Borsa Italiana Optiq Migration

Changes and impacts of the RFE market model applied to SeDeX and Cert-X
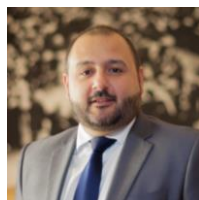
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Speakers

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Agenda

1. **Trading Hours and Phases**

2. **Order Types & Controls**

3. **Request For Execution (RFE)**

4. **Liquidity Provider, Market Maker, Secondary Liquidity Provider**

5. **Additional features**

6. **Q&A**

Session's objectives:

- Provide an overview of the future W&C model

- Detail some new critical functionalities that will be made available to Italian customers

- Enable dialogue with customers on the changes related to the W&C model within Euronext
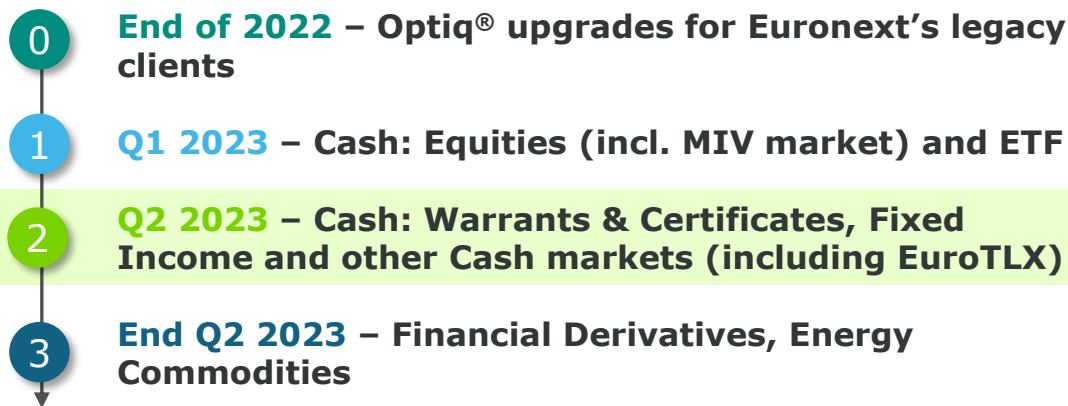
CONTEXT REMINDER AND OPTIQ ARCHITECTURE
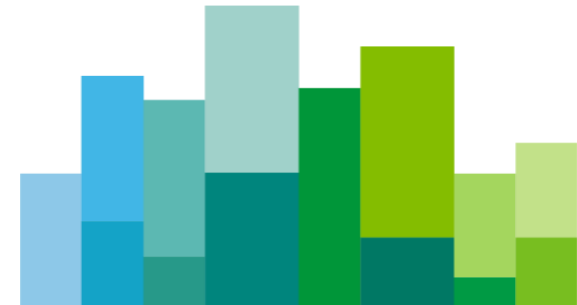
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Context reminder

Following Euronext's acquisition of Borsa Italiana in April 2021, Borsa Italiana's trading systems **will migrate from the Millennium Exchange and SOLA systems to the Euronext Optiq® platform**. The migration of Borsa Italiana to Optiq will allow its trading participants to **benefit from existing features provided by the platform through improved connectivity and backward/forward compatible protocols, and an optimised messaging model.**

Migration timeline as currently anticipated

0 — **End of 2022** – Optiq® upgrades for Euronext's legacy clients

1 — **Q1 2023** – Cash: Equities (incl. MIV market) and ETF

2 — **Q2 2023** – Cash: Warrants & Certificates, Fixed Income and other Cash markets (including EuroTLX)

3 — **End Q2 2023** – Financial Derivatives, Energy Commodities

Warrants & Certificates migration is targeted for Phase 2 which is supposed to take place in H1 2023

Detailed migration timeline and related confirmation will be shared in due course

- For our clients to experience a smooth migration of Borsa Italiana Markets onto Euronext systems according to the anticipated timeline, we kindly **encourage them to secure time, resources and budgets in 2022 and 2023**. We are conscious of the efforts required from our clients and thank you in advance

- Technical resources and capabilities will be required to configure and prepare systems to migrate and update connectivity links (for Italian and other Euronext markets)

