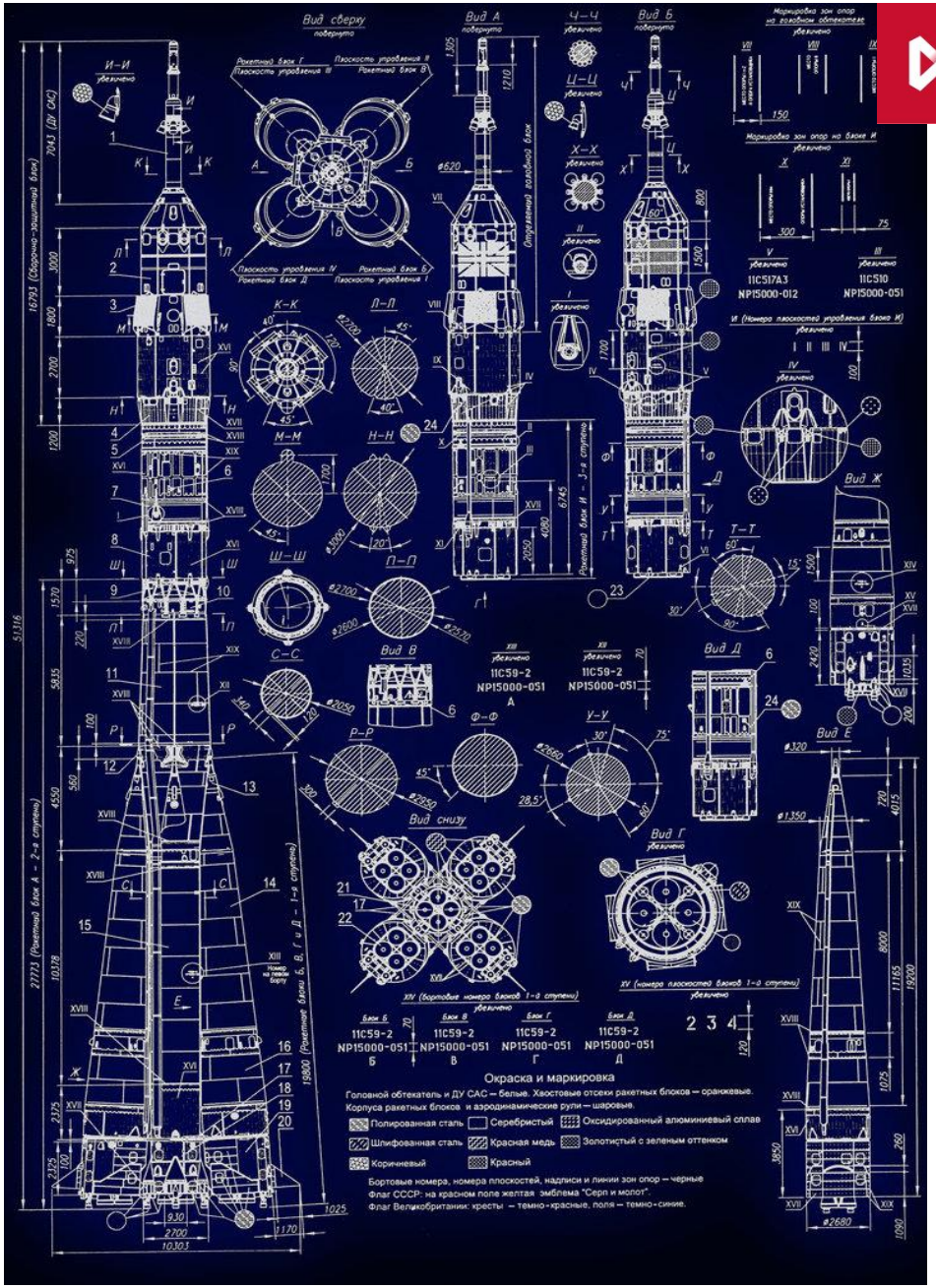

MOSCOW EXCHANGE

Unified Collateral Pool: changes in the risk management system

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Changes and business effects

Algorithm for calculating margin on the derivatives market

- Change in the calculation of margin for calendar spreads
- Margin settings, "Netting" and "Semi Netting"
- Concentration limits

→

- ☑ Less required margin for calendar spread positions.
- ☑ Flexibility of margin configuration settings on the derivatives market.

