



**MOSCOW
EXCHANGE**

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Moscow

DERIVATIVES MARKET INDICATIVE QUOTE SYSTEM

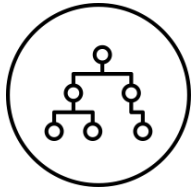
BASIC PRINCIPLES OF THE INDICATIVE QUOTE SYSTEM (IQs)



OPERATIONAL PRINCIPLES OF IQs: CONTENTS



Background and business goals of IQs

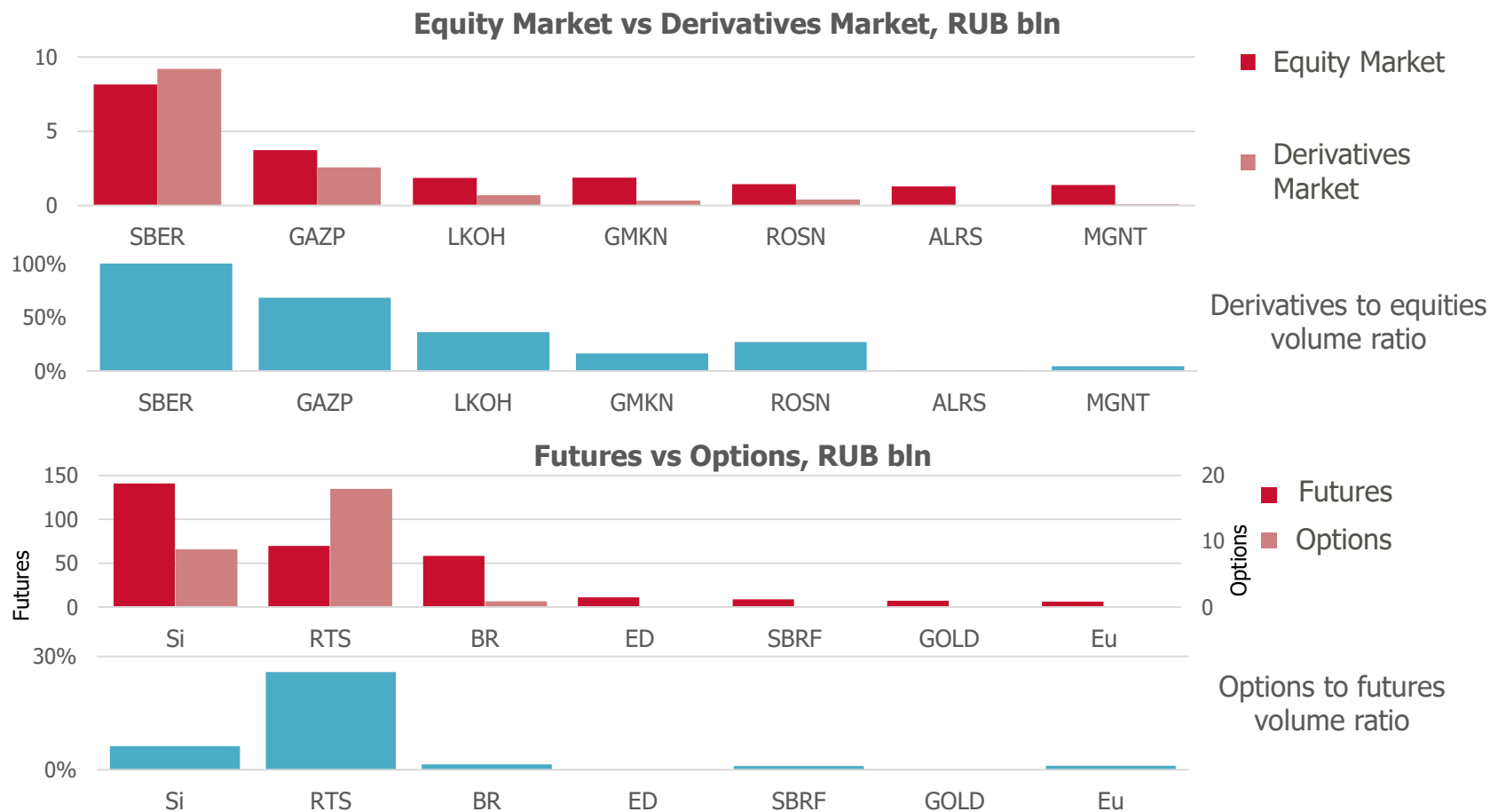


IQs algorithm



IQs instruments

TRADING VOLUMES: POTENTIAL FOR LOW LIQUIDITY INSTRUMENTS



The ratios of derivatives to equities and options to futures trading volumes decrease rapidly as liquidity declines. **Therefore**, low-liquid instruments have undeveloped potential.

