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|  | <b>Euronext Instruction</b> |  |
|   | <b>N°</b>                   | <b>Title</b>   |
|   | <b>4-01 bis</b>             | <b>Trading Manual for the Universal Trading Platform</b> |
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Pursuant to the Euronext Rule Book, Book 1. Terms beginning with a capital letter shall have the same meaning as those defined in chapter 1 of the said Book 1.

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## APPENDIX

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## 1. TRADING CYCLE

### 1.1. Classification of Securities into trading groups and trading categories

Securities are traded on the Euronext Trading Platform either continuously for Securities that are liquid enough or Securities with a Liquidity Provider willing to accept certain obligations or, when they are less liquid, by auction.

The operating hours of the Euronext Trading Platform and the times of the different phases of the Trading Day are published by Euronext in the appendix attached to this Trading Manual (the appendix). If technical incidents cause the normal session timetable to be changed, Euronext immediately informs Members by disseminating a message through the Euronext Trading Platform giving the new trading session timetable.

The Securities are divided into trading groups based on different trading procedures. The composition of these groups, determined on the basis of factors such as the particular characteristics and liquidity of the Securities, is detailed in the appendix. Securities within the same group are subject to the same timetable and collars parameters. Euronext announces the admission of a Financial Instrument to trading groups by means of a Notice.

Securities are divided into two trading categories referred to as: continuous or auction.

#### Securities (other than bonds) :

- The following Securities are traded continuously:
  - Equities included in the Euronext 100 index;
  - Equities included in the Next 150 index;
  - Equities included in the AEX, AMX, BEL 20<sup>®</sup>, CAC 40<sup>®</sup>, PSI20 or SBF 120 that are not in the Euronext 100;
  - Securities in which the annual number of Central Order Book Transactions is 2,500 or more (single counted) unless the Issuer prefers to remain traded through auction if its number of Central Order Book Transactions is close to such threshold;
  - Newly listed Securities that are expected to have sufficient liquidity based on the free float;
  - Securities with a Permanent Liquidity Provider.
- All other Securities are traded by auction.

### 1.2. Liquidity Provider

#### 1.2.1. Options to have a Liquidity Provider

Within these trading categories the following options to have a Liquidity Provider are possible:

##### 1.2.1.1. For Securities which are traded continuously

Unless Euronext determines otherwise, and publishes such determination by Notice, Securities included in the Euronext 100 index shall not have a Liquidity Provider. Notwithstanding the aforesaid, where a Liquidity Provider is active in a Security which is subsequently included in the Euronext 100 index and which does not benefit from such exception, the Liquidity Provider may remain active for a maximum period of three consecutive months. If after this three-month period the Security remains included in the Euronext 100 index, it shall no longer be permitted to have a Liquidity Provider.

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For the below mentioned equities there is a choice to use a Liquidity Provider or not (unless there are specific listing requirements):

- Equities included in the Next 150 index;
- Equities included in the AEX, AMX, BEL20<sup>®</sup>, CAC 40<sup>®</sup>, PSI20 or SBF 120 which are not in the Euronext 100;
- Securities in which the annual number of Central Order Book Transactions is 2,500 or more (single counted);
- Newly listed Securities that are expected to have sufficient liquidity based on the free float.

If the Issuer wishes that the Security is traded continuously but the Security does not meet the requirements described above, a Permanent Liquidity Provider is obligatory.

#### 1.2.1.2. For Securities which are traded by auction

For Securities traded by auction there is a choice to use an auction Liquidity Provider or not (unless there are specific listing requirements).

#### 1.2.2. Types of Liquidity Providers

There are the following types of Liquidity Providers:

- Permanent Liquidity Provider (for Securities that are traded continuously): Permanent Liquidity Providers will be required to provide quotes (to maintain a spread of bid and offer prices) in normal auctions, during the main trading session and in interim auction resulting from reservation.
- Auction Liquidity Provider (for Securities traded in auctions only): Auction Liquidity Providers are obliged to maintain a spread of bid and offer prices during the orders accumulation period preceding auctions held at fixed times.

Additional Liquidity Providers types for Bonds:

- Permanent One-sided Liquidity Provider (for Bonds that are traded continuously): The Permanent One-sided Liquidity Provider is obliged to maintain a bid price during the 15 minutes preceding the market opening, and then throughout the Trading Day (including the orders accumulation periods preceding pre-scheduled or other auctions during a Trading Day); The price has to be in accordance with actual market circumstances and where appropriate shall take into account information originating in the wholesale market, ratings and/or the yield curves as well as the situation in the Central Order Book
- Special Bond Liquidity Provider (for Bonds that are traded continuously): The Special Bond Liquidity Provider has an obligation to execute the incoming sell orders at prices that are in accordance with actual market circumstances and where appropriate shall take into account information originating in the wholesale market, ratings and/or the yield curves as well as the situation in the Central Order Book. He is obliged to maintain a bid price during the 15 minutes preceding the market opening. During the Trading Day (including the orders accumulation period preceding the pre-scheduled or other auctions) he is obliged to enter in the Central Order Book a bid price and he shall enter offer prices in the Central Order Book on a best effort basis.

It is not allowed to be a Permanent One-sided Liquidity Provider or Special Bond Liquidity Provider in a bond in which also a Permanent Liquidity Provider is active. In a case a Liquidity Provider acted as a Permanent Liquidity Provider, it will not be possible to be active as a Permanent One-sided Liquidity Provider or a Special Bond Liquidity Provider.

A Liquidity Provider is only allowed to act as a Special Bond Liquidity Provider or Permanent One-sided Liquidity Provider if:

- The Liquidity Provider acts on behalf of an Issuer for all or almost all of its bonds ; or
- The Liquidity Provider accepts the obligations of the agreement for at least 500 bonds issues admitted to trading on the Relevant Euronext Market Undertaking or for at least 50 percent of all bonds issues traded on the Relevant Euronext Market Undertaking without the presence of a Permanent Liquidity Provider, whichever number is higher.

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### 1.2.3. Liquidity Provider appointment

The Liquidity Provider is appointed by Euronext and has to sign a Liquidity Provision Agreement with the Relevant Euronext Market Undertaking. For Trackers, the Liquidity Provision Agreement has to be signed with the Relevant Euronext Market Undertaking which operates the Market of Reference or Euronext Lisbon, as the case maybe. Therefore Euronext has no obligation to accept a Liquidity Provider proposed by the Issuer.