Calculation of risk parameters and price corridors

- New pricing model for instruments on the derivatives market
- New rules for the changing of risk parameters during clearing
- New rules regarding changes to price limits during trading
- Decrease in time taken to expand price corridors on the derivatives market
- Removal of restrictions on the change of settlement prices on the derivatives market

→

- ☑ Consistency in changes of risk parameters.

Synchronization between markets

- Transferring asset profiles between markets and covered sells.
- Synchronization of risk parameters.

→

- ☑ Cross margining between markets and synchronization of margin requirements on all markets.

Changes in the algorithm for calculating margin for calendar spreads on the derivatives market (1/2)

As is

Margin is calculated for 2 separate orders

Risk scenarios are not netted

To be

Margin for one order

Scenarios for price changes in the underlying are ***netted***

Scenarios associated with parallel movements in the interest rate curve are ***netted***

Example

Portfolio number	Portfolio	Margin as is	Margin with the new algorithm	Change, rub. / %
1	+1 RTS-3.18-6.18 (order)	13 414	2 165	**-11 249 / 84%**
2	+1 RTS-3.18-9.18 (order)	13 414	3 116	**-10 298 / 77%**
3	+1 RTS-3.18-6.18 (order) +1 RTS-3.18 (position)	26 704	16 195	**-10 509 / 40%**

Changes in the algorithm for calculating margin for calendar spreads on the derivatives market (2/2)

Portfolio number	Portfolio	Margin as is	Margin with the new algorithm	Change, rub. / %
1	+1 RTS-3.18 (position) -1 RTS-6.18 (position)	13 414	↓ 2 195	-11 219 / -84%
2	-1 RTS-3.18 (position) +1 RTS-3.18M150218CA 110000 (position)	3 070	↑ 3 128	+58 / +2%
3	+1 RTS-3.18M150218CA 100000 (position) -1 RTS-3.18M180118PA 150000 (position)	26 479	↑ 27 971	+1 492 / +6%
4	+1 RTS-3.18M150218CA 110000 (position) -1 RTS-9.18M200918CA 120000 (position)	9 161	↓ 3 317	-5 844 / -64%

Configuration of margin settings – 'Netting' and 'Semi netting'

As is

Type of netting	Netting of risk scenarios in calendar spreads		Netting of positions between client registers	
	Netting	Semi Netting	Netting	Semi Netting
CL[1]	–	√	NA	NA
BF[2]	–	√	–	√
SA[3]	–	√	–	√

To be

Type of netting	Netting of risk scenarios in calendar spreads		Netting of positions between client registers	
	Netting	Semi Netting	Netting	Semi Netting
CL	–	√	NA	NA
BF	√	√	√	√
SA	√	–	√	–

[1] CL – Client Level
[2] BF – Broker Firm
[3] SA – Settlement account

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Concentration limits on the derivatives market

As is

On the derivative market the margin rate is constant

To be

On the derivatives market, margin rates will depend on the volume of the position, *analogous to the FX and equity market* *

Example

	As is	To be
+900 000 Si-3.18	3 243 600 000	3 624 427 638
+1 500 000 Si-3.18	5 406 000 000	6 832 032 731

* Concentration limits and margin rates are published on the NCC website

Transfer of asset profiles between markets and covered sells

As is

Calculation of covered sells on the FX and equity market

Equity market	
Margin	+1000 USD
Free Money	55 331 RUB

Derivatives market	
Position	-1 Si-3.18
Collateral value	+5000 RUB
Margin requirement	+4047 RUB
Free money	+952 RUB

Transfer of USD asset profile to the derivatives market

Transfer of free money to the derivatives market

To be

- Calculation of covered sells on all markets
- Ability to transfer asset profiles between markets

Equity market	
Collateral value	1000 USD
Asset profile	-1000 USD_collateral
Free money	0