- **MTS is not in scope for the migration**

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Logical segregation per asset class

- Euronext tradeable instruments are listed across dedicated and independent **Optiq® segments**

- An Optiq® segment defines a **universe of instruments** belonging to the same asset class; they share the same common financial properties

- For capacity and performance, a segment can be split in multiple **partitions**

Italian W&C instruments will be listed on Optiq® Warrants segment

CASH SEGMENTS	Equities	Fixed Income	ETFs & Funds	Warrants & Certificates (Structured products)	Euronext Block (MTF)
DERIVATIVES SEGMENTS	Equity Derivatives	Index Derivatives	Commodity Derivatives		
PUBLICATION SEGMENTS	Indices	APA	Irish Bonds & Funds	Euronext FX	

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The Optiq® architecture

Core components of the trading chain

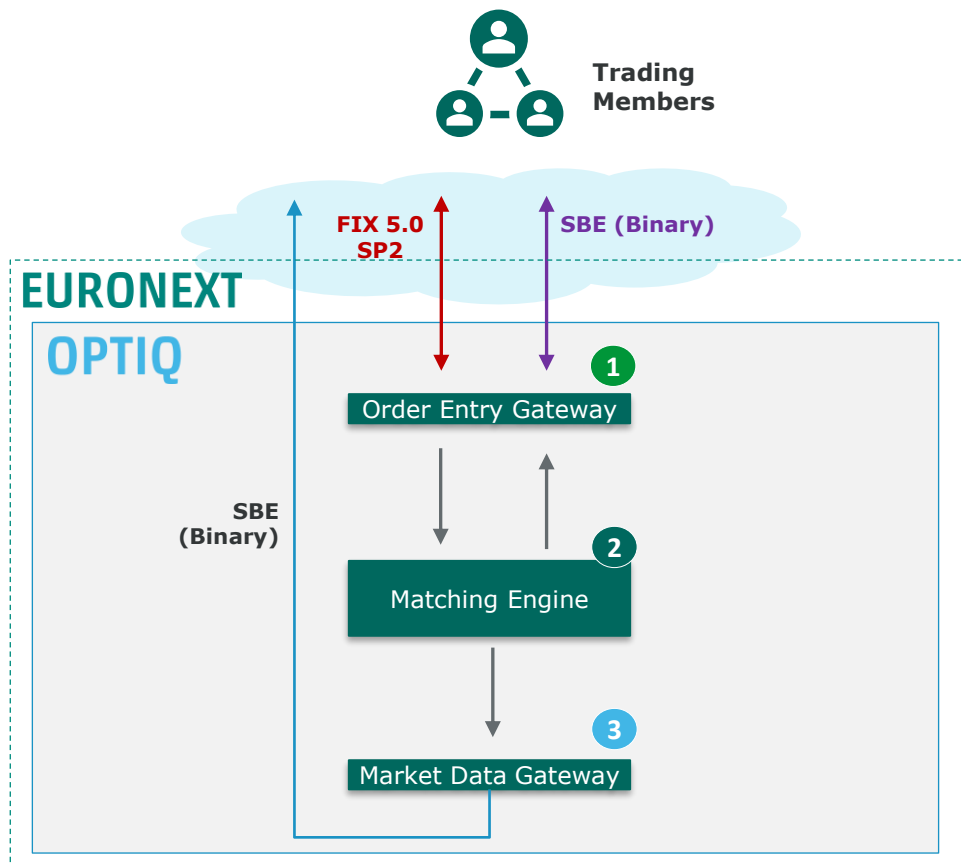**1** **Order Entry Gateway (OEG)**

- Two protocols available:
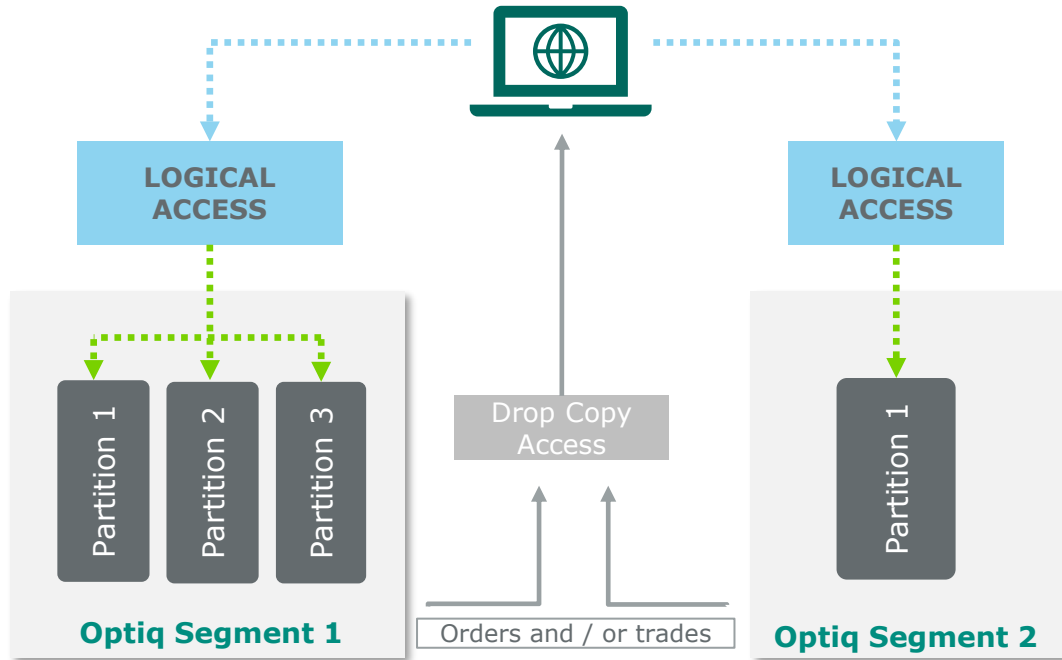 - **FIX 5.0 SP2**
  - **SBE (Simple Binary Encoding)**

2 **Matching Engine**

- Management of the order book

3 **Market Data Gateway (MDG)**

- Market data provided via multicast feed in SBE format

Trading Members

FIX 5.0 SP2   SBE (Binary)

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OPTIQ

SBE (Binary)

1 Order Entry Gateway

2 Matching Engine

3 Market Data Gateway

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Connectivity to Optiq® Matching Engine

A **Logical Access (LA)** represents the logical access point to an Optiq® Segment

