

Document title

TRADING MANUAL FOR THE OPTIQ TRADING PLATFORM

Issued 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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1. TRADING CYCLE

1.1 THE ORDER DRIVEN MARKET MODEL

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 uncrossing.

The operating hours of all of the Euronext Trading Platforms 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 main communication on market incidents will be done through the Euronext market status website.

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 uncrossing.

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[®], CAC 40[®], ISEQ 20[®], OBX, PSI 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 uncrossing 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;
 - Equities admitted to trading on Oslo Børs trading venues.
- All other Securities are traded by uncrossing.

1.2 THE LP QUOTE DRIVEN MARKET MODEL

Securities governed by the LP quote driven market model are traded on the Euronext Trading Platform continuously

Continuous trading may follow two alternative modes:

- either quotes by liquidity providers are firm in any instance ; or
- quotes by liquidity providers are firm when they aggress any matchable outstanding order in the central order book, then transitionally turn to indications of interest ("IOI") which are reactivated as firm orders after a refresh period following a request for execution ("RFE") message.

For the purposes of this Trading Manual, the latter category shall be referred to as the "RFE securities" or "RFE trading" as the context requires.

The Securities are accordingly 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 execution rules. Consequently, such appendix also sets forth the refresh period per instrument type for each relevant RFE trading group

Euronext reviews from time to time the allocation of securities to the RFE trading groups and may transfer to non-RFE trading groups those securities that have recorded notably insufficient execution quality, as assessed solely by Euronext

1.3 TRADING PHASES FOR SECURITIES WHICH ARE TRADED CONTINUOUSLY

For each trading group, applicable trading phases and the relevant trading hours are mentioned in the Appendix. Please note that not all the below mentioned phases necessarily apply to all trading groups

1.3.1 Pre-opening Call phase - Order accumulation period

During this 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 uncrossing

At the opening, the Euronext Trading Platform seeks to match orders for each Security (the "opening uncrossing"). 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.

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 uncrossing is completed, trading takes place continuously until the pre-closing call 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 uncrossing are forwarded to the main trading session.

Once the opening uncrossing 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 Pre-closing call phase - Order accumulation period

The pre-closing call 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 uncrossing

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

Except for certain Securities where the closing reference price results from alternative methods described in Article 5.4, the closing reference price for Securities which are traded continuously shall in general be the price defined by the closing uncrossing. If no price is issued at the closing uncrossing, the closing reference price shall in general be the last traded price during the main trading session.

In the event of no quotation during a Trading Day, the closing reference 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 Trading-at-last (TAL) price and only at that price. For Securities traded continuously, the trading-at-last phase will be available after the closing uncrossing.

The TAL price shall be the last traded price of the Trading Day (either the uncrossing price of the last uncrossing or the price of the last transaction executed during continuous trading phase). If no trade happened in the Trading Day, the TAL price shall be the closing reference price of the previous Trading Day, adjusted where appropriate.

The appendix to this Trading Manual sets out the ordinary hours of the trading-at-last phase. If warranted by market conditions, Euronext may modify the duration of the trading-at-last phase after having notified Members by any means considered appropriate to ensure information, including messages in public market data feed.

1.4 TRADING PHASES FOR SECURITIES TRADED BY UNCROSSING

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

1.4.1 Call phase - Order accumulation period

During this 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.

1.4.2 Uncrossing

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.

Except for certain Securities where the closing reference price results from alternative methods described in Article 5.4, the closing reference price for Securities traded by uncrossing (single or double uncrossing) shall in general be the price of the last uncrossing. In the event of no quotation at the last uncrossing, the price of the previous uncrossing shall be the closing reference price for the day.

In the event of no quotation during a Trading Day, the closing reference 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 Trading-at-last (TAL) price and only at that price. For Securities traded by uncrossing the trading-at-last phase will be available immediately after each uncrossing.

The TAL price shall be the last uncrossing price of the Trading Day. If no trade happened in the Trading Day, the TAL price shall be the closing reference price of the previous Trading Day, adjusted where appropriate.

2. ORDERS

2.1 ORDER TYPES

Please see chapter 2.1.8 for the possible order types per platform as not all of the below order types are available on each of the Euronext platforms.

2.1.1 Pure 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 uncrossing.

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.

Market orders have priority over all other orders.

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 Market-to-limit orders

Market-to-limit orders are entered into the trading platform with no price stipulation.

A market-to-limit order is an order to buy or to sell a stated amount of a financial instrument that is to be executed at the best price obtainable when the order reaches the order book. A market-to-limit order is converted into a limit order at the best sell price (for buy orders) or best buy price (for sell orders).

Execution of this type of orders depends on when they are sent (call phase or main session). Refer to execution parameters (paragraph 2.2.9) for more details.