The Liquidity Provider will be admitted if he commits for a specific size and spread, provided that such size and spreads will to the opinion of Euronext have added value for the liquidity and the quality of the market of a Security.

For the judgement of the added value of a Liquidity Provider Euronext will consider the current sizes and spreads in the Central Order Book; if such information is not available, e.g. in case of an IPO, the added value will be judged on the basis of sizes and spreads of similar companies (similar in the sense of companies having the same FTSE classification and a comparable market capitalization). In case of a dual listed instrument, Euronext may also use the sizes and spreads of the other market. For the Permanent One-sided Liquidity Provider and the Special Bond Liquidity Provider Euronext will consider the price and volume.

### 1.2.4. Disclosure of information

#### 1.2.4.1. Average spread and quantity of the market

Every six months, Euronext will publish the average size and spreads of each Security in general. This implies that Euronext will not publish the average size and spread of the Liquidity Provider but only the average size and spread of the Security.

#### 1.2.4.2. Commitments of Liquidity Providers

For each Security included in the NextTrack segment, Euronext shall disseminate through its website on an anonymous basis:

- the number of Liquidity Providers ;
- the range of commitments of Liquidity Providers in terms of spreads.

### 1.3. Trading phases for Securities which are traded continuously

For each trading group, trading phases available and the relevant trading hours are mentioned in the Appendix.

#### 1.3.1. Order accumulation period (Pre-opening phase)

During the order accumulation period, orders entered by Members and transmitted to the Euronext Trading Platform are automatically recorded in the Central Order Book without giving rise to trades. The Central Order Book the theoretical opening price, and the components of the potentially executable volume at that price, which are calculated each time that a new order is entered into the Central Order Book, are continuously disseminated.

#### 1.3.2. Opening auction

At the opening, the Euronext Trading Platform seeks to match orders for each Security (the "opening auction"). At the beginning of the price determination phase for a Security the Central Order Book is frozen momentarily (orders may not be entered into the Euronext Trading Platform, and orders already entered may not be cancelled or modified) while the matching algorithm is running.

The opening price is the last theoretical opening price calculated before matching. If a match occurs within the price collars authorised by Euronext, an opening price is displayed and the Members, whose orders are, in part or in full, executed, are informed by a message confirming each execution that has occurred and giving all relevant trade information.

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If no matching can be done at the opening, the price of the first trade occurring in the main trading session is designated as the opening price.

### 1.3.3. Main trading session

Once the opening auction is completed, trading takes place continuously until the pre-closing phase.

Once the price determination phase for each Security is completed, continuous trading in that Security begins and orders can be entered, maintained, modified and deleted. All unexecuted orders of the opening auction are forwarded to the main trading session.

Once the opening auction is completed, the execution of orders during the main trading session is effected according to the execution priority principle as defined in Rule 4401/1. Each new order is immediately checked to see if it can be executed against orders on the other side of the Central Order Book; the limits of the orders sitting in the book determine the price.

### 1.3.4. Order accumulation period (Pre-closing phase)

The pre-closing phase starts after the main trading session phase. Orders entered by Members and transmitted to the Euronext Trading Platform are automatically recorded in the Central Order Book without giving rise to trades.

### 1.3.5. Closing auction

The processes of the closing auction are the same as described for the opening auction.

The closing price for Securities which are traded continuously shall be the price defined by the closing auction. If no price is issued at the closing auction, the closing price shall be the last traded price during the main trading session.

In the event of no quotation during a Trading Day, the closing price is the last known traded price. This price can still be adjusted due to a corporate event as defined in section 2.7.

### 1.3.6. Trading-at-last phase

During the trading-at-last phase, orders can be entered and matched at the closing price and only at that price. For Securities traded continuously, the trading-at-last phase will be available after the closing auction.

### 1.3.7. After hours trading (after the closing auction or after the trading at last phase)

A trade after the Trading Hours can be effected at a price within a price range of 1% around the closing price or, for eligible Securities included in the NextTrack Segment, the last disseminated iNAV.

## 1.4. Trading phases for Securities traded by auction

For each trading group, trading phases available and the relevant trading hours are mentioned in the Appendix.

### 1.4.1. Order accumulation period (Call phase)

During the Euronext Trading Platform operating hours, except during auctions, orders entered by Members and transmitted to the Euronext Trading Platform are automatically recorded in the Central Order Book without giving rise to trades.

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#### 1.4.2. Auction

At least once, but mostly twice a day, at times specified in the appendix for each trading group, the Euronext Trading Platform seeks to match orders for each Security in the group. If a match occurs within the price collars authorised by Euronext, a price is quoted. During this matching period, orders may not be entered into the Euronext Trading Platform, and orders already entered may not be cancelled or modified. After the price determination phase is concluded, the Members whose orders have been partially or fully executed are informed by a message confirming each execution that has occurred and giving all relevant trade information.

The closing price for Securities traded by auction (single or double auction) shall be the price of the last auction. In the event of no quotation at the last auction, the price of the previous auction shall be the closing price for the day.

In the event of no quotation during a Trading Day, the closing price is the last known traded price. This price can still be adjusted due to a corporate event as defined in section 2.7.

#### 1.4.3. Trading-at-last phase

During the trading-at-last phase, orders can be entered and matched at the closing price and only at that price. For Securities traded by auction the trading-at-last phase will be available immediately after each auction.

#### 1.4.4. After hours trading

A trade after the Trading Hours can be effected at a price within a price range of 1% around the closing price.

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## 2. ORDERS

### 2.1. Order types

#### 2.1.1. Market orders

Market orders are entered in the Euronext Trading Platform with no price stipulation.

Market orders can be placed during the order accumulation periods and during the main trading session. They can be used for Securities traded continuously and for Securities traded by auction.

An order to buy or to sell a stated amount of a security that is to be executed at the best price(s) obtainable when the order reaches the Central Order Book.

#### 2.1.2. Limit orders

A limit order stipulates a maximum purchase price or minimum selling price.

A limit order can be placed during the order accumulation period and during the main trading session.

A limit order entered during the trading session is executed either fully or partially, as market conditions permit. Failing this, it is logged in the Central Order Book in descending buy-price order or ascending sell-price order (the price-priority principle) and joins the queue of orders having the same price (the time-priority principle).