- Members should have at least one **LA for each segment they have trading authorisations on**

- **The same LA** can be used to:
  - Trade on **multiple Euronext markets** (including Borsa Italiana's W&C instruments that will not have a dedicated partition/access)
  - Connect to all partitions of a segment

All instruments of the same asset class (i.e. within an Optiq® segment) for all Euronext markets are load-balanced across the partition(s) of that segment

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Trading segmentation on securitised derivatives

Current BITA classification

Borsa Italiana shall assign the financial instruments to:

| Domestic Segment | ICSD Segment |

Within the two segments, financial instruments are subdivided into different product types:
- "Plain Vanilla Covered Warrants"
- "Structured/Exotic Covered Warrants"
- "Leverage Certificates": Class A and Class B
- "Investment Certificates": Class A and Class B

How segmentation will work tomorrow onto Optiq?

- All instruments trading on SeDeX and Cert-X will join **similar instruments on the Warrants Optiq® Segment**

- **With the same Logical Access** (with proper membership authorisation), market participants who already access the Warrants Optiq® Segment will be **able to:**
  - ✓ **Access instruments traded on SeDeX and Cert-X**
  - ✓ **Trade other Euronext markets**

- Trading authorisations on SeDeX and Cert-X will replicate the current ones, that are:
  - ✓ Clients can be authorised **to trade on SeDeX only**, on **Cert-X only** or on **both**;
  - ✓ Clients can be authorised to trade on **Domestically Settled Instruments only**, on **ICSD Settled Instruments only** or on **both**.