IQs: BUSINESS GOALS

The IQs has been designed to stimulate trading in low-liquid instruments by allowing participants to broadcast their interest to the market for free.

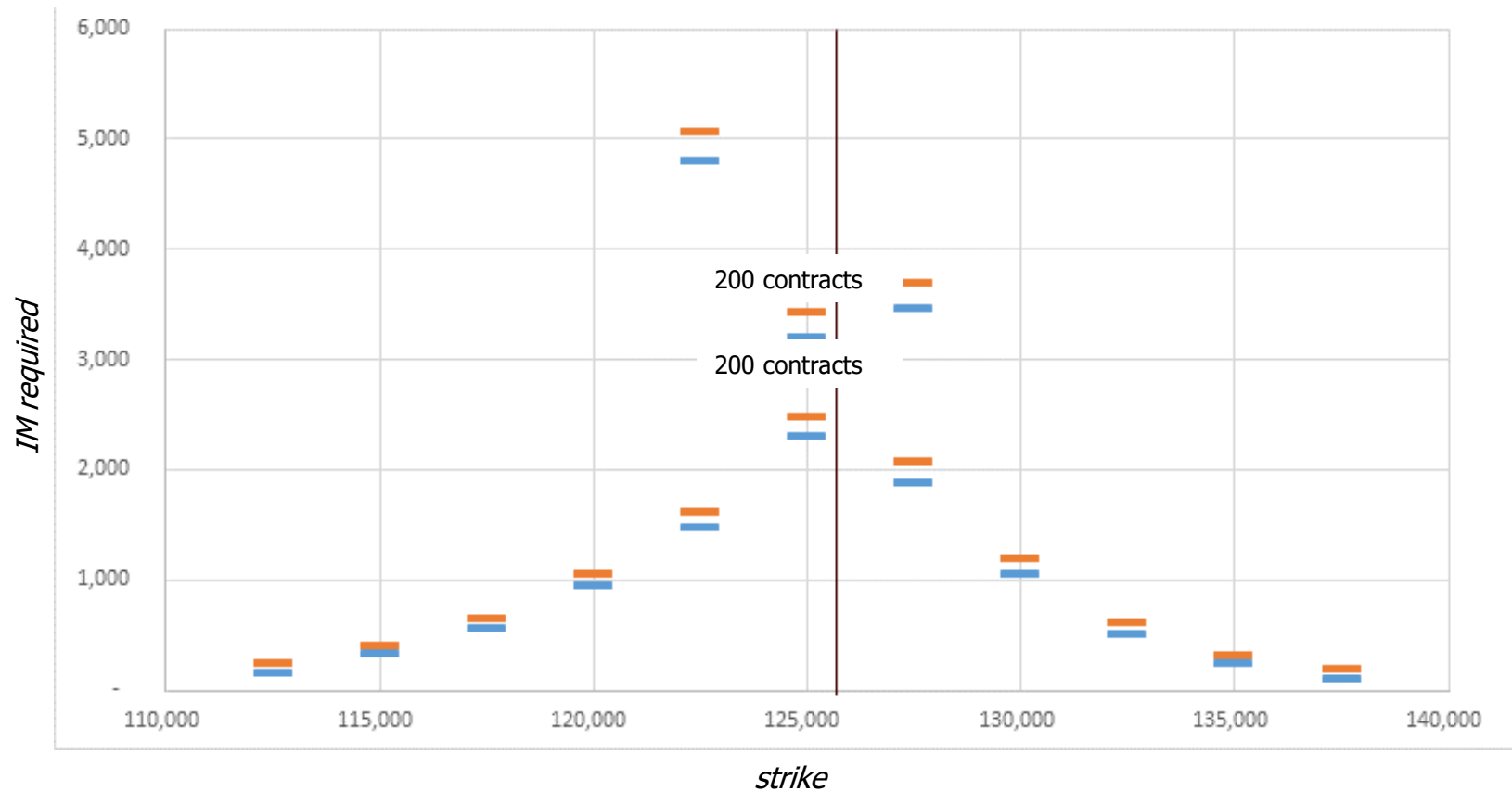
Low-liquid derivative contracts	Examples	Liquid instruments for hedging
Non-liquid futures on liquid underlying assets	RVI, CY, UTRY, non-liquid single stock futures	Underlying asset
Far month expirations of liquid futures	RTS, Si, Eu, ED, MIX, MXI, liquid single stock futures	Near month liquid futures
Non-liquid derivative contracts correlated with instruments traded on other venues	Far month expirations of futures: BR, GOLD, SILV, PLT, PLD	Instruments traded on other venues
Options	Options: single stock options, MIX, MXI, GOLD, SILV, ED, Eu, GBPU, UJPY Far month expirations of RTS, Si and BR options	Underlying assets



