets out basic rules and approaches for calculating Initial Margin.

2.2. The algorithm is based on a scenario approach.

It implies that a set of scenarios is applied to each group of Instruments. Such scenarios include the following inputs determining prices of Instruments in the group:

- The futures contract price;
- The underlying price at the option's expiration;
- Implied volatility of the futures contract.

Each scenario is a specific combination of the above-mentioned inputs.

Any group of Instruments includes a futures contract and options on such futures contract, if available. The group's underlying asset is such futures contract.

2.3. Futures contract price scenarios are a set of equally spaced points (scenarios) each of which is the futures contract's price.

Following the clearing session, a set of scenarios is determined within the range [Settlement price – 2L; Settlement price + 2L], where L is the Price Fluctuation Limit set in accordance with the Clearing Rules.

When the Price Fluctuation Limits are expanded during the trading session due to the change in the Instrument price, the scenarios range can be increased.

Current Settlement prices and Price Fluctuation Limits are available on the Exchange's website.

2.4. Any implied volatility scenario with regard to the futures contract is a combination of volatility curves. Such combinations include:

- The volatility curve built in accordance with the Theory Option Price and Delta Coefficient Methodology of Moscow Exchange, and

- The volatility curves derived from the first-mentioned curve by multiplying the curve values by coefficients.

The number of such coefficients determines the number of implied volatility scenarios for the futures contract.

The option price is determined by the underlying price and the implied volatility of that futures as set out in the Theory Option Price and Delta Coefficient Methodology of Moscow Exchange.

2.5. Any underlying futures price scenario at the option's expiration (the option expiration scenarios) is a set of scenarios describing the option exercise.

Expiration scenarios are applied to options with the expiration date not coinciding with the settlement date of the underlying futures.

Expiration scenarios are used in addition to futures contract price scenarios and volatility scenarios. Expiration scenarios are taken from the range

[Settlement price -L; Settlement price +L],

An underlying futures price scenario is considered with regard to a specific expiration scenario if only it differs from the expiration price by no more than L.

2.5.1. To calculate Initial Margin with regard to a Brokerage Firm's positions and the Settlement Code, expiration scenarios start to be considered K Settlement Periods before the expiration date of the option.

The number of Settlement Periods, K, for which expiration scenarios are applied, is determined by the Clearing Center.

2.5.2. To calculate Initial Margin with regard to positions recorded in the position register section, expiration scenarios start to be considered D Settlement Periods before the expiration date of the option.

The value D is set by the Settlement Firm for its every position register.

2.6. The number of scenarios described in Clauses 2.3-2.5 hereof is set by the Clearing Center.

2.7. Profit/loss from closing out all positions in Instruments in the group at prices of the scenario is calculated per each scenario.

Such profit/loss is the sum of profits/losses from positions in all Instruments.

If profit/loss from closing out all positions in the group's Instruments is not negative, it is set to zero.

2.7.1. Profit/loss from closing out a position in a futures contract is variation margin that is to be paid or received by the Clearing Member when it exits the contract at the scenario price.

2.7.2. If the position register has been flagged with "No futures discount" by the Settlement Firm, the price of a buy position which is less than the Settlement Price of the futures is set equal to such Settlement Price.

The price of a sell position which is greater than the Settlement Price of the futures is set equal to such Settlement Price.

Settlement Firms may set or cancel flag "No futures discount" individually for every client.

2.7.3. Profit/loss from closing out a position in the option is variation margin that is to be paid or received by the Clearing Member when it exits the contract. Such variation margin is determined by the scenario's price of the underlying futures contract and its implied volatility.

2.7.4. If expiration scenarios are considered with regard to an option, profit/loss from closing out a position in the option is calculated for implied volatility scenarios and futures contract price scenarios as per Clause 2.7.1 hereof, as well as profit/loss from closing out the position for expiration scenarios as per Clauses 2.7.4.1-2.7.4.3 hereof.

2.7.4.1.   If the call option strike price is less than the underlying futures price in a specific scenario, profit/loss from closing out a Position in the futures that was opened at a price being equal to the strike price, is calculated for the futures price scenarios.