2.1.3.1 Market-on-opening orders

When entered during a pre-opening call phase, market-to-limit orders are called market-on-opening orders. Please see explanation in 2.2.9

2.1.4 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 uncrossing 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. A pure stop- market order that has been triggered will be executed at the next prices in the book like a market order.

"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 uncrossing.

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.

2.1.5 Stop limit orders

A stop limit order has the same characteristics as the stop order as described above the difference with a pure stop order is that a stop-limit order will be executed within a price range as set out when sending the order. Once triggered it will be executed as a limit order.

2.1.6 Stop-on-quote orders – RFE – Request For Execution – LP Quote driven

A stop-on-quote order is an order which is triggered when a specified price limit is reached on the Liquidity Provider's indications of interest, implying that the indication of interest on the buy side must move at or below the stop limit to trigger a selling stop order, respectively at or above the stop limit for the indication of interest on the sell side to trigger a buying stop order. Accordingly, the stop limit of a selling stop order upon entry must be lower than the Liquidity Provider's current indication of interest on the buy side, respectively higher than the Liquidity Provider's current indication of interest on the sell side in the case of a buying stop order. Absent such indications of interest by the Liquidity Provider, no entry restriction applies.

In the case of a stop loss order, a market order shall automatically be generated and added in the central order book. In the case of a stop limit order, a limit order shall automatically be generated and added in the central order book. Where appropriate depending on the trading mode, RFE will be triggered upon such order generation.

Stop-on-quote 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 uncrossing.

2.1.7 Primary pegged orders

A Primary pegged order is a limit order to buy or sell a stated amount of a Security at a displayed price set to primarily track the Best Bid or Best Offer or possibly with an offset (measured in ticks) of the Euronext Central Order Book.

Primary peg consists of tracking the price of orders in the same direction either at the BBO or with a certain level of offset (measured in ticks) to be applied on the BBO, but always remaining at best at the BBO and otherwise outside the spread if an offset is to be applied. In other words, a primary peg order can never be aggressive. For the avoidance of doubt, only a negative offset (measured in ticks) can be applied for the bid (i.e. Best Bid minus a certain value) and only a positive offset (measured in ticks) can be applied for the offer (i.e. Best Offer plus a certain value) .

The associated price of each primary pegged order that is updated will be assigned a new entry time with priority in accordance with Euronext rules. Every update of a Primary peg order will be considered as a Cancelled order, and will be considered as part of the Order/ Trade ratio.

In case of empty Central Order Book the Primary peg order is automatically rejected.

A Primary peg 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, with offset effect where appropriate, becomes lower/higher than the limit price.

A primary peg order can only be placed during the main trading session.

2.1.8 Possible Order types per platform

	Order driven market model	LP quote driven market model
Order		
Pure Market order	Yes	Yes
Limit order	Yes	Yes
Market to limit order	Yes	No
Market on open order	Yes	No
Stop order	Yes	No
Stop limit order	Yes	No
Stop on quote orders	No	Yes
Primary peg order	Yes	No

2.2 ORDER VALIDITY AND EXECUTION PARAMETERS

2.2.1 Day Validity

An order with a day validity remains valid until the end of the trading day during which it was entered. It is withdrawn automatically at the post-session marking the end of the day. No cancellation notice is disseminated.

Admissibility

The Day validity is accepted in all trading phases and is compliant with all order types, whatever their additional execution criterion.

2.2.2 Good Till Date validity (GTD)

A Good Till Date order remains valid until close of business on the validity date that is specified when the order is entered. The expiration date specified when submitting a GTD order cannot be greater than the trading date plus one year minus one day or earlier than the current trading day. When the closing date is reached, the order is automatically withdrawn at the post-session marking the end of the day. No cancellation notice is disseminated.

Examples

- if an order is entered on 20 January 2014, the maximum validity will be 19 January 2015.
- If an order is entered on 20 January 2014 with a validity date of 20 January 2015, the order will be automatically rejected.

Admissibility

The Good Till Date validity is accepted in all trading phases and is compliant with all the order types, whatever their additional execution criterion.

2.2.3 Good Till Cancelled validity (GTC)

Definition

A Good Till Cancelled order remains active until the broker decides to cancel it or the order is fully executed. If a GTC order is not cancelled or fully executed during one year, it is automatically cancelled at the corresponding post-session and a cancellation notice is sent to inform the owner of the order's deletion. There is no impact whether the year is a leap year or not.

Examples

If an order is entered on 20 January 2014, unless cancelled, the order will be valid until the end of the trading day on 20 January 2015.

Orders entered on 29 February, during a leap year: if an order is entered on 29 February 2012, unless cancelled, the order will be valid until 29 February 2013. As this date does not exist, the order will be eliminated at the post-session on 1 March 2013.

