

Please find attached:

- Methodology for setting Price Variation Limits for Derivatives

APPROVED
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Bank National Clearing Centre
(Joint-Stock Company)
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**METHODOLOGY FOR SETTING PRICE VARIATION LIMITS
FOR DERIVATIVES**

THE NCC CLEARING BANK

I. Introduction

This Methodology for Setting Price Variation Limits (the "Methodology") is to set out how price variation limits for trades in futures contracts executed on the Moscow Exchange Derivatives Market, the Moscow Energy Exchange and the National Mercantile Exchange Sector for Regular Contracts on Grain, Legumes and Industrial Crops are calculated and set.

The following abbreviations and definitions are used in this Methodology:

Clearing Center (the "CC") means the NCC Clearing Bank operating based on the clearing license and the Clearing Law.

Clearing Rules (the "Clearing Rules") means the Clearing Center Clearing Rules.

Trading Rules of the Derivatives Market (the "Trading Rules") means rules of on-exchange trading in futures contracts that are applied on the Moscow Exchange Derivatives Market and/or the Moscow Energy Exchange Derivatives Section and/or the National Mercantile Exchange Sector for Regular Contracts on Grain, Legumes and Industrial Crops.

Exchange Trading System shall be designated hereinafter as TS.

Other terms have the meanings ascribed to them by the laws of the Russian Federation, the Clearing Rules, other internal documents of the Clearing Center, and the Trading Rules.

The following basic risk parameters are used in this Methodology:

No	Parameter	Designation
1	Futures contract settlement price	<i>PL₁</i>
2	Futures contracts tick size	<i>MinStep</i>
3	Minimum basic size of initial margin (%)	<i>MinIM</i>
4	Futures contract price variation limit (the "Limit")	<i>Lim</i>
5	Futures contract price variation limit up/down (the "Limit up and Limit down")	<i>Lim_H, Lim_L</i>
6	Spread coefficient (in fractions). Set for each expiration date	<i>Spread</i>

The parameters *PL₁* and *MinStep* are determined in accordance with Contract Specifications and/or the Trading Rules.

The parameters *Spread* and *MinIM* are set and changed as decided by the CC. The parameter *Spread* is set for each expiration date of futures contracts on the same underlying asset in the group, and the unified parameter *MinIM* is set for all futures on the same underlying asset.

The parameters *Lim*, *Lim_H* and *Lim_L* are determined in accordance with this Methodology.

For the purpose of this Methodology, futures contracts on the same underlying asset are brought into a group as decided by the Clearing Center.

The CC determines the group's main contract (the "Main Contract") and publishes it on its website.

All contracts within a group are Minor Contracts except the group's Main Contract.

II. Determining risk parameters during the clearing session

- The following additional risk parameters are used to determine the risk parameters *Lim*, *Lim_H* and *Lim_L* during the clearing session:

No	Parameter	Designation
1	Number of Settlement periods of high volatility	<i>I_num</i>
2	Variation of the contract's Settlement price (in fractions of the Limit). Used	<i>I_criteria</i>

	as a volatility increase factor	
3	Variation of the contract's Settlement price (in fractions of the Limit). Used to change the Limits when volatility rises	<i>I_perc</i>
4	Number of Settlement periods of low volatility	<i>D_num</i>
5	Variation of the contract's Settlement price (in fractions of the Limit). Used as a volatility decrease factor	<i>D_criteria</i>
6	Variation of the contract's Settlement price (in fractions of the Limit). Used to change the Limits when volatility declines	<i>D_perc</i>
7	Time spent to control the adequacy of the Limit up (Limit down) (in minutes) before the Settlement Period ends	<i>E_time</i>
8	Width of the monitoring range (in fractions). Used to control the adequacy of the Limit up (Limit down)	<i>Th</i>
9	Minimum share of open interest in the contract vs. open interest in all futures contracts on the same underlying asset	<i>Th_OI</i>
10	Limit value in the model	<i>Lim_model</i>
11	Futures contract price limit calculated in the previous clearing session (the previous Limit)	<i>Lim_prev</i>

Risk parameters 1-9 are set by the Clearing Center.

2. During the clearing session, it calculates the Limit as follows for each futures contract:

2.1. An initial (first) value of the Limit is calculated as follows on the Contract's first trading day:

$$Lim = \frac{MinIM}{2} \times PI$$

2.2. The CC calculates *Lim_model* as per the following formula:

$$Lim_model = (1 + I_perc) \times Lim_prev$$

If any of the following conditions is met:

- $|PI - PI_prev| \geq Lim_prev$ – i.e. the absolute variation of the Settlement Price in the previous Settlement Period exceeds the previous Limit;
- $\forall i \in I_num : |PI_i - PI_{i-1}| \geq I_criteria \times Lim_prev$ – i.e. the absolute variation of the Settlement Price in every period of high volatility *I_num* in the previous Settlement Period exceeds the previous Limit multiplied by the volatility increase factor *I_criteria*;
- At least one non-negotiated working bid/ask in the futures at the price not varying from the Limit up/down by more than *Th* is available in the Exchange's trading system continuously during the last minutes *E_time*, provided that number of open futures contracts does not exceed *Th_OI* percent of the total number of open futures contracts on the same underlying.