Derivatives market	
Position	-1 Si-3.18
	+1000 USD_collateral
Collateral	+5000 RUB + 58 863 RUB
Margin requirement	515
Free money	63 347

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Consistent changes in risk parameters

Change	Description of change	Market
Changing price limits during clearing	Removal of automatic widening and contracting of limits	Derivatives Market
Change in the methodology for widening price limits during trading	Asymmetric (directional) expansion	Derivatives Market
Changes in the process of widening price limits during trading	Changes in the requirements for price limit expansion	Derivatives Market
Synchronization of risk parameters	Synchronized price limit expansion across all markets	All markets
Removal of restrictions on the settlement price and exchange rates	Removal of current restrictions on the changes in settlement price and min step price inside a single clearing period	Derivatives Market
Change in the pricing model	New model for the pricing of instruments	Derivatives Market

* СР – срочный рынок

New rules for the changes in risk parameters during clearing

Reasons for change in margin during clearing

Automatic change of price limits
Will be removed

Changes in margin rates from a decision by the NCC*
No changes

Example using the case of a margin rate change in March 2014 (SBRF-6.14)

	As is		To be			
Date	Margin PC	Margin EC	Margin PC	Margin EC	Change PC, rub. / %	Change EC, rub. / %
07.03.2014	2476	2476	2476	2476	0%	0%
11.03.2014	2476	1858	1058	1082	-1418 / -57%	-776 / -42%
12.03.2014	1396	1048	998	1036	-398 / -29%	-12 / -1%

PC – Prom clearing
EC – Evening clearing

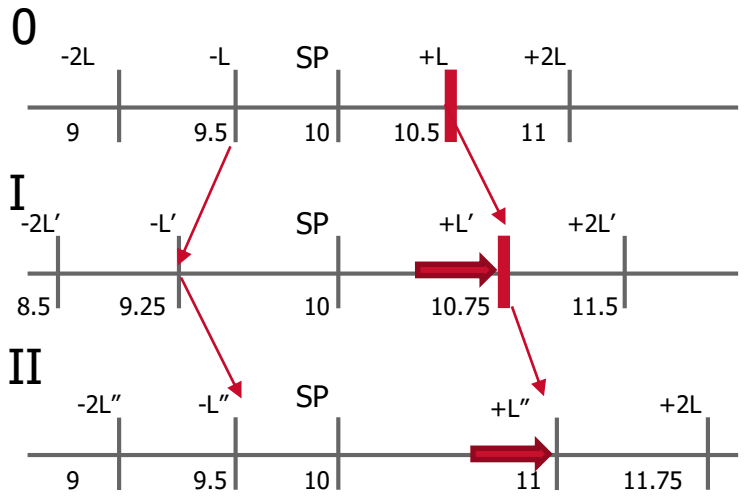
Advantages

The new model is more flexible, allows for quicker potential reaction to changing market conditions, and sets a similar requirement across all markets.

* Changes in margin rates are published in advance on the NCC website.

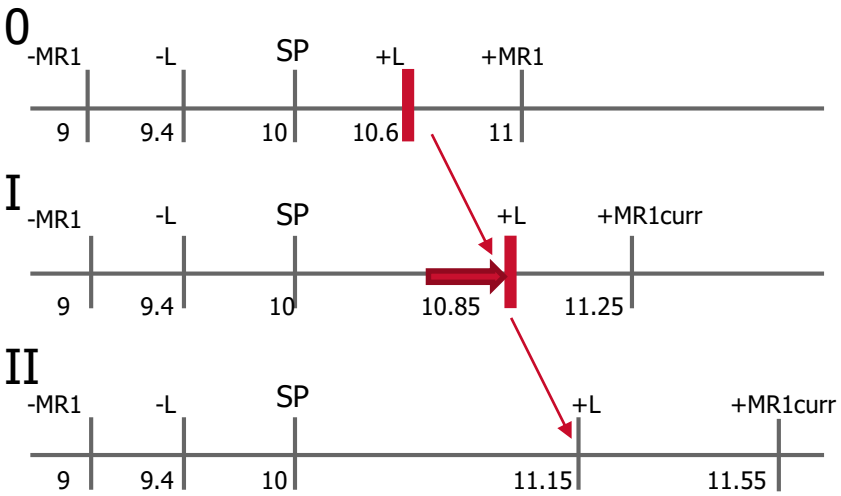
New rules for the changes in risk parameters during trading (1/3)

As is



- I: Limits expand symmetrically.
- Min margin increases by a factor of 1.5.
- II: The price limit in the direction of the market is increased.
- The price limit opposite to the direction of the market returns to the original level.
- Min margin stays approximately 1.5 times the original.