MARKET MAKERS: FIXING DIFFICULTIES IN PERFORMING OBLIGATIONS

A market maker must support buy-sell quotes for RTS options at 14 strikes
200/100 buying/selling contracts

IM requirement – RUB 5,045,839



IQs: SOLVING THE PROBLEM AND USER PROFILE

Problems with quoting low-liquid instruments

1

Opportunity cost of initial margin



IM is not required to enter an indicative quote

2

Execution risk, especially during high volatility



A maker may **confirm/reject** quotes with **last look**

User profile

Liquidity Taker
(private investor)



Seeks execution of transactions in low-liquid instruments

Trades manually

Opens mid to long-term positions

May accept orders at a price slightly worse than the theoretical price

Liquidity Maker
(algorithmic trader)



Agrees to quote any derivative contract if the risk can be hedged with liquid instruments

Will accept a price that is at least slightly better than the theoretical price



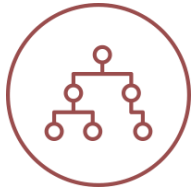
IQs: TERMS and DEFINITIONS

Term	Definition
Indicative Quote System (IQs)	A subsystem (component) of SPECTRA trading platform, designed to process Indicative Quotes.
Indicative Quote (IQ)	An electronic message entered by a trading member into the Indicative Quote System. Analogous to normal trading quotes, it contains information on price and quantity to indicate an interest in a derivative transaction(-s) in the SPECTRA Trading System.
Indicative Order (IQ order)	An order entered into the Trading System following that has successfully passed verification of Indicative Quotes in the IQs in compliance with the Trading Rules. Any Indicative Order is subject to the law on organized trading and anonymous orders, including regulations on market makers.
Last look	The function used by makers to confirm a trade after a match. Failure to confirm a trade indicates a trade rejection.

OPERATIONAL PRINCIPLES OF IQs: CONTENTS



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PHASE 1: IQ ENTRY AND VERIFICATION



Entering a quote into the IQs order book

A client enters a quote via the API or terminal

CGate and FIX transaction interfaces are supported

Indicative Quotes are registered in the Quote Register (IQs order book)



Matching

The IQs order book operates as a central limit order book

The Exchange matches an incoming quote against other compatible orders in the IQs order book



Matching result

Pairs of matched quotes form Indicative Orders (IQ Orders)

IQ Orders are recorded in the Transaction Register



PHASE 2: VERIFICATION IN THE RISK ENGINE



Maker confirmation

Following the registration in the transaction register, the quote is sent by the Exchange to the Maker for confirmation

Option 1:

The quote has not been confirmed => the quote is deleted

Option 2: The quote has been confirmed => next phase (IQ order entry)



IQ order entry in the risk control system

IQ orders are checked by the Exchange and NCC for margin sufficiency according to the regular procedure applied to standard exchange orders

Upon confirmation from the Maker, and successful verification for margin sufficiency, IQ orders (both Maker's and Taker's ones) are registered in the order register (MOEX order book)



Trade execution

Secured counter IQ orders are executed

Non-executed IQ orders are removed from the trading system by the Exchange

Trades executed based on the IQ orders are reported to trading firms



IQs: TRADE ALGORITHM

1 A Maker submits an indicative quote on BR-5.18M250418CA

*At this stage, the **Maker's IM is not blocked** and assets available on the account remain unchanged following the quote entry*

2 The counterparty (the Taker) finds the quote and offers a counter quote

3 The Maker receives the response in the stream

4 Within 200 ms the Maker may elect to accept or reject the trade

5 The Maker confirms the trade

6 The main SPECTRA core initiates verification for collateral sufficiency

7 The parties are verified for collateral sufficiency; the IM is blocked

8 The main SPECTRA core initiates the trade with the CCP (National Clearing Centre)



IQs: TRADING SCHEDULE



The Indicative Quote System's hours of operation are **equal** to the trading hours of the main trading board



IQs: QUOTE CONFIRMATION MONITORING PROCEDURE

The monitoring system for trade confirmations is designed to maximize the **percentage of confirmed quotes**. The Exchange uses a 10-level scheme of thresholds with a range between 1 and 10. It allocates points to a trading participant for every quote rejection and/or erroneous transaction.

Why monitoring is needed?

- To limit “waste” quotes that do not give rise to trades
- To have control over the quality of quotes

When are points allocated?

- A quote has been rejected (+1 point)
- Collateral sufficiency check is failed (+1 point)

What measures are applied?

- Indicative quotes are cancelled
- New indicative quotes are forbidden for a definite period of time

How are points cancelled?