If the option strike price is greater than the underlying futures price in a specific scenario, profit/loss from closing out the position is set to zero for the futures price scenarios.

Futures price scenarios are set in accordance with Clause 2.5 hereof.

2.7.4.2.   If the put option strike price is less than the underlying futures price in a specific scenario, profit/loss from closing out the position is set to zero for the futures price scenarios.

If the option strike price is greater than the underlying futures price in a specific scenario, profit/loss from closing out the position in the futures that was opened at the price being equal to the strike price, is calculated for the futures price scenarios.

2.7.4.3.   Futures price scenarios are set in accordance with Clause 2.5 hereof. The following rule apply in all cases described in Clauses 2.7.4.1-2.7.4.2 hereof:

- The price of the option position is deducted from profit/loss if the option position is positive;

- The price of the option position is added to profit/loss if the option position is negative.

Article 3.   Basic size of initial margin

3.1.   The size of the Initial Margin calculated for one contract is called the Basic Size of the Initial Margin.

3.2.   The Basic Size of the Initial Margin is calculated for futures and options contracts.

3.3.   The Basic Size of the Initial Margin called also "Basic Initial Margin" is calculated for any futures contract. It is transmitted to the workstations and gateways of Member Firms and published on the Exchange's website.

3.4.   The Basic Sizes of the Initial Margin is calculated for one sold option and one bought option across all options. They are transmitted to the workstations and gateways of Member Firms and published on the Exchange's website.

3.5.   In addition to values calculated under Clause 3.4 hereof, the Initial Margin is also calculated with regard to all option contracts for one sold option covered by a futures contract (one sold call option covered by one bought futures contract or one sold put option covered by one sold futures contract). Hereinafter this value is referred to as the Initial Margin on a synthetic position. It is transmitted to the workstations and gateways of Member Firms and published on the Exchange's website.

Article 4.   Minimum Basic Size of Initial Margin and Price Fluctuation Limit

4.1.   The minimum Basic Size of the Initial Margin on a futures contract is a value established by the Clearing Center. The Basic Size of the Initial Margin is set greater than or equal to the minimum Basic Size of the Initial Margin.

4.2.   The minimum Basic Size of the Initial Margin for a futures contract is established by the Clearing Center as a percentage of the contract's Settlement Price before the contract is available for trading. The minimum Basic Size of the Initial Margin is published on the Exchange's website.

4.2.1.   The procedure for reviewing the Basic Size of the Initial Margin is described in the Clearing Rules.

4.3. The contract's initial Settlement Price and the Price Fluctuation Limit are set ahead of the contract's first trading day in such a manner that the below equation is true:

$$Limit = \frac{MinBSIM * SP}{2}\text{, where}$$

$Limit$ – the initial Price Fluctuation Limit;
$MinBSIM$ – the minimum Basic Size of the Initial Margin for the futures contract;
SP – the initial Settlement Price.

4.4. The procedure for changing the Price Fluctuation Limit is given in the Clearing Rules. In particular, the Rules set out that the limit may be changed if only:

$$Limit \geq \frac{MinBasicIM * SP}{2}\text{, where}$$

$Limit$ – the initial value of the Price Fluctuation Limit;
$MinBasicIM$ – the minimum Basic Size of Initial Margin for the futures contract;
SP – the initial value of the Settlement Price.

Article 5.   Principles of initial margin calculation

5.1. Futures contracts on the same underlying asset with different settlement periods, and futures contracts with different underlying assets may constitute a spread. The list of Instruments to be included in a spread is determined by the Clearing Center.

  5.1.1. Groups of instruments formed as per Clause 2.2 hereof are broken down into spread and non-spread groups according to the following rules:

  - a non-spread group includes a group with a futures contract not being in the spread;

  - a spread group includes groups with futures contracts that constitute one spread.

5.2. Any positions registered in the position register fall into groups of positions by the groups of Instruments formed as per Clause 2.2 hereof.

The group of positions includes positions in Instruments from same group of Instruments that are recorded in one section of the position register.

Such group of positions is deemed to be tied to the given section of the position register.