To be



- I, II and so on: Limits are changed asymmetrically (directionally): the price limits in the direction of the market increases by the value of FutShift (a set parameter), the price limit in the opposite direction of the market does not change.
- Min Margin for the futures position increases by 0.5·FutShift (a set parameter).
- The percentage of price limit expansion is set as a parameter.
- The amount of potential price limit expansions is set as a parameter.

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* Information regarding the change in price limits and other risk parameters are published beforehand on the NCC website and in the trading terminals.

New rules for the changes in risk parameters during trading (2/3)

As is

$Limit$ – independent value

$$Margin = 2 \cdot Limit$$

$$Limit \geq 0.5 \cdot MR \cdot SP$$

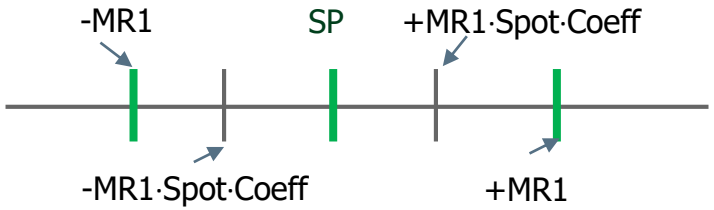
Margin is calculated on the basis of price limits of trades

Parameters

MR – minimum margin rate

To be

$MR1$ – independent value



$$Limit \approx 2MR1 \cdot Spot \cdot IRrisk \cdot FutCoeff$$

$$FutCoeff = 1/4$$

$$IRrisk = f(t, IRR)$$

Price limits are calculated on the basis of MR

Parameters

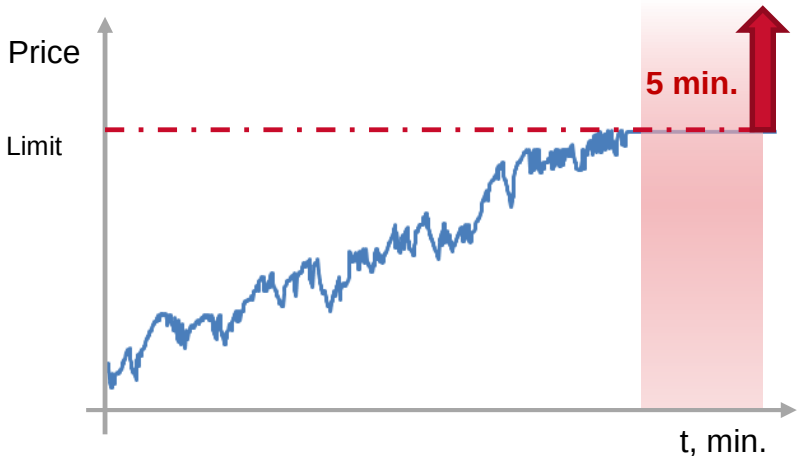
MR1, MR2, MR3 – margin rates

IRR – interest rate risk

FutCoeff – coefficient

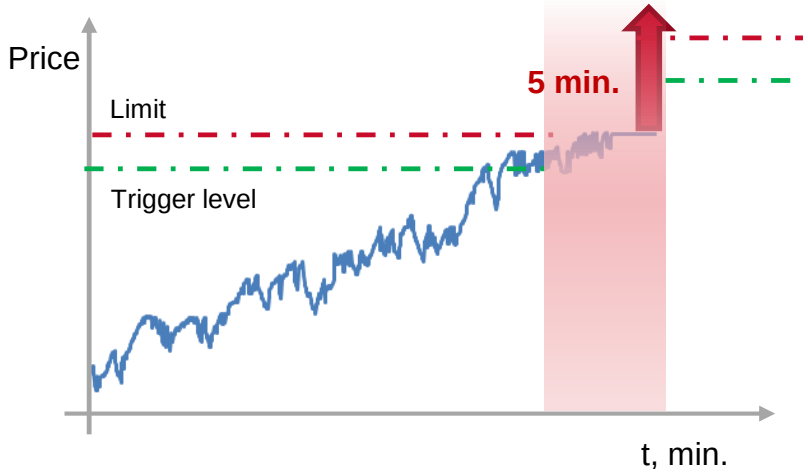
New rules for the changes in risk parameters during trading (3/3)