#### 2.1.3. Stop-orders

A stop order is an instruction to buy or sell a quantity of Securities at the prevailing market price once the Security has reached a “stop price” specified by the Client. The trigger price for a buy order must be higher than the last traded price. A sell order’s trigger price must be below the last traded price. A buying stop order is triggered when the last traded price or the auction price is equal or higher than the given stop limits. A selling stop order is triggered when this last price is equal or lower than the stop limit. There are two variants: a stop-pure market order, which is executed at the next prices, and a stop-limit order, which is executed within a price range.

“Stop” orders can be placed during the order accumulation periods and during the main trading session. They can be used for Securities traded continuously and for Securities traded by auction.

During the order accumulation periods, triggerable “stop” orders are not used in calculating the theoretical opening price. They are taken into account in a second phase that aims at generating additional executions at the opening price on the basis of post-opening balances.

During the main trading session, a “stop-pure market” order that has been triggered behaves like a pure market order. A “stop-limit” order becomes a limit order once triggered.

#### 2.1.4. Pegged orders

A Pegged order is a limit order to buy or sell a stated amount of a security at a displayed price set to track the current bid or ask of the Euronext Central Order Book. The associated price of each pegged order that is updated will be assigned a new entry time with priority in accordance with Euronext rules. If case of empty Central Order Book the pegged order is automatically rejected.

A pegged order can have a limit price which if reached, will cause the pegging to temporarily stop as long as the benchmark is higher for a buy order or lower for a sell order than this price and become an order limited at its limit price. The pegging of the order to the bid or ask will resume if the bid/ask become lower/higher than the limit price.

A pegged order can be placed during the main trading session.

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## 2.2. Parameters

### 2.2.1. Validity

The Member can determine the validity of orders within parameters set by Euronext. The Euronext Trading Platform facilitates the following:

- Good-till-time (Non persistent): ... Order only valid for a specific period of time during the Trading Day.  
Order only valid till a specific time during the Trading Day
- Good-for-day: ..... Order only valid for the Trading Day. This is the default validity of the Euronext Trading Platform.
- Good-till-specified: ..... Order only valid until a specified date. The expiry date might not exceed one year (day entry + one year – one day).
- Good-till-cancelled: ..... Order only valid until it is either executed or deleted by the originator or the Euronext trading Platform on reaching its maximum validity (day entry + one year).
- Good for auction: ..... Order only valid for the next auction. In case of reservation the order is still valid for the rescheduled auction if one.

When one of the above periods of validity expires, orders are automatically deleted from the Euronext Trading Platform.

### 2.2.2. Execution parameters

#### 2.2.2.1. Immediate or Cancel orders

“Immediate or Cancel orders” (IOC) can be placed only during the main trading session. An IOC order may be filled in full or in part, depending on market conditions at the time it is entered, at the specified limit price or better. If an IOC order is not executed immediately in full upon entry in the Euronext Trading Platform, the remaining part of the order is cancelled.

#### 2.2.2.2. Minimum-quantity order (in continuous trading only)

“Minimum-quantity orders” can be placed only during the main trading session. The minimum-size requirement is valid only at the time the order is entered. If the specified minimum-quantity is filled immediately, the unexecuted part of the order remains on the market. If not, the order is cancelled without any execution.

#### 2.2.2.3. Market orders

During auctions market orders have priority over orders limited at the auction price.

- (i) PureMarket orders  
If a pure market order cannot be matched, it also remains in the Central Order Book until executed or deleted either by the Member or on reaching the specified expiry date. An unexecuted part of a pure market order remains a pure market order.

For Securities traded by auction: if pure market orders within the Central Order Book are not fully or partially executed during an auction the remaining part will participate in the next auction.

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- (ii) Market to limit:  
a. During auction:

During the order accumulation periods, market-to-limit orders are entered into the Euronext Trading Platform with the indication “at opening price” (the existence of a matching order with a limit price is not required). The system will automatically attribute a limit price equal to the theoretical opening price at the time of entry. This limit price will constantly be revised to keep it equal to the theoretical price until trading commences. The unexecuted part will remain in the Central Order Book at the auction price. For Securities which are traded by auction, a Market-to-limit order not executed at all during an auction remains in the Central Order Book for the next auction as a Market-to-limit order.

- b. During main trading session

During the main trading session, a market-to-limit order is converted into a limit order at the best bid price (for sell orders) or best ask price (for buy orders). Consequently, the existence of a matching order is essential. Failing this, the order is rejected.

### 2.2.3. Transparency parameters

#### 2.2.3.1. Reserve orders

The disclosed quantity of a reserve order means the quantity of Securities the Member wishes to be apparent to the market. It is the maximum quantity of Securities that will be visible to the market at any given time.

A reserve order can be placed during order accumulation periods and during the main trading session.

On entry the Member must specify a total volume and a peak volume (the disclosed quantity) which must be greater than a minimum size (ten times the trading unit). The initial peak is introduced into the Central Order Book with the original timestamp of the reserve order according to price/time priority. When a reserve order is executed for its disclosed quantity (the “peak”), that quantity is renewed automatically and the order is positioned behind orders at the same limit. For the execution of one entering opposite-side order, the displayed quantities of all orders at the same price first are executed on time priority and secondly the remaining reserve orders are executed for their total amount according time priority. However, where the member is participating in the Internal Matching Facility and the order is in respect of an Eligible Financial Instrument, the quantity will not lose its time priority after execution of the disclosed quantity provided that the reserve order is executed pursuant to the Internal Matching Facility. The modification of the total quantity does not affect the order priority.

A reserve order cannot be stipulated in an “at opening price” order (i.e. a market-to-limit order entered during order accumulation periods).

### 2.3. Guaranteed Cross trades and principal trades

The automatic execution through the Central Order Book of a buy and sell order from a Member is permitted by the order book system during continuous trading. The resulting trade will be marked. Guaranteed Cross trades have to be limited at a price within the best bid-offer (BBO), boundaries included. The Euronext Trading Platform automatically rejects a Guaranteed cross trade outside the BBO.

A Guaranteed Cross trade is said to be a principal trade if it involves a member trading voluntarily against their clients. It shall be effected on the conditions applicable to cross trades.