  Note: Currently Clients have to use different Comp IDs for the 2 categories, once on Optiq the same Logical Access will have to be used for both categories

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ORDER BOOK TRADING RULES

RFE model in a nutshell

SeDeX and Cert-X will benefit from the Request For Execution (RFE) model already in place on Euronext markets

HOW IT WORKS	ADVANTAGES

HOW IT WORKS

- Each instrument has a Liquidity Provider (LP)

- An investor can trade against:
  - ✓ the LP,
  - ✓ a Secondary LP (if any),
  - ✓ a Market Maker (if any),
  - ✓ or another investor
  - ✓ but always within the LP's bid-offer spread

- When 2 orders can match in the COB, a Request For Execution (RFE) message is sent to the LP

- Within a pre-defined refresh period, execution is frozen, and the LP can provide up-to-date prices

- When the LP answers the RFE or at the latest at the end of the refresh period, matching happens by price-time priority

- Trading is suspended if the Liquidity Provider is absent

ADVANTAGES

In the case of sudden market bursts, on Order Driven market models, LPs can protect themselves against latency arbitrage by:
- *widening their bid-offer spreads,*
- *reducing their quantities, or*
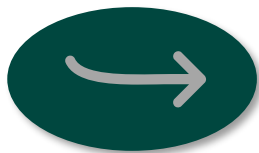- *exiting orderbooks for a short while*

→ *Situation leading to degraded liquidity for investors*

Thanks to the RFE mechanism and to the benefit of investors:

- LPs are protected from latency arbitrage - they don't need to degrade liquidity;

- Issuers are in the ideal environment to expand their offer of listed products;

- During the absence of the LP, the suspension of the orderbook protects investors from trading at prices not as good as the LP's.

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Other key changes

Maintained Features

- Post-trade set-up with bilateral netting settlement in Monte Titoli *
- Bid-only quote-driven (renamed Bid-Only Before Buy Back)*
- Direct Distribution model*
- Products for professional investors only on Cert-X

Additional Features

- Extended Trading Hours (ETH)
- New closing price algorithm *
- New orders types
- KIBI, KOBI and PAKO
- Virtual Offer Price (during Bid Only)

Discontinued Features

- Self-Execution Prevention
- Quoting period
- Static/Dynamic Prices
- Circuit breakers mechanism

* Change also extended to Euronext legacy markets

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Trading Hours

Trading on the SeDeX/Cert-X markets shall be carried on with the following hours:

Call opening phase — Between 7:15 and 7:45* – 9:05 CET

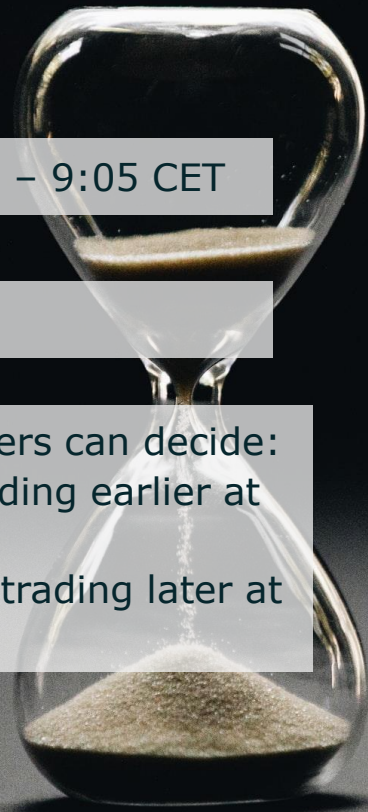**Normal Continuous trading phase** — 9:05 – 17:30 CET

Extended trading hours — At instrument level, issuers can decide:
- To start continuous trading earlier at 8:00 CET
- To end the continuous trading later at 20:30 or 22:00 CET

Market participants can set a time validity to the orders submitted by their clients coincident with one of the trading sessions closing time

| *Opening time for call phase is under discussion*

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Orders types

The following types of orders may be entered:

	Call	Continuous	ETH
LIMIT ORDERS	✓	✓	✓
MARKET ORDERS	✓	✓	✓
STOP-ON-QUOTE ORDERS	✓	✓	✓
STOP-ON-QUOTE LIMIT ORDERS	✓	✓	✓
ICEBERG ORDERS	✓	✓	✓

✓ New   ✗ Not available   ✓ Available

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Orders validity

Non-Liquidity Provider orders can be assigned the following conditions:

	Call	Continuous	ETH
DAY	✓	✓	✓
GOOD TILL DAY (GTD) *max duration of 365 days*	✓ (New)	✓ (New)	✓ (New)
GOOD TILL CANCELLED (GTC)	✗	✗	✗
IMMEDIATE OR CANCEL (IOC) *	✓	✓	✓