As is



Currently, price limits are expanded, if there is an order **EQUAL to the price limit** for 5 minutes.

To be



In the new model, price limits will expand if there is an order to buy (or sell) at a price, which is away from the price limit by an amount not greater than the trigger level, for 5 minutes.

The new model allows the expansion of limits to occur even in the case of a temporary 'bounce' from the price limit level.

МОСКОВСКАЯ БИРЖА

* Information regarding changes in price limits and other risk parameters is published beforehand on the NCC website and trading terminals.

Removal of restrictions on the settlement price on the derivatives market

As is:

Changes in settlement price from the previous clearing is restricted by price limits:

$$|\text{РЦ}_t - \text{РЦ}_{t-1}| \leq L_{t-1}$$

Changes in the dollar exchange rate is restricted by a parameter:

$$|USR_t - USR_{t-1}| \leq R$$

In 2014 the restriction on the settlement price for USDRUB futures occurred 7 times.

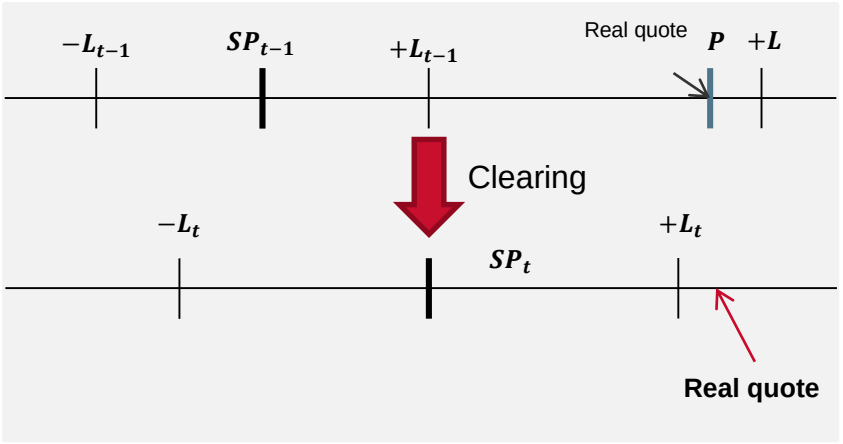
In 2014 the restriction on changes in min step price for USDRUB futures occurred on 16 December. USDRUB=72.448, USR=71.425

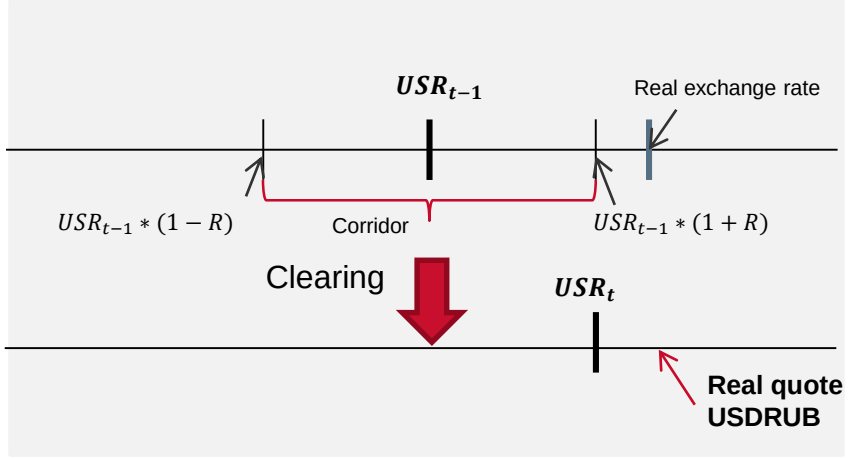
Restrictions were compensated by the increased margin calculated by the risk model