#### 2.4. Order types and parameters

|                         | parameters | IOC | Minimum-quantity | Reserve |
|-------------------------|------------|-----|------------------|---------|
| <b>Order</b>            |            |     |                  |         |
| Limit order             |            | Yes | Yes              | Yes     |
| Pure Market order       |            | Yes | No               | No      |
| Market to limit order   |            | Yes | Yes              | No      |
| Market on-opening order |            | Yes | No               | No      |
| Stop limit order        |            | Yes | No               | No      |
| Stop loss               |            | Yes | No               | No      |
| Pegged order            |            | Yes | No               | No      |

#### 2.5. Price of the order

If a price is needed, it is expressed in currency or in percentages (generally for bonds).

#### 2.6. Order size

The volume of the order is a number of Securities or an amount expressed in currency. All volumes are tradable but for some specific instruments Euronext can decide to implement a trading lot size.

#### 2.7. Order modification or cancellation

During the order accumulation periods and the main trading session, the Member who entered it may change any order that has not been cancelled, deleted or executed in full.

An order modification leads to a new time priority if either the limit is changed or the modification has a negative impact on the priority of the execution of other orders in the Central Order Book (e.g. the increase of the volume of an existing order). The current time priority is maintained if the volume of an existing order is decreased.

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### Corporate events

A corporate event is any action by an Issuer, or by another party related to the Issuer, affecting an investor's entitlement to investments or benefits related to those investments. The consequences of a corporate event can be the cancellation of the orders remaining in the Central Order Book and the adjustment of the reference price. The reference price shall be either:

- the last traded price (generally the previous day's closing price); or
- the last indicative price.

Euronext specifies in a Notice the consequences of a given corporate event. In general the consequences will be as follows:

| Corporate events        | Consequences on the Central Order Book |
|-------------------------|--|
| Share split             | Cancellation of orders                 |
| Dividends               | Cancellation of orders                 |
| Interest on bonds       | Nothing                                |
| Detachment of Rights    | Cancellation of orders                 |
| Merger/Take-over        | Cancellation of orders                 |
| Spin-off                | Cancellation of orders                 |
| Reversed split          | Cancellation of orders                 |
| IPO                     | Creation of the order book             |
| De-listing              | Cancellation of orders                 |
| Re-denomination (bonds) | Nothing                                |

### Administrative operations

| Administrative operations                               | Consequences on the Central Order Book |
|---|--|
| Change of company name                                  | Nothing                                |
| Change of trading code                                  | Cancellation of orders                 |
| Change of Mnemonic code                                 | Nothing                                |
| Change of trading currency                              | Cancellation of orders                 |
| Change of trading group                                 | Nothing                                |
| Change of trading place                                 | Cancellation of orders                 |
| Change of price expression (currency versus percentage) | Cancellation of orders                 |
| Change of minimum lot size                              | Cancellation of orders                 |
| Change of Security type                                 | Cancellation of orders                 |

### Other operations

| Other operations | Consequences on the Central Order Book |
|------------------|--|
| Suspension       | Nothing                                |

## 2.8. Clearing Information

Pre-clearing information may be specified on an optional basis with the order:

- Allocated Member code;
- Account number;
- Posting indicator (opening or closing the position);
- Clearing operation mode (automatic give up or systematic posting);
- And other information like the Member's internal order number or Client identification.

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## 2.9. Order Processing

### 2.9.1. Scope

The provisions of this section apply to all orders, regardless of whether they are Client orders or principal orders, for Securities admitted to trading on the Euronext regulated markets, including electronic orders, i.e. orders routed or transmitted electronically without human intervention by Members, as well as orders processed manually.

If the Member does not hold the Client account, the clearing agreement between the Member and the Clearing Member must set forth the responsibilities of each party in implementing the filtering process.

### 2.9.2. Order identification

All orders entered into the Euronext Trading Platform must specify the order's origin, i.e. whether the order is:

- a principal order,
- a client order,
- an order placed by an Affiliate for its own account,
- submitted pursuant to a Liquidity Provision Agreement.

For purposes of Block Trades publication rules, orders identified as Affiliate or Liquidity Providers orders are processed as principal orders.

For electronic orders the audit-trail must include the electronic address of the order deliverer or those elements that authenticate the order in case of an Internet transmission.

### 2.9.3. Filtering orders

Order filtering control – which can be realised in co-ordination with a Clearing Member or a custodian if this is necessary - must include at least one warning/confirmation function based on the level of risk accepted by Member. This function must make it possible to identify:

- Orders that have not been adequately margined. Depending on the type of settlement concerned, this will mean that:
  - The initial margin required has not been provided, or
  - The Client's account has insufficient cash reserves or a lack of the Securities that are the object of the Transaction.
- Orders that exceed a maximum level of accumulated commitments (unsettled positions), for a given account or Client, set according to the credit standing of the said Client or a risk ceiling established internally by the Member.

The process of the risk control must be applied separately for every Security. In this respect, it must be possible for the Member to ensure that the consolidation of several individual orders for the same Security, transmitted on behalf of the same Client, does not result in a breach of the relevant risk threshold.

The Member is responsible for the validation of prices and volumes of each order. Certain types of orders (see below) must be systematically validated or, failing this, rejected before being presented to the market:

- Orders that are clearly disproportionate in comparison to the liquidity of the Security, evaluated on the basis of the market's normal absorption capacity for the Security;
- Orders with a price which differs significantly from prevailing market prices or which is obviously likely to trigger an excessive price swing or a collar).

### 2.9.4. Order validation

When an order is entered into the Euronext Trading Platform, the system will request confirmation if the Transaction value (quantity times limit price) exceeds EUR 150,000 (for bonds, the confirmation threshold is EUR 50,000 ).

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## 2.10. Trading at or around the reference VWAP

### 2.10.1. Types of Securities

Euronext Securities Members are authorised to register Transactions at Market VWAP for any Share traded continuously. For the avoidance of doubt, equivalent Securities and Securities included in the NextTrack segment are not eligible for this facility.

### 2.10.2. Matching instructions

Euronext Securities Members determine upon matching instructions entry the relevant lapsed period, which shall be at least thirty minutes and not exceed the Trading Day.

During the Trading Day, if no starting time is indicated, Transactions resulting from the opening auction shall be also taken into account for the reference VWAP calculation.