✓ New   ✗ Not available   ✓ Available

| * Only on instruments with RFE = 0, and not on Stop-On-Quote (Limit) orders

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Controls on orders

1 MINIMUM TICK

The prices of orders may be multiples of the ticks established for each financial instrument in relation to the prices of the orders entered, as follows:

Table currently in place on Cert-X market which will be extended to SeDeX	Price of the order entered (euro and other currencies) *	Tick
	Less than 0.0030	0.0001
	0.0030 – 0.3000	0.0005
	0.3000 – 1.5000	0.0010
	1.5000 – 3.0000	0.0050
	Equal to or more than 3.0000	0.0100

Considering the characteristics of the financial instruments, Borsa Italiana may establish a different tick informing the market with a notice

2 PRICE BANDS

- Orders are **checked upon entry vs the Price Bands % a +/- X%** indicated in the Guide to the Parameters
- In case orders fall outside the price bands they are rejected to prevent insertion of aberrant orders

3 MINIMUM LOT

- Orders are **checked upon entry to make sure the quantity is a multiple** of the minimum trading lot

| * Upper limits not included

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Trading methods and phases

Trading is organised with the following phases:

Orders can be:	Call phase	Call phase continuous uncrossing	Continuous Trading with RFE	Reservation phase	Reservation phase continuous uncrossing	Closed	Inaccessible
	1	**2**	**3**	**4**	**5**	**6**	**7**
	Period when orders and quotes are accumulated but matching does not occur	*Period that starts at the end of the Call phase*	*Period during which orders and quotes are submitted and typically matched continuously*	*Period when orders and quotes are accumulated but matching does not occur*	*Period that starts at the end of the Reservation phase*	*Period that starts at the end of the Continuous Trading with RFE*	*Period that starts at the end of the Closed phase*
Inserted	✓	✗	✓	✓	✗	✗	✗
Modified	✓	✗	✓	✓	✗	✗	✗
Cancelled	✓	✗	✓	✓	✗	✓	✗

✗ Not available ✓ Available | 17

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Trading methods and phases

Trading is organised in the following phases:

1 Call (Pre-Opening) Phase

Order & quote accumulation period, during which Optiq® records all orders and quotes entered but matching does not occur
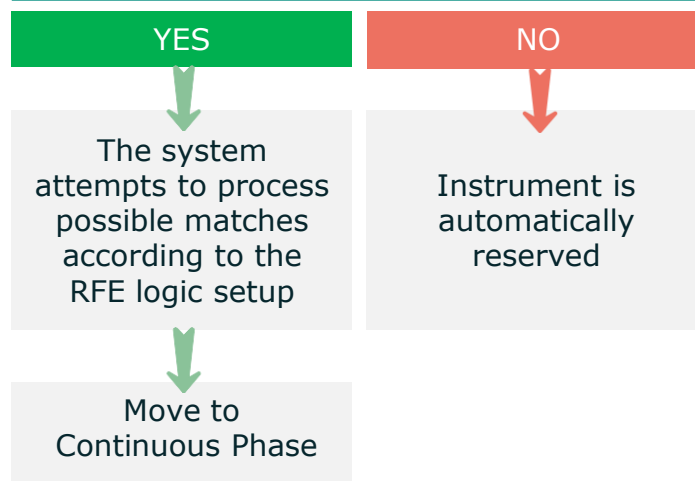
During this phase:

- The **Bid and Offer quotes** of the LP are **broadcast to the market** via the MarketUpdate message

- The **Bid and Offer orders** of other market participants are broadcast to the market via the MarketUpdate message

- **No matching** of orders and/or quotes is possible during this phase

2 Call Phase Continuous Uncrossing

At the opening, 2 cases could occur:

LP Presence in the order book?