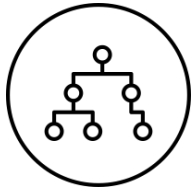
- Every 60 seconds (-1 point)



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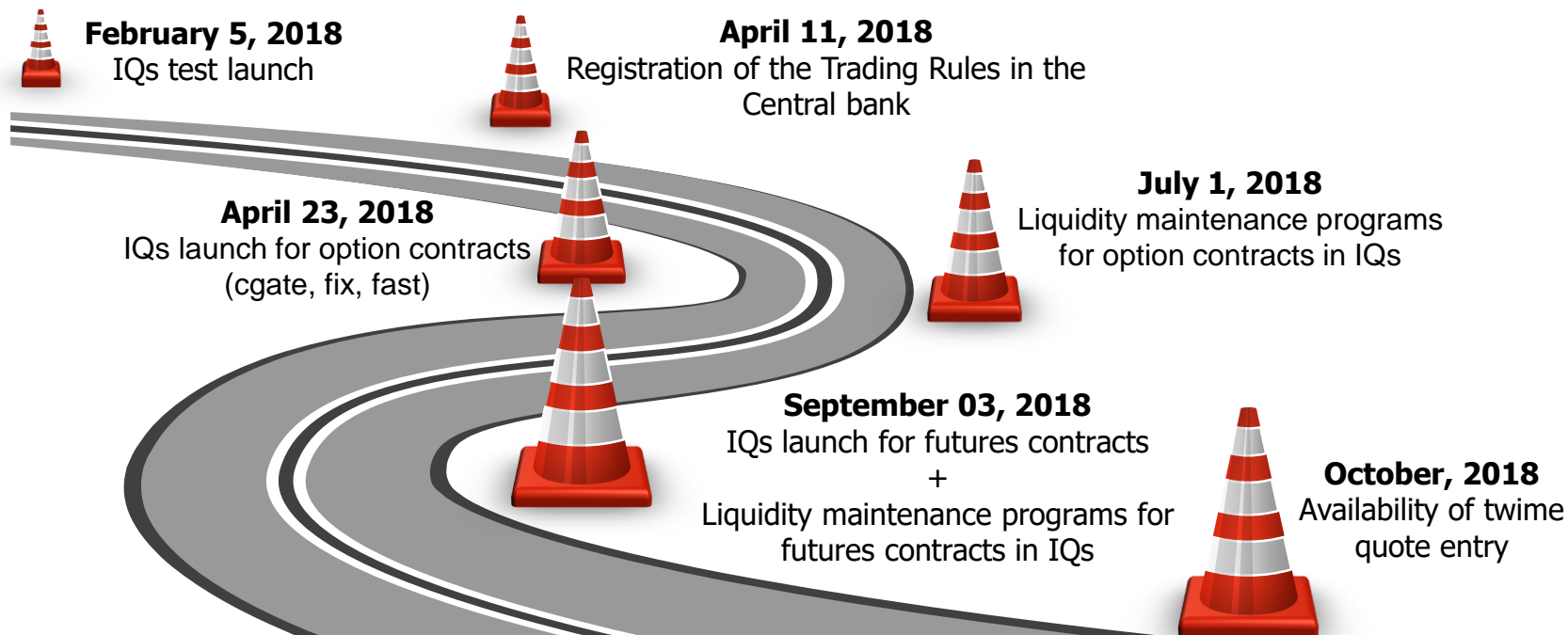
IQs instruments

INSTRUMENTS IN THE INDICATIVE QUOTE SYSTEM

What instruments are available in the IQs?

1. Low-liquid instruments
2. Far month expirations of liquid instruments

IQs Roadmap



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INDICATIVE QUOTE SYSTEM's **TECHNICAL FEATURES**



IQs TECHNICAL FEATURES: CONTENTS



Interfaces



IQs data model



Architecture



IQs **INTERFACES**

Transaction interfaces

- cgate
- FIX

Data dissemination interfaces

- cgate
- FAST

Reporting

- Main market trade reports
- IQs quasi-trade reports
- Report on trades tied to quasi-trades



IQs TRANSACTION INTERFACES



cgate

- The IQs can be accessed via independent connections;
- Basic usernames can be used simultaneously in the two systems;
- Transactions are similar to transactions of the main core;
- IQs_SRV listener and IQs_MSG message categories are used. P2MQRouter routes messages automatically between the two systems.



FIX

- The IQs can be accessed via a specific API;
- Basic usernames can be used;
- Quote* messages are used to operate quotes.