After the Trading Day, the ending time is no longer a mandatory indication. Absent such indication, Transactions resulting from the closing auction and the trading-at-last phase, where appropriate, shall also be taken into account for the reference VWAP calculation.

### 2.10.3. Calculation method and price range

Guaranteed Cross Transactions carried out in the Central Order Book are not taken into account by Euronext when computing the reference VWAP.

Market VWAP Transactions shall be executed within a price range of +/- 1% (boundaries included) around the reference VWAP computed by Euronext.

Euronext Securities Members can obtain from Euronext's systems the reference VWAP corresponding to a given lapsed period of time of the Trading Day.

## 2.11. Financial Instruments admitted to trading on more than one Euronext Securities Market

All Transactions in the Central Order Book will be executed on the Market of Reference.

Nevertheless, at the explicit request of the relevant counterparties, it is possible to report their Transaction on another Euronext Securities Market than the Market of Reference, if the concerned Financial Instrument is admitted to trading on that Euronext Securities Market.

In that case, the relevant counterparties will have to specify the Euronext securities market on which they would like to report their Transaction. The value entered by both counterparties will be compared with the possible values of the places where the concerned security is admitted to trading.

The price will be controlled based on the following criteria:

- The price is made at or within the current weighted spread reflected in the Central Order Book, and
- The price is within the lowest and the highest price of the concerned Security during the concerned Trading session.

For Products admitted to trading on NextTrack segment the price control, based on the INAV, will be the same as the price controls applicable to the Market of Reference.

If the Transaction occurs after the Trading hours, the price will be the last traded price or the last adjusted traded price (reference price).

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### 3. TRADING

All orders entered into the Euronext Trading Platform are acknowledged and assigned a sequential order number per Security. For each trade, Members receive an execution message showing the quantity traded and the execution price. In the event of partial execution, the unexecuted part of the order is shown in the execution message. In the event of cancellation of trades or orders by Euronext the Member will receive a notice.

Execution priority principle

Orders in the Central Order Book shall be executed according to the execution priority principle as defined in Rule 4401/1.

#### 3.1. Determination of prices and allocation of Securities during an auction.

The auction price is the price with the maximum executable volume. Additionally if necessary the reference price is taken into account when establishing the auction price.

##### 3.1.1. Maximum Execution Principle

The auction price is determined on the basis of the Central Order Book position at the end of the pre-opening phase. The auction price is the price with the highest executable volume for each limit.

##### 3.1.2. Reference Price

Should the aforementioned process result in more than one limit with the highest executable order volume, the reference price is included as additional criterion. The auction price will be the one closest to the reference price.

The reference price - as a general rule - is the last traded price in the Central Order Book. If this price is not available (e.g. after a long period of suspension, a merger/ reconstruction of the Issuer or new issue trading for the first time), a reference price will be determined by Euronext. Euronext can also set the reference price in function of other relevant information like a take over bid price, the price on another market, the price of a related Security etc.

Market Orders only: If only market orders are executable against one another, they are matched at the reference price.

No Price: An auction price cannot be determined if orders are not executable against one another. In this case, the best bid/ask limit (if available) is displayed.

At set times, as specified for each trading group in the appendix, the Euronext Trading Platform automatically matches the orders present.

Market orders, buy orders with a limit above the traded price and sell orders with a limit below the traded price are filled in their entirety, including the hidden-size quantity if any (price priority).

In case of an imbalance between supply and demand, orders with a limit equal to the opening price are filled on a first-come/first-served basis (time priority).

#### 3.2. Determination of prices of Securities during the main trading session

Each new incoming order (except a stop order) is immediately checked for execution against orders on the other side of the Central Order Book.

Orders can be executed in full, in one or more steps, partially or not at all. Thus, each new incoming order may generate none, one or several trades. Orders in the Central Order Book will be executed according to the execution priority principle. Orders or parts thereof which have not been executed are sorted in the Central Order Book according to price/time priority.

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Price determination in continuous trading is carried out according to the following rules in addition to the execution priority principle:

- **Rule 1:**  
If an incoming market order or limit order meets an order book in which there are only limit orders on the other side, the highest bid limit or lowest ask limit, respectively, in the Central Order Book determines the price for the executable volume of the market order. The next limit order determines the price of any remaining volume, and so on until no volume remains.
- **Rule 2:**  
If an incoming market order meets an order book in which there are only market orders on the other side, this market order is executed at the reference price (as far as possible with regard to the quantity).
- **Rule 3:**
  - If an incoming market order meets an order book in which there are market orders and limit orders on the other side, or
  - if an incoming limit order meets an order book in which there are only market orders on the other side, or
  - if an incoming limit order meets an order book in which there are market orders and limit orders on the other side,
then the incoming order is executed against the market orders in accordance with the execution priority principle with respect to non-executed bid market orders at the reference price or higher (at the highest limit of the executable orders) or at the reference price or lower (at the lowest limit of the executable orders) with respect to non-executed ask market orders.

Pure market orders that have not been executed in the Central Order Book must be executed immediately with the next Transaction (if possible). In this case, the following principles must be taken into consideration for continuous trading:

- **Principle 1:**  
Pure market orders are given the reference price as a “virtual” price. On this basis, the execution is carried out at the reference price provided that this does not violate the execution priority principle.
- **Principle 2:**  
If orders cannot be executed at the reference price, they are executed in accordance with the price/time priority by means of price determination above or below the reference price (non-executed bid market orders or ask market orders). A limit within the Central Order Book or a limit of an incoming order determines the price.

### 3.3. Trade or indicative price cancellations

The rules and procedures set out below apply to all Securities.

As a rule, Euronext does not cancel trades except in the exceptional circumstances described below.

In any circumstances, requests for trade cancellation have to be made in writing.

#### 3.3.1. Trading and regulation violations

In case of Transactions effected in such way as to constitute a violation of regulations by one or more of the Members or in case of an unequal dissemination of price sensitive information by an Issuer, Euronext may cancel all the trades involved.

Euronext may also cancel trades at the request of a competent authority where such trades are in violation of National Regulations (as defined in the Rule Book), provided that such competent authority has the legal power to request such cancellation.

#### 3.3.2. Trading on aberrant prices

Given the constraints and limits of fair market value determination, this rule 3.3.2 shall only apply to the types of securities explicitly mentioned thereafter.