YES	NO
The system attempts to process possible matches according to the RFE logic setup	Instrument is automatically reserved
Move to Continuous Phase	

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Trading methods and phases

③ Continuous trading with Request For Execution (RFE)

Liquidity Providers can choose between **3 types of RFE** for their instruments trading:		RFE message	RFE Delay	
	RFE 1	√	0.6 second	Request For Execution message is sent to the Liquidity Provider as soon as a possible match between any 2 orders is detected by the Matching Engine*
	RFE 2	√	3 seconds	
	NO RFE	✗	-	
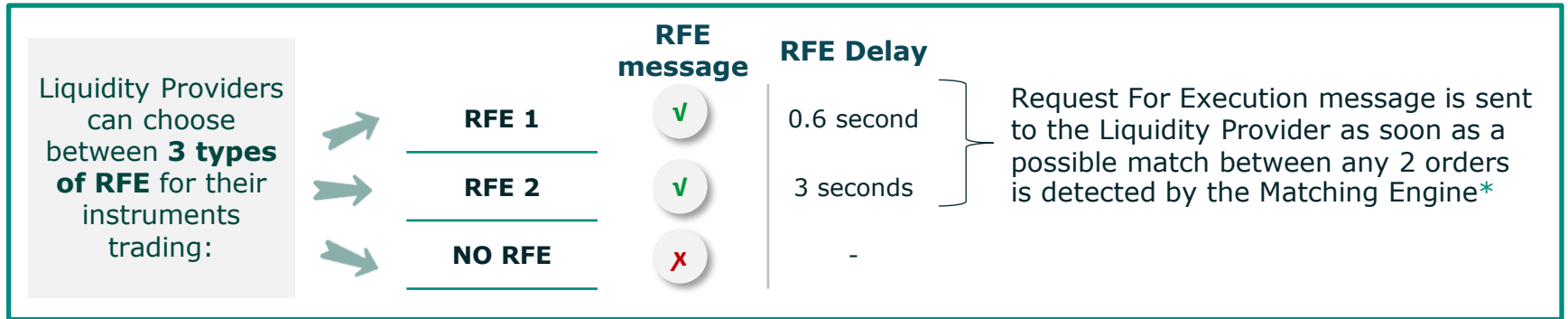
Upon reception of the Request For Execution message, the Liquidity Provider can

- Update or confirm its quotes by sending new ones flagged as RFE answer

- Let the RFE delay expire by not sending any new quote flagged as RFE answer during the RFE period

Upon reception of the RFE Answer or at the latest at the end of the RFE Delay

The Matching Engine will trigger the Continuous Uncrossing to generate potential trade(s).

More details on messages and their interaction are found later in this document.

| * Except when the incoming order which triggers a match is an aggressive quote from the LP. In that situation, the orders match without an RFE being sent to the LP.

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Trading methods and phases

Reservation phase

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An automated temporary interruption of trading (matching) of an instrument triggered by an intraday event

- On the RFE market model, such Reservation Phase most often occurs **when the LP is out of one or both sides of the orderbook**

- A Reservation phase could also be triggered by **the Matching Engine during a Bid-Only Period**, if a possible match could take place above the Virtual Offer Price

- During a Reservation phase there is **no order matching**, but order entry is fully functional

Reservation phase continuous uncrossing

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- Once the condition which triggered the Reservation phase is resolved, trading (matching) resume automatically

- The reopening process follows the same mechanism as the Continuous Uncrossing following the Call phase

- The system attempts to process possible matches according to the RFE logic setup, and then proceeds into the Continuous phase

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Trading methods and phases

Closed

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The Closed phase is a short phase which concludes the end of the trading day (starting at 17:30, 20:30 or 22:00 on SeDeX for example)

- It follows the Continuous phase, or a Reservation phase if an instrument was reserved before the end of the trading day

- During the Closed phase, **market participants are allowed to cancel the orders they may already have in the order books**, but the **modification of existing orders or entry of new orders is not possible**
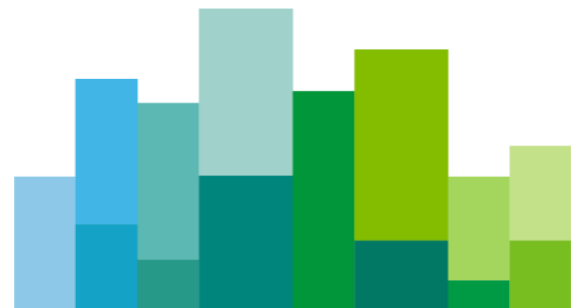
Inaccessible

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The Inaccessible phase is the last phase of the day

- During the Inaccessible phase, **order entry is closed**, i.e. entry of new orders, modification or cancellation of existing orders is not possible