To be:

The new algorithm for margin calculation is able to more accurately measure risk

Restrictions on the settlement price and exchange rate will be **removed**



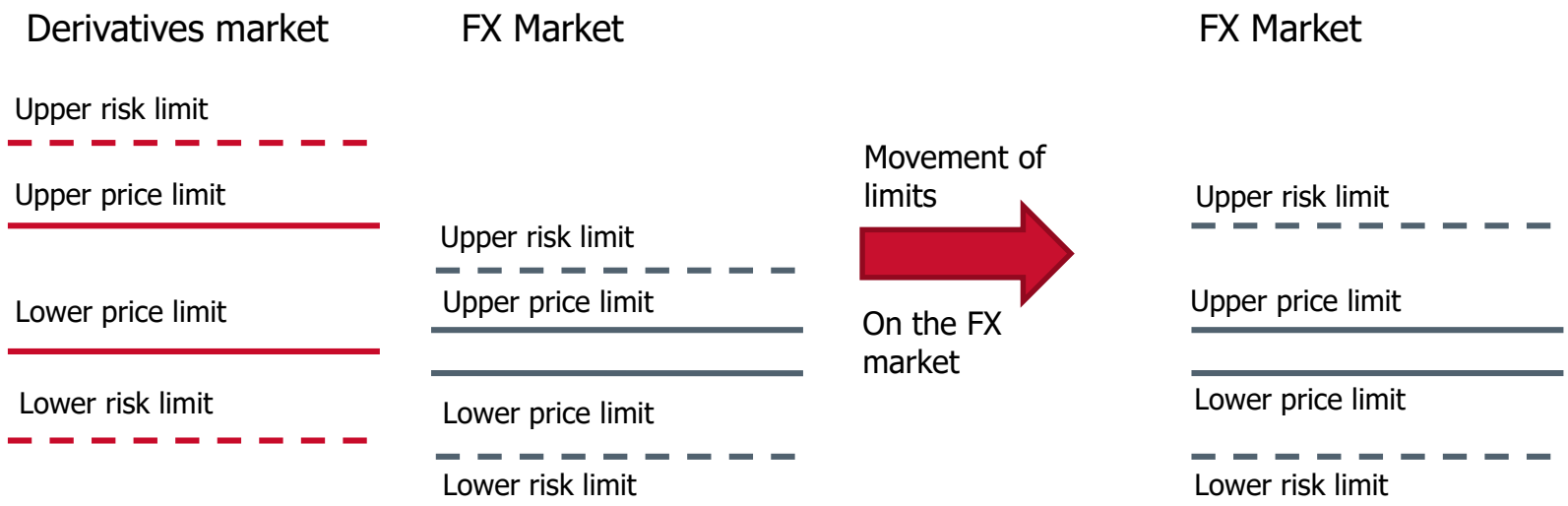


Synchronization of risk parameters

Currently price limits change independently on all markets

In the new algorithm, risk limits will self correct in the case of inconsistencies

Criteria of consistency: price limits on one market lie within the risk limits of another market.



* Information regarding changes in price limits is published beforehand on the NCC website and trading terminals.

New model for pricing instruments on the derivatives market

As is

Settlement price is established for each instrument independently
Settlement prices for low liquidity products may not reflect an accurate or fair value

Such instruments are excluded from risk netting

To be

Changes in the settlement price of low liquid futures will be established by price dynamics of liquid instruments on the same underlying asset

Potential for netting of risks between close and far futures

New algorithm

Load MV={Bid, Ask, Last}
For futures and spot

Assigning priority:
I: Liquid instruments
II: Illiquid instruments

SP(I)=mid(Bid,Ask,Last)
ΔSP(II)=ΔSP(I) corrected to MV

Calculates the interest rate curve

SP(II) corrects to the interest rate curve
SP(II) corrects to MV

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* MV – market value, SP – settlement price, mid - median

Thankyou

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