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Only Euronext has the authority to judge the consistency of prices. It may thus decide to cancel trades when conditions prevailing at the time of execution provide a body of evidence sufficient to conclude that a price is aberrant. In this case, trading in the relevant Security may be temporarily suspended.

Requests for trade cancellation have to be done within 1 hour from the Transaction.

Requests for trade cancellation on this ground, provided the trade(s) is (are) actually cancelled, will be charged 500 Euros per trade. The maximum amount charged per Member will be equal to 5,000 Euros per day.

#### Covered warrants and certificates

Euronext may qualify that a price is aberrant if the traded price deviates in the following way from the fair market value as computed by Euronext:

| Fair market value      | Thresholds |
|------------------------|------------|
| $10 \leq FMV$          | +/- 5 %    |
| $5 \leq FMV < 10$      | +/- 0,50 € |
| $2 \leq FMV < 5$       | +/- 10 %   |
| $1 \leq FMV < 2$       | +/- 15%    |
| $0,75 \leq FMV < 1$    | +/- 25 %   |
| $0,25 \leq FMV < 0,75$ | +/- 35 %   |
| $0,10 \leq FMV < 0,25$ | +/- 50 %   |
| $FMV < 0,10$           | +/- 100 %  |

Euronext alone is competent to judge the fair market value, based on the following information:

- Variations and volatility noticed on the underlying of warrant;
- Historical quotes of the Liquidity Provider;
- and any other element deemed relevant to appreciate the valuation of the reference price.

#### Investment funds admitted to trading on Euronext Amsterdam and Euronext Brussels markets

For the purpose of the application of this rule 3.3.2 to such funds, Euronext may qualify that a price is aberrant if it deviates by more than 3% of the valuation provided by the fund or the management company, where appropriate.

#### Bonds

Euronext may consider that a price is aberrant if the traded price deviates in the following way from the reference price as computed by Euronext:

A distinction is made between government-guaranteed bonds and other bonds according to the groups as described in the Appendix of the trading manual.

Government-guaranteed bonds: more than 2 full price points.

Corporate bonds: more than twice the variation on the last 6 months. If no trade occurred on that period, Euronext may consider that a trade is aberrant if the variation is higher than 5 full price points of the reference price.

Euronext alone is competent to compute the reference price, based on the following information:

- Variations and volatility noticed on the underlying;
- Historical quotes of the Liquidity Provider;
- Volume;
- Contributors' quotes and OTC trades;
- and any other element deemed relevant to appreciate the valuation of the reference price.

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### 3.3.3. Manifest Material error

Euronext may cancel transactions executed further to a manifest material error under the strict conditions set forth in this section.

A manifest material error is qualified if both the order(s) and the trade(s) are aberrant i.e. if and only if:

- The order(s) at the origin of the Transaction(s) was (were) limited at a price exceeding twice the applicable thresholds around the reference price, and
- The order(s) generated one or several Transactions for a total amount of more than the average daily volume of the last 20 trading days.

For the avoidance of doubts, trades executed further to the placing of (an) unlimited orders (i.e. Market orders, Market-to-limit, pegged orders and Stop loss orders) cannot benefit from this application of this rule.

When applying this rule, Euronext will pay a particular attention to the length of the time period over which order(s) has (have) been placed and Transactions(s) been executed. Euronext may refuse the application of this rule if the above-mentioned time period provides some evidence that some or all of the Transactions(s) were the result of a conscious will.

Requests for trade cancellation on this ground, provided the trade(s) is (are) actually cancelled, will be charged 5,000 Euros per order. The maximum amount charged per Member will be equal to 50,000 Euros per day.

### 3.3.4. Counterpart agreement

Euronext shall cancel outright or cross-transactions with the explicit agreement of the counterpart(s) (where relevant).

In any case, requests for cancellation have to be filled within 15 minutes.

Requests for trade cancellation on this ground, provided the trade(s) is (are) actually cancelled, will be charged 5,000 Euros per order. The maximum amount charged per Member will be equal to 50,000 Euros per day.

Requests for LP/LP cross-trade cancellation, provided the cross-trade(s) is (are) actually cancelled, will be charged 500 Euros per cross-trade. The maximum amount charged per Member will be equal to 5,000 Euros per day.

### 3.3.5. Trading in improper conditions

Euronext may cancel Transactions done under improper conditions if they are the cause of improper trading. Improper conditions are qualified when:

- An event that should have modified the status of a security (opened, suspended, reserved, etc.) or its trading phase (pre-opening / continuous / TAL) has not been taken into account,
- The status of the security or the trading phase has been unduly modified,
- Stock events have not been carried out (e.g. stock split, detachment of dividend, etc),
- The product characteristics officially published and affecting its price are erroneous,
- And, more generally, parameters applied to the Central Order Book are not consistent with the information available to market participants.

#### Special provision for Securities included in the NextTrack segment

In case of malfunction of the thresholds, due inter alia to an error by the entities in charge of computing the iNAV, Euronext may qualify that a price is aberrant if it deviates from the actual iNAV by more than the applicable reservation thresholds.

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Special provision for Product providing a cap or a floor value

For the specific case of products providing a cap or a floor-value, the implementation of this rule results into the cancellation of any Trade in breach of such cap or floor.

**3.3.6. Notification to Members**

Euronext disseminates text messages informing Members of cancellations. All cancelled trades are notified to the Members with a special mark.

**3.4. Security status**

**3.4.1. Suspended status**

In case of a trading halt in accordance with Rule 4403/2 Rulebook I, resumption of trading is preceded by publication of a Notice by Euronext if the suspension extends beyond the Trading Day.

During the period of suspension, in general, orders entered by Members and transmitted to the Euronext Trading Platform are recorded in the Central Order Book but do not give rise to trades. In certain circumstances order entry may be prohibited.

**3.4.2. Reserved status**

A Security is said to be “reserved”:

- when normal trading pursuant to section 3:
  - has led to the breach of a reservation thresholds; and, as a consequence of this breach,
  - an order accumulation period has been triggered.
- after several collars triggering Euronext stop the trading pursuant rule 1601 of Euronext Rule Book.

More details are available in section 4.

**3.4.3. Entry-prohibited status**

Euronext may temporarily prohibit the entry of orders concerning a given Security in two cases: if the Security is suspended or if the trading parameters are to be modified.