2.3. The CC calculates *Lim_model* as per the following formula:

$$Lim_model = (1 - D_perc) \times Lim_prev$$

If the following condition is met:

$\forall i \in D_num : |PI_i - PI_{i-1}| < D_criteria \times Lim_prev$ – i.e. the absolute variation of the Settlement Price in every period of low volatility *D_num* in previous Settlement Periods is less than the previous Limit multiplied by the volatility decrease factor.

2.4. In any other cases, the CC sets Lim_model equal to Lim_prev .

2.5. The final Limit is set as follows for Main Contracts and Derivatives outside the group:

$$Lim = \max \left[Lim_model; \frac{MinIM}{2} \times PI \right]$$

2.6. The final Limit is set as follows for Minor Contracts:

$$Lim = Lim(BaseContract) \times Spread$$

3. During the clearing session, the Limit up and Limit down are calculated for each futures contract as per following formulae:

$$Lim_H = PI + Lim$$

$$Lim_L = PI - Lim$$

4. The Limit Up (Limit Down) are rounded up (down) to $MinStep$.

III. Monitoring and changing risk parameters during the Settlement period

1. The following additional risk parameters are used to monitor the adequacy and change risk parameters Lim , Lim_H and Lim_L during the clearing session:

No	Parameter	Designation
1	Time spent to control the adequacy of the Limit up (Limit down) (in minutes) during the Settlement Period	Th_time
2	Width of the monitoring range (in fractions). Used to control the adequacy of the Price Variation Limit up (Limit down)	Th
3	Minimum share of open interest in the contract vs. open interest in all futures contracts on the same underlying asset regulated by the same Specifications	Th_OI
4	Maximum number of changes of the Limits over the Settlement Period	Max_shift
5	Size of the first increase from the beginning of the Settlement Period (in fractions of the Limit)	$Shift_1$
6	Size of the second and further increase from the beginning of the Settlement Period (in fractions of the Limit)	$Shift_2$
7	Current Limit in the Settlement Period	Lim_cur
8	Current price deviation Limit Up and Limit Down	$Lim_H_cur,$ Lim_L_cur

2. The CC increases the Limit for a futures contract during the Settlement Period if the following conditions are met one after another:

- a. At least one non-negotiated working bid/ask in the futures at the price not varying from the Limit up/down by more than Th is available in the Exchange's trading system continuously during the Th_time .
- b. Number of open positions in the futures is greater than the established minimum Th_OI of the total open interest in all futures contracts on the same underlying asset regulated by the same Specifications.

3. If conditions a and b of clause 2, Section III above are true throughout the Settlement Period, trading in the given futures and all contracts on the same underlying assets regulated by the same Specifications is halted for no more than fifteen (15) minutes.

4. To trigger a trading halt for the reason given in clause 3 above, the CC sends to the Exchange a relevant notice via the TS.
5. When increased for the first time in the Settlement Period, the Limit and the Price Variation Limit Up/Down for the futures are adjusted as follows:

$$Lim_{cur} = (1 + Shift_1) \times Lim$$

$$Lim_{H_{cur}} = PI \uparrow + Lim_{cur}$$

$$Lim_{L_{cur}} = PI \downarrow - Lim_{cur}$$

6. When increased for the second (further) time in the Settlement Period, the Price Variation Limit Up/Down for the futures are adjusted as follows:

- a. If prices rise:

$$Lim_{L_{cur}} = Lim_L$$

$$Lim_{H_{cur}} = PI \uparrow + (1 + Shift_2) \times Lim_{cur}$$

- b. If prices fall:

$$Lim_{H_{cur}} = Lim_H$$

$$Lim_{L_{cur}} = PI \downarrow - (1 + Shift_2) \times Lim_{cur}$$

7. When increased for the second (further) time in the Settlement Period, the Limit for the futures is adjusted as follows:

$$Lim_{cur} = \frac{(Lim_{H_{cur}} - Lim_{L_{cur}})}{2}$$

8. The CC changes the Limits for Minor Contracts as follows after changing the Limits for the Main Contract:

$$Lim_{cur} = Lim_{cur}(BaseContract) \times Spread$$

$$Lim_{H_{cur}} = PI \uparrow + Lim_{cur}$$

$$Lim_{L_{cur}} = PI \downarrow - Lim_{cur},$$

unless the Limit for the Minor Contract has already been increased more times than the Limit for the Main Contracts has been increased.

9. After increasing the Limit, the CC sends to the Exchange a notice to allow trading resumption.
10. The Price Variation Limit is allowed to be increased for a specific futures contract no more than *Max_shift* times in the Settlement Period.
11. The Price Variation Limit Up (Limit Down) is rounded up (down) to MinStep.