 The above-mentioned groups of Instruments and groups of positions are referred to as corresponding groups. The underlying asset of the group of positions coincides with that of the corresponding group of instruments.

  5.2.1. Groups of positions are formed in accordance with Clause 5.1.1 hereof:

  - non-spread groups of positions;

  - spread groups of positions.

5.3. Profit/loss is calculated per each group of positions as per Clause 2.7 hereof.

5.4. Initial Margin is calculated as described above with regard to positions recorded in one section of the position register if the Settlement firm has ticked the relevant option in the Trading System. The option may be activated or disabled for each individual client (position register section) of the Settlement firm.

5.5. Initial Margin for positions recorded in one section of the position register is calculated with regard to spreads in accordance with the following procedure:

  5.5.1. Any spread and non-spread groups of positions are selected that refer to the given section of the position register;

  5.5.2. Profit/loss from all position groups in a spread position group are summed up in each scenario;

  5.5.3. Risk of a position spread/non-spread group is set equal to the absolute value of the minimum profit/loss in all scenarios. Such risk is designated as $IM_{vol\&exp.}$

  5.5.4. Risk of a position spread/non-spread group is set equal to the absolute value of the minimum profit/loss in volatility scenarios. Such risk is designated as $IM_{vol.}$

5.5.5. Profit/loss for a spread/non-spread group for positions recorder in the positions register section is set equal to:

$$W \cdot IM_{vol\&exp} + (1 - W) * IM_{vol.}$$

W is equal to:

- The value of W.cl if it has been set. The value of the parameter W.cl is set per position register section by the Settlement Firm;

- The value of W.br if it has been set and W.cl has not been set for the position register section. The value of the parameter W.br is set by the Settlement Firm for all position register sections of one Brokerage Form;

- 0, if the Settlement Firm has not set other values of W.cl and W.br

5.5.6. Profit/loss associated with the section is the sum up of profits/losses associated with all position non-spread groups of the section and profits/losses associated with all spread groups in the section.

5.6. The principle called "BF Partial Netting" or "SC Partial Netting" apply to calculated initial margin as specified in the form submitted by the Settlement Firm.

The principle "SC Partial Netting" means the margining rule used to calculated Initial Margin with regard to positions recorded in the Settlement Codes in accordance with Clause 5.7 hereof.

The principle "BF Partial Netting" means the margining rule used to calculated Initial Margin with regard to positions recorded on the Brokerage Forms and Settlement Codes in accordance with Clause 5.8-5.9 hereof.

5.7. Initial Margin for positions recorded in the position register sections of one Settlement Code (if the principle "SC Partial Netting" is used) is calculated on the basis of all scenarios (both volatility and expiration) in the following order:

5.7.1. Those position groups are selected which correspond with the Settlement Code sections.

5.7.2. Profits/losses figures (the "profit/loss from identical positions groups") are summed up across all identical position groups in each scenario. Any position groups are identical if they refer to different sections but relate to one group of Instruments.

5.7.3. Profit/loss for the Settlement Code is calculated with regard to spreads based on:

- profits/losses in all scenarios for all groups of positions except for identical groups of positions, and

- profits/losses in all scenarios for all identical groups of positions. Such profits/losses are calculated as described in Clause 5.7.2 hereof,

as well as based on the following assumptions:

- Identical groups of positions are treated as one group of positions;

- All groups of positions are treated as being tied to one section.

5.8. Initial Margin for positions recorded in the position register sections of one Brokerage Firm (if the principle "BF Partial Netting" is used) is calculated with regard to position groups related to the Brokerage Firm's sections in the manner similar to that set out in Clause 5.7 hereof:

5.9. When a Settlement Firm chooses the principle "BF Partial Netting", Initial Margin per the Settlement Code is equal to the sum of Initial Margins of all Brokerage Firms related to such Settlement Code.

5.10. The currency risk premium is added to Initial Margin for a group of Instruments in case their tick size value is set using exchange rates of currencies other than the Russian rouble.

Such currency risk premium is equal to the fluctuation limit R set for a relevant foreign currency by the Clearing Center.