**3.4.4. Information concerning the status of Securities**

When changes occur in the status of a Security (e.g. suspension, reservation), an information message is disseminated via the Euronext Trading Platform.

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#### 4. TRADING SAFEGUARDS

As a rule, prices move freely according to market supply and demand.

However, Euronext will temporarily reserve or reject an order in a Security if the buy or sell orders recorded in the Euronext Trading Platform would inevitably result in a price beyond a certain threshold referred to as collars.

These thresholds are set at a specified deviation from a reference price.

##### 4.1. The reference price and price range

All price ranges, defined on a trading group basis, are displayed in the Appendix.

##### 4.1.1. General case

##### 4.1.1.1. The reference price

For the opening of the Trading Day the reference price shall be either:

- The last traded price (generally the previous day's closing price) adjusted if necessary for events such as corporate actions ; or
- The last indicative price disseminated ; or
- Any other price set by Euronext regarding available information.

After the opening auction:

- If an opening price is quoted, this price becomes the new reference price ; or
- If the Security is automatically reserved (no trades), the collar that triggered the reservation becomes the new reference price ; or
- If the Security opens without trades (no matching prices), the reference price is unchanged.

Without opening price, the reference price will be defined by the price of the first execution. In case where the first execution involves several trades, the dynamic reference price will be defined by the price of the last trade of this first execution.

During the main session

The reference price is re-adjusted during continuous trading only after an incoming order has been matched (as far as possible) against orders in the Central Order Book. When an incoming order is matched by more than one order on the Central Order Book, the reference price is only updated with the last trade generated in this way. From the start of the matching until the last match that can be achieved at that moment, the reference price is not updated. Pursuing article 4.2.2 of this trading Manual for an order partially executed triggering the collars the reference price is not updated. If the member confirms the order the reference price will be updated to the crossed collar

##### 4.1.1.2. The price range

The price range is defined around the reference price. It is stipulated for each Security and defines the maximum deviation (symmetrically positive and negative) from the reference price.

For the auctions of the Trading Day the price range is defined in the Trading Manual Appendix.

For continuous traded Financial Instruments, the price range during auction period may be different than during the main session. The price ranges are defined in the Trading Manual Appendix.

This price range will have a minimum of € 0.02

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#### 4.1.2. Special provisions for Securities linked to a benchmark

For certain Securities (notably ancillary Securities), the determination of the reference price is linked to a benchmark. In such a case, Euronext determines the benchmark and the conditions under which the reference price may be updated from time to time throughout the Trading Day.

##### 4.1.2.1. Bonds (not applicable to the Fonds des Rentes/Rentefonds in Belgium)

The reference price is determined by the value of the benchmark and, barring exceptions, the historical yield gap between the debt Security and the benchmark. The Security's characteristics (notably the duration and the maturity) are taken into consideration in determining the fluctuation range.

The Liquidity Provider may ask Euronext to adapt the reference price according to the market circumstances, information originating in the wholesale market, rating and/or the yield curves as well as the situation in the Central Order Book.

##### 4.1.2.2. Covered warrants

The reference price is determined by the value of the underlying Security or index and the other relevant pricing parameters. The premium value is taken into account in determining the fluctuation range.

Euronext may ask the Liquidity Provider to provide the necessary information in order to adapt the reference price according to a theoretical pricing of the Security.

##### 4.1.2.3. Securities included in the NextTrack segment

Reservation thresholds consist of applying a range above or below an estimate of the net asset value (« indicative net asset value » referred to as « iNAV ») as updated during the Trading Day according to the movements of the underlying index.

The level of this range is set at 1,5% except for collective schemes included in the Next track segment based on international or global indices for which a 3% range is applicable.

For products providing a cap or a floor-value, the trading thresholds resulting from the above-mentioned rules shall not break the said cap or floor-value.

Trading shall be halted in case of impossibility of updating the thresholds i.e.:

- unavailability for Euronext of the underlying index during its normal period of calculation; or
- impossibility for Euronext to obtain the daily NAV, to compute the iNAV or obtain it from the entity responsible for the computation.

Nevertheless, the noticing of an error in the iNAV shall not put into question the Trades already made, without prejudice however to the cancellation rules for aberrant price.

#### 4.2. Collars

##### 4.2.1. During auctions

For every type of auction, Euronext shall initiate a reservation period if the theoretical opening price would breach the collars. The volatility interruption is automatic during an auction.

For Securities traded by auction:

If outstanding buy and sell orders are likely to result in trades that would breach the collars, Euronext will initiate a reservation period on the Financial Instruments until the next auction. Members may enter orders for a reserved Financial Instrument. Such orders become eligible for execution at the next auction.

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If trading conditions warrant, and provided the market is duly informed in advance, Euronext may modify the length of the reservation period and may accept fluctuation ranges broader than those stipulated in the Appendix.

#### 4.2.2. During continuous trading

##### 4.2.2.1. Collars

The order the matching of which is likely to provoke a collar breach is partially executed at the prices inside the collars subject to specific quantity execution conditions.

Then Euronext automatically reject the order and the reference price is not adjusted. The Central Order Book remains in continuous trading session.

The member receives a message of collar breach. If the member confirms the order the reference price will be updated to the crossed collar and the order will be resent to the Central Order Book and executed without triggering the collars price range.

##### 4.2.2.2. Reservation

The order the matching of which is likely to provoke a reservation is partially executed at the prices inside the thresholds subject to specific quantity execution conditions.

Then Euronext automatically reserves the Security and replaces in the central order book the offending order (except for order types or execution conditions which are not available in a pre opening phase) for the unexecuted part. For the order types or orders specified with execution conditions which are not available in an order accumulation period, the member has to re-enter the order in the Central Order Book.

When a reserved status is assigned to a Security, Euronext disseminates this information to Members and disseminates the time at which the trading will resume and the new price range if modified.

During the reservation period, Members can enter, modify or cancel orders without matching. The re-opening of the Security is done by auction.

All reservation periods are defined on a class of Securities basis and displayed in the appendix.

If trading conditions warrant, and provided the market is duly informed in advance, Euronext may modify the length of the reservation period and may accept broader fluctuation ranges.

##### Securities included in the NextTrack segment

Trading resumes on condition that the price resulting from the auction lies within the applicable trading thresholds.