Admissibility

The Good Till Cancelled validity is accepted in all trading phases and is compliant with all order types, whatever their additional execution criterion.

2.2.4 Good Till Time validity (GTT)

Definition

A Good Till Time order remains active until the expiration time specified by the broker at order entry.

The expiration time applies to the current trading day. An order specified Good Till 10:00:00am, is automatically cancelled within one second of the specified time, at the latest at 10:00:01am. A cancellation notice is sent when time has passed and the order is deleted.

Admissibility

The Good Till Time validity is accepted in all trading phases and is compliant with all order types, whatever their additional execution criterion.

2.2.5 Immediate Or Cancel validity (IOC)

An order combined with the Immediate Or Cancel validity is immediately executed for the maximum possible quantity on the opposite side (in compliance with the collars) and the remaining quantity, if any, will be automatically cancelled by the system. An IOC order that cannot be executed upon entry is rejected with an error message indicating that there are no shares available in the market.

Admissibility

The IOC validity is accepted in Continuous Trading phase and in Trading At Last phase. It is rejected in Call phase.

Features

Immediate Or Cancel validity is not compliant with:

- the disclosed quantity attribute (iceberg)
- stop orders
- peg orders.

Processing in Continuous Trading Phase

An order combined with the IOC validity may be:

- Executed at once for the maximum possible quantity on the opposite side. The remaining quantity is then cancelled by the system and an execution report and information message produced containing the reason for the rejection
- partially executed at once and then eliminated for the remaining quantity when it hits a collar
- not executed at all and then rejected with an execution report and information message giving the reason for the rejection produced.

2.2.6 Fill Or Kill validity (FOK)

An order combined with the Fill Or Kill validity is immediately executed if the entire quantity can be filled against the order book. If conditions do not permit a complete fill, the entire order is rejected and an execution report produced informing its owner that no shares are available for a FOK order.

Admissibility

The Fill Or Kill validity is accepted in Continuous Trading phase and in Trading At Last phase. It is rejected in Call phase.

Features

Fill Or Kill validity is not compliant with:

- the attributes “disclosed (iceberg) and minimum quantities”
- stop orders
- peg orders.

Processing in Continuous Trading Phase

An order combined with the Fill Or Kill validity may be:

- Executed at once for its entire quantity on the opposite side
- Rejected because there is insufficient quantity on the opposite side to fill it. It will be rejected and an execution report produced informing the owner that no shares are available for this order.
- Rejected because the quantity available on the opposite side does not allow an execution inside the collars. It will then be rejected and an execution report produced informing the owner that no shares are available for this order.

2.2.7 Valid For Uncrossing (VFU)

An order combined with the Valid For Uncrossing validity is processed during uncrossing only. It can be entered throughout the trading day and participate in the next scheduled uncrossing, whether that be an opening or closing trading group uncrossing, or any instrument uncrossing. Once the uncrossing is completed, any unfilled remaining quantity of the VFU orders is immediately cancelled.

Admissibility

The Valid For Uncrossing validity is accepted in all the trading phases.

Features

The Valid For Uncrossing validity is not compliant with:

- the minimum quantity attribute
- stop orders
- peg orders
- cross orders.

Processing in Call Phase

A VFU order entered in Call phase is disseminated at once as it participates in the Indicative Matching Price determination. At the uncrossing, the VFU order can be:

- totally executed at the Indicative Matching Price

- partially executed at the Indicative Matching Price and, at the end of the uncrossing, the remaining quantity is automatically cancelled with a cancellation notice
- not executable at all at the Indicative Matching Price: the order is automatically cancelled at the end of the uncrossing, with a cancellation notice
- not executable at all because there is no Indicative Matching Price: the order is automatically cancelled as soon as the instrument opens
- kept in the order book following a trading halt caused by an Indicative Matching Price outside the collars. It will then participate in the next instrument uncrossing.
- If there are VFU orders remaining in the order book for any reason at the end of the trading day, all of them will be automatically cancelled in post-session.

Processing in the Continuous Trading Phase

A VFU order entered in Continuous Trading phase will be stored in the order book but kept inactive as not yet valid. It is displayed, according to its timestamp of order entry, as soon as the instrument or the trading group returns in Call phase and follows the rules described above.

2.2.8 Valid For Closing Uncrossing (VFCU)

An order combined with the Valid For Closing Uncrossing validity is processed during the closing uncrossing only. It can be entered throughout the trading day but takes part in the closing uncrossing only.

Once the closing uncrossing is completed, any unfilled remaining quantity of the VFCU orders is immediately cancelled.

Admissibility

The Valid For Closing Uncrossing validity is accepted in all the trading phases.

Features

Valid For Closing Uncrossing is not compliant