- **Order entry will resume on the next exchange day** during the Call phase

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LIQUIDITY PROVISION

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Liquidity Provider, Secondary Liquidity Provider And Market Maker

The operators providing liquidity for SeDex and Cert-X markets will be the following:

Liquidity Provider	The one and only official LP, replacing the current Specialist, benefits of a series of dedicated functionalities (RFE msg, bulk quotes, bid-only switch, KOBI, KIBI, PAKO)
Secondary Liquidity Provider	Additional LP acting with the consent of the issuer in bid&ask or, if needed, just in bid-only
Market Maker (SeDeX only)	MiFID II market maker acting without the consent of the issuer in bid&ask

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Liquidity Provider, Secondary Liquidity Provider And Market Maker

Liquidity Provider dedicated functionalities:

Only **1 LP per instrument**

LP is the **only market participant authorised to use Bulk Quotes** and other special features
see further slides for more information

No **trade can be executed on an instrument without the presence of its LP in the order book**. The absence of the LP triggers the reservation of the instrument

No trade can be executed outside of the LP quotes, which represent the instrument dynamic thresholds

On instruments setup with RFE 1 or RFE 2, **once the Matching Engine has sent an RFE message to the LP**, **no trade can be done until the LP answers the RFE** or at the latest until the expiration of a RFE delay

Intraday, the **LP can automatically modify its status from Bid&Offer to Bid-Only** and vice versa

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Functionalities reserved to liquidity providers

Some features are available for Liquidity Providers:

Bulk Quotes	KIBI	KOBI	PAKO	BO & BOBBB
	Knock-In By Issuer	*Knock-Out By Issuer*	*Payment After Knock-Out*	*Bid-Only & Bid-Only Before Buy-Back*
⬇	⬇	⬇	⬇	⬇
To optimise bandwidth usage	To replicate intraday listing	To suspend trading in real time following a knock-out event	To facilitate intraday residual value payment	To manage sold-out instruments or instruments about to be delisted

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Liquidity Provider, Secondary Liquidity Provider And Market Maker

A comparison between the subjects:

	Liquidity Provider	Secondary Liquidity Provider	Market Maker (SeDeX only)
Is a Mandatory or Voluntary subject	Mandatory	Voluntary	Voluntary
Act with Issuer consent	√	√	X
Provide liquidity through	Bulk quotes	Orders	Orders
How many subjects can there be	Only one per ISIN	One or more per ISIN	One or more per ISIN
Can operate in Bid & Ask	√	√	√
Can operate in Bid-Only	√	√	X
Minimum time quoting obligations	80%	50%	50%
Book reservation, RFE msg, bid-only, BOBBB, KOBI, KIBI, PAKO	√	X	X

X Not available   √ Available

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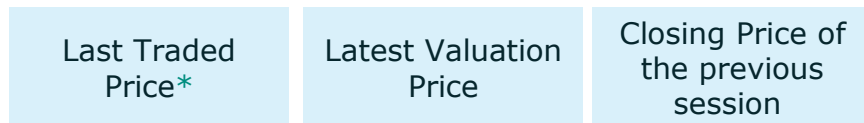
Valuation Price and Closing Price

Valuation Price

- The current static and dynamic prices have been replaced by the Valuation Price

- Valuation Price is calculated and disseminated with the frequency established in the Guide to Parameters

Valuation Price computation

Liquidity Provider is **present** with both **bid and offer quotes**	Liquidity Provider is quoting with **Bid-Only obligations**	Liquidity Provider is **absent**
Equal to the mid-point of the best bid and offer limits of the Central Order Book	Equal to the Liquidity Provider's bid price	Not updated