#### 4.3. Indicative price/Valuation price

##### 4.3.1. Price trend

Euronext can decide to assign an indicative price to a Security at the end of the session to reflect the trend on the order book. For a Security to be eligible for the assignment of an indicative price, both of the following conditions must be met:

- the Security is authorised for entry and is either authorised for trading or on upside/ downside reserved status; and
- no trades were recorded during the day.

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The Security's reference price for the next Trading Day will be changed as follows:

- If the indication is "Ask", the reference price is decreased to the day's maximum allowed decline;
- If the indication is "Bid", the reference price is increased to the day's maximum allowed advance.

Market Operation Department can also set other indicative price based on other available information.

#### 4.3.2. Valuation price

##### Warrants

Twice a day, Euronext provides an indicative price for warrants where no quotation occurred (see appendix for times).

The indicative price is the best bid limit in the Central Order Book.

##### Trackers/ETFs, Exchange Traded Vehicles (ETVs), and Exchange Traded Notes (ETNs)

##### **Principle**

Twice a day at the end of opening and closing auction phase, Euronext carries out a valuation process when all four of the following conditions are met:

- 1) There is no trade during the auction phase;
- 2) At least one Liquidity Provider order is present on the buy side of the Central Order Book;
- 3) At least one Liquidity Provider order is present on the sell side of the Central Order Book; and
- 4) The valuation price is within the collars.

The valuation price is generated by sending a valuation instruction for one trading lot. No member shall be involved as counterparty.

The valuation price is equal to the mid-point of the best bid and offer limits of the Central Order Book.

##### **Identification**

The resulting trade shall be marked with a special indicator.

##### **Legal regime**

The trade produces the effects of any trade carried out in the Central Order Book but is not included in the volumes published by Euronext.

#### 4.3.3. Valuation Transactions

##### 4.3.3.1. Principle

##### Equities

Liquidity Providers active on a Share are allowed to carry out a valuation Transaction in order to provide the market with a reference price.

A valuation Transaction is carried out sending the valuation trade instruction for one trading lot. This instruction shall be placed during the order accumulation period preceding the first auction of the day.

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#### 4.3.3.2. Identification

The resulting Transaction shall be marked with a special indicator provided that:

- It is the sole Transaction resulting from the first auction of the day;
- The traded quantity equals one trading lot.

#### 4.3.3.3. Legal regime

Like any last traded price arising from Transactions carried out in the Central Order Book, the price of a valuation Transaction is used by Euronext as a reference price for setting the trading thresholds on the next Trading Day as well as for out-of-hours Transactions and Block Trades.

#### 4.4. Special provisions for first trading day of a new Security

During the first day of trading of a new Security, Euronext shall apply the provisions of sections 4.4.1 and 4.4.2.

However, if trading conditions warrant, and provided the market is duly informed in advance, Euronext may modify the length of the reservation period and may accept broader fluctuation ranges if the protection of the fair and orderly market and the position of the investors on the market requires to do so.

##### 4.4.1. Single listing

In case of a single listed Security on one of the Euronext Markets, the price range will be set at 20% around the reference price. The reference price is the issuing price.

If the price is outside the price range the market will be reserved during 15 minutes. The new reference price used will be the threshold (up or down) reached previously. The price range will be set at +/- 10% of this new reference price.

For Securities traded continuously, this procedure will be repeated until an opening price will be established. At the opening, the opening price will be the new reference price with a price range of +/- 5%. Usual trading rules in term of collars and of reservation period shall apply.

For Securities traded by auction, Euronext will proceed with two new attempts of +/- 10% every 15 minutes. If the price exceeds the trading collars, Euronext will inform the participants about the mode of trading continuation.

##### 4.4.2. Multi listing

For the purpose of this section, Euronext shall determine on its own where the main market is (if the Security is admitted to trading on several markets).

##### 4.4.2.1. Security simultaneously listed on several markets


###### One of the Euronext Securities Market is the main market

If one of the Euronext Securities Market is the main market, the procedure "single listing" described hereupon will apply for this market

For the Securities admitted to trading simultaneously on several Euronext Securities Markets, Euronext will publish the timetable for the opening for all the concerned markets.

###### None of Euronext Securities Market is the main market

If Euronext is not the main market, Euronext will not proceed with the opening of the security until the first traded price in the security will have been established on the main market. Euronext will set the opening time of the security at the earliest 5 minutes after the first traded price on the main market will have been established and confirmed. The reference price will be the first traded price on the main market. The price range will be set at +/- 10%. At the opening, the opening price will be the new reference price with a price range of +/- 5%. Usual trading rules in term of collars and of reservation period shall apply.

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For securities traded in auction mode, the same procedure applies.

**4.4.2.2. Security already traded on another market**

If the Security is already traded on another market, Euronext will proceed with the opening in accordance with the usual time and trading rules. The reference price will be the closing price on the main market.

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## 5. DISSEMINATION OF MARKET DATA

Market data are disseminated throughout the Euronext Trading Platform.

Euronext disseminates the following data.

### 5.1. Summary market

The summary market for a given Security comprises:

- the best bid: price and total disclosed quantity for sale at the lowest price bid)
- the best ask: price and total disclosed quantity for sale at the highest price asked).

### 5.2. Market by orders (not available for Trackers/ETFs)

The market by orders shows all buy orders (listed from highest to lowest) and sell orders (listed low to high). For each order, the Euronext Trading Platform reports the disclosed quantity and the displayed price entered. During the order accumulation periods, the theoretical price is disseminated as soon as it can be calculated.

A fast-market procedure is applied in the event of extreme activity in the market in one or more Securities (e.g. in a privatisation). In a fast market, the messages that would normally allow a cumulative update of the outstanding-orders market are no longer disseminated ("market by orders").

### 5.3. Market by limits

The market by limit's information disseminated is composed of the ten best limits of buy orders (listed from highest to lowest) and the ten best limits of sell orders (listed low to high). For each limit, the system reports the number of orders and total disclosed quantity displayed in the Central Order Book at that price. During the order accumulation periods, the theoretical price is disseminated as soon as it can be calculated.

### 5.4. Trades

For each trade, the following information is disseminated immediately to Members:

- quantity;
- price;
- time of the Trade;
- Trade identification number

Guaranteed Cross Transactions are disseminated with a special indicator.