IQs **DATA INTERFACES**



Overview

- Data streams are separated from the major core streams;
- The streams are generally similar to main streams with regard to;
 - Quotes;
 - Quasi-trades and trades;
 - Aggregated order books.



cgate

- New data streams IQs_*_REPL;
- A stream with statuses of quasi-trades has been added;
- A stream with penalty point levels (control over indicative quote confirmations);
- Main streams of cgate will include new additional technical orders and trades. This allows back office record keeping without IQs data streams.



FAST

- Streams with instruments, aggregates, quotes and trades.



IQs TRADE **REPORTS**



Main core reports

- Changes in reports f04/o04/f04cl/o04cl;
- New trade types are added to the reports:
 - Type 18 – IQs trade in futures;
 - Type 19/20 – IQs trade on the first/second leg of a calendar spread;
 - Type 5 – IQs trade in an option.



IQs reports

- Report Ind04 – report on IQs quasi-trades;
- Report IndLink – report with a link number for a quasi-trade and an associated trade.



IQs TECHNICAL FEATURES: CONTENTS



Interfaces



IQs data model



Architecture



IQs **DATA MODEL**



Standard model for double auction

- Counterparties enter their quotes;
- The first quote is directed to the IQs order book;
- The second quote matches a part of the first quote if parameters of the counter quotes match.



...And here come the differences!

Quasi-trade

- The counter quotes create a quasi-trade;
- The quotes are withdrawn from the order book;
- The maker must confirm the trade;
- Both parties of the quasi-trade are verified for collateral sufficiency;
- And only after that, the quasi-trade is turned into a true trade;
- ... or it is not, if either party has insufficient collateral.

IQs DATA MODEL: **TWO PERSPECTIVES**

IQs perspective

- Clients enter quotes;
- The quotes are matched into a quasi-trade;
- The quasi-trade is verified in the risk sub-system;
- The quasi-trade becomes a true trade, subject to a successful check.

Main SPECTRA core perspective

- Two technical orders appear;
- They are matched into a trade if submitted successfully;
- The trade has the following flags:
 - 0x800000000 – an IQs trade;
 - 0x4 – off order book trade.



IQs DATA MODEL



Quote

- Entered by a client
- **quotes_log** table in the IQs stream



Quasi-trade

- Created as a result of matching of two quotes
- **user_qdeal** table in the IQs stream
- **user_qdeal_state** table in the IQs stream



Order

- Is created for every party based on the quasi-trade parameters
- **orders_log** stream in SPECTRA

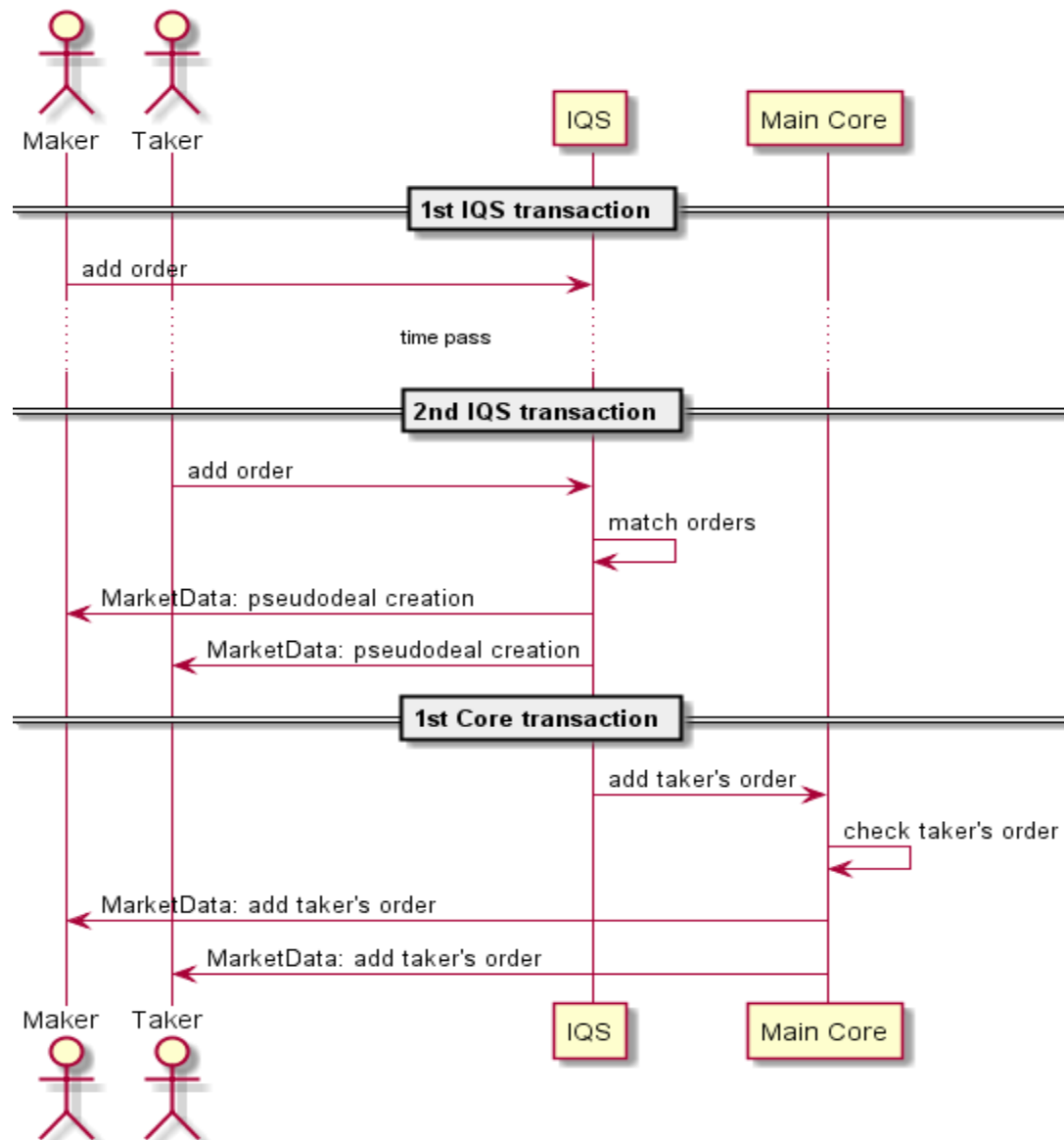


Trade

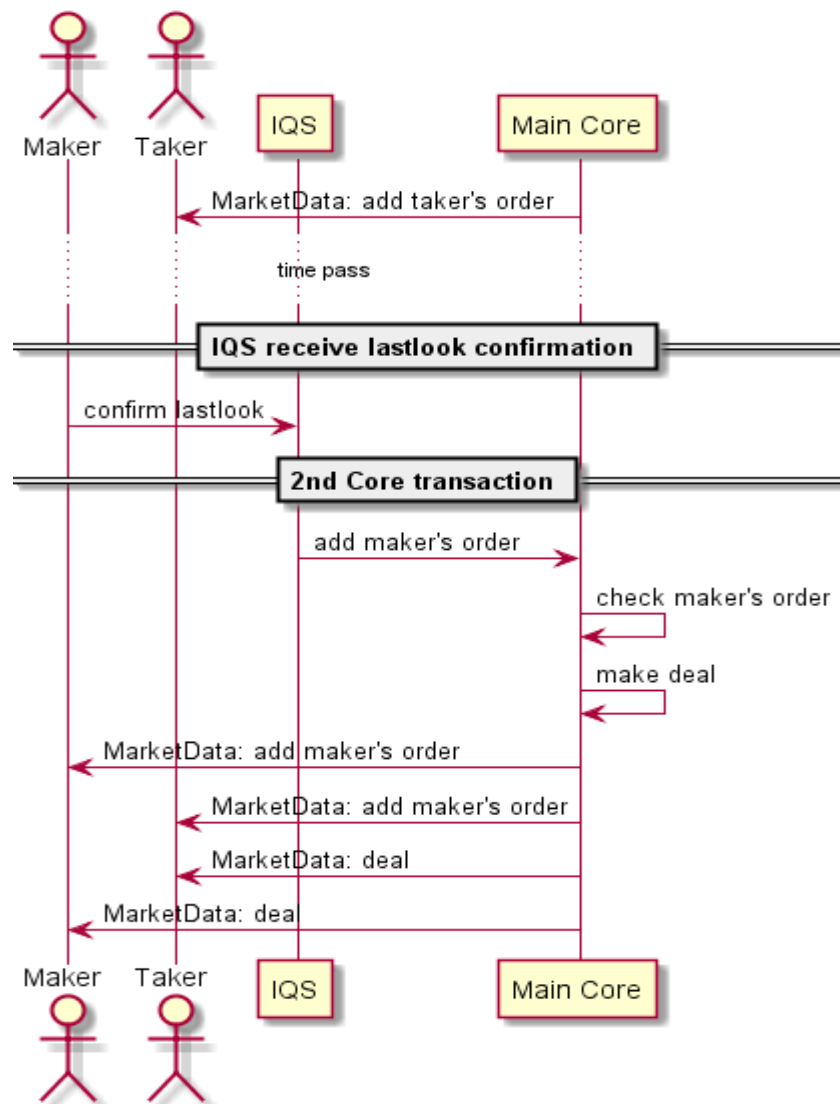
- Formed as a result of matching of counter orders
- **user_deal** table in the IQs and SPECTRA streams



IQs TRADE PROCESS 1/2



IQs TRADE PROCESS 2/2



CONFIRMATION OF A QUOTE BY THE MAKER



Last look

- Last look – confirmation of a quasi-trade by the passive party within 200 ms;
- If the quasi-trade has not been confirmed, it is treated as void.



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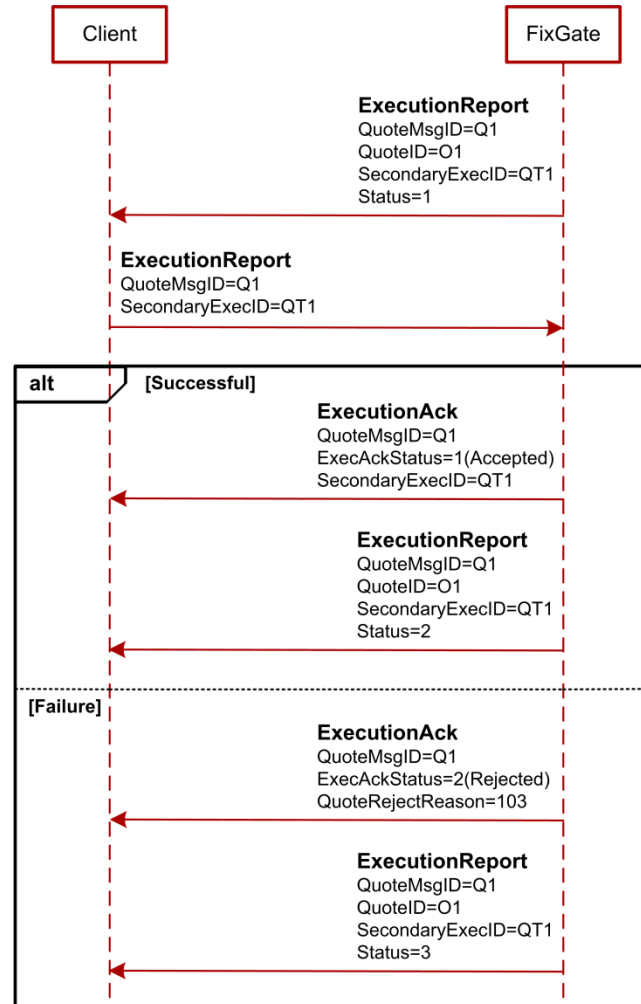
- The passive party monitors records in user_qdeal_state table. The "1" value in the "state" field means confirmation is pending from the passive party;
- The Maker sends the "ConfirmQDeal" message to confirm the trade.



FIX

- The Maker receives the "ExecutionReport" message with "1";
- The Maker sends the "ExecutionReport" message with the trade ID.

QUASI-TRADE CONFIRMATION VIA THE FIX INTERFACE



IQs: QUOTE **CONFIRMATION MONITORING PROCEDURE**



The amount of penalty points is increased by one when

- ☐ A trading member who has entered the initiating IQ rejects the quote;
- ☐ An erroneous transaction is made by a trading member who has entered the initiating IQ;
- ☐ An erroneous transaction is made by a trading member who has entered the counter IQ.

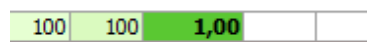


The amount of penalty points is decreased by one

- ☐ Every 60 sec in absence of quote rejections and erroneous transactions.

Level	1	2	3	4	5	6	7	8	9	10
IQ order cancellation (Y/N)	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Time-out (mm:ss)	00:00	00:00	00:00	00:10	30:00	600:00	600:00	600:00	600:00	600:00

QUOTE CONFIRMATION MONITORING SYSTEM: EXAMPLE



Order book 1



Order book 2



Order book 3



Order book 4

Time	Action	Points	Points total	Time-out (MM:SS)
10:00:00	Trading member N submits indicative quotes		0	00:00
10:00:10	In 10 sec, a counter quote is found on Order Book 1, but not confirmed by trading member N	+1	1 ▲	00:00
10:00:20	In 10 sec, a counter quote is found on Order Book 2, but not confirmed by trading member N	+1	2 ▲	00:00
10:00:30	In 10 sec, a counter quote is found on Order Book 3, and confirmed by trading member N, but the member has insufficient collateral	+1	3 ▲	00:00
10:00:30	<i>The quote is automatically deleted in Order Book 4</i>			
10:00:40	Trading Member N submits extra 1,000 counter quotes on Order Book 4, but the member still has insufficient collateral	+1	4 ▲	00:10
10:00:40-10:00:50	<i>Trading Member N is prohibited from submitting IQs quotes for 10 sec.</i>			
10:01:20	In 60 sec after the first point is allocated (the 10-second time-out is not included), one point is cancelled for trading member N	-1	3 ▼	00:00
10:01:20	<i>The MM is allowed to submit IQs quotes again</i>			



IQs TECHNICAL FEATURES: CONTENTS



Interfaces



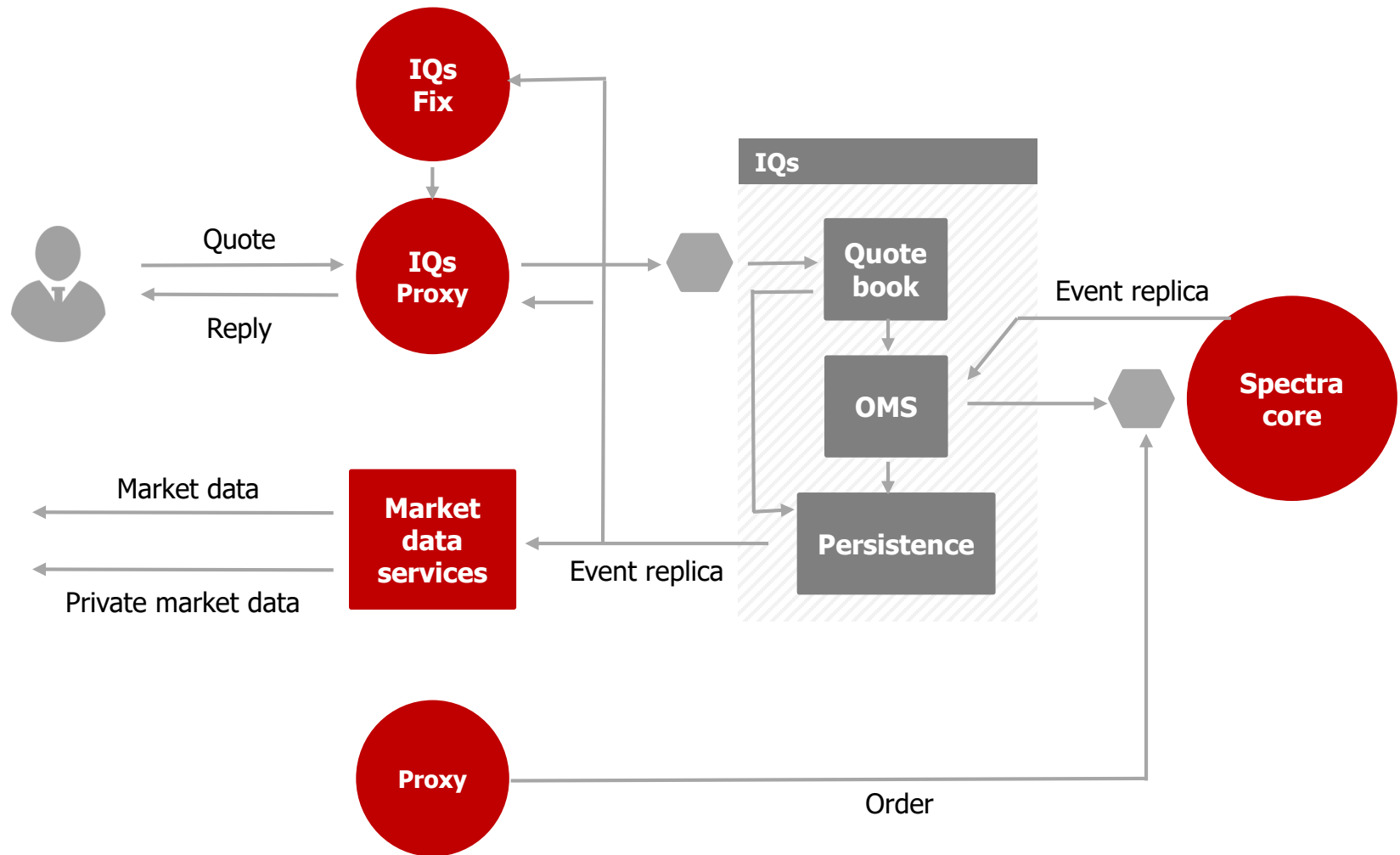
IQs data model



Architecture



IQs: ARCHITECTURE



THANK YOU

Product and service development

Derivatives Market

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- changes in (a) domestic and international legislation and tax regulation and (b) state policies related to financial markets and securities markets;
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- the ability to keep pace with rapid changes in science and technology environment, including the ability to use advanced features that are popular with the Company's and its subsidiaries' customers;
- the ability to maintain continuity of the process of introduction of new competitive products and services, while keeping the competitiveness;
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