Valuation Price is …
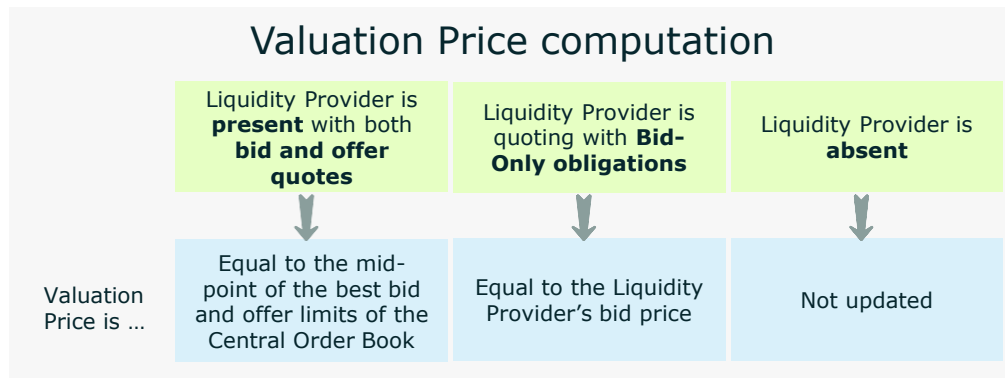
Closing Price

- The current reference price is replaced by the Closing Price.

- The Closing Price is equal to the latest between:

Last Traded Price*	Latest Valuation Price	Closing Price of the previous session

* The Last Traded Price is the price of the latest trade

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Next steps

Slides and dedicated **Q&A** document will be published on the Connect website and on the Borsa Italiana website

Related Documentation:

- Euronext Markets – Optiq® OEG Connectivity Specifications V3.0 – Aruba Data Centre

- Euronext Optiq® Market Data Gateway – Production Environment V3.0 – Aruba Data Centre

- Euronext Cash Markets – Optiq® Kinematics Specifications – V4.13.0

- Euronext Markets – Optiq® OEG Client Specifications – SBE Interface – V4.13.0

- Euronext Markets – Optiq® OEG Client Specifications – FIX 5.0 Interface – V4.13.0

- Euronext Markets – Optiq® MDG Client Specifications – V4.12.0 Introduction To Optiq® Trading System

For the latest version of documentation please visit the IT documentation page on the Euronext Connect customer web portal

QUESTIONS & ANSWERS SESSION

ⓘ *If there is not enough time to answer your questions, we will get back to you following the presentation. Thank you!*

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ANNEXES

FUNCTIONALITIES RESERVED TO LIQUIDITY PROVIDERS

Knock-In By Issuer (KIBI)

- Euronext has developed a mechanism to simulate intraday listing: Knock-In By Issuer (KIBI)

- KIBI allows issuers to 'list' dormant Structured Products. The listing of these instruments follows the same process as standard Structured Products. They are created by issuers and made available to all the stakeholders mentioned above, but they remain dormant or non-activated. Their orderbook on the Optiq Matching Engine is suspended and it is not possible for trading members to send orders and trade them

- As they are not activated, they also cannot be knocked-out (for instruments with a knock-out barrier)

- At any time after the 'listing' of a KIBI instrument, the Liquidity Provider can send a specific message to the Optiq Matching Engine and activate the instrument. Once activated, the orderbook is open, order entry is authorised and order matching can start

FUNCTIONALITIES RESERVED TO LIQUIDITY PROVIDERS

Knock-Out By Issuer (KOBI)

- For instruments with a knock-out barrier:
  - Turbo
  - Turbo Open end
  - Mini-Futures

- In order to protect Investors and make sure that they do not trade any of these instruments after they have been knocked-out, Euronext has developed a mechanism to manage Knock-Out events: the Knock-Out By Issuer (KOBI) feature.

- As soon as the Liquidity Provider detects an instrument Knock-Out event, it can send a specific message to the Optiq Matching Engine which will immediately halt trading on that instrument.

FUNCTIONALITIES RESERVED TO LIQUIDITY PROVIDERS

Payment After Knock-Out (PAKO)

- Following Knock-Out events on Mini-Futures, Investors are often entitled to receive a residual value

- In order for Investors to be able to receive this residual value in a prompt manner, Euronext has developed a mechanism to manage residual value payments: Payment After Knock-Out (PAKO)

- After an instrument has been knocked-out in the Optiq Matching Engine, the Liquidity Provider is able to send a specific message to the Optiq Matching Engine to start the PAKO phase. During that phase:
  - Investors are able to send sell market orders to redeem their knocked-out instruments
  - The Liquidity Provider is able to post bid quotes at the residual value

- The matching of Investors orders against Liquidity Provider quotes will result in 'trades' which will follow the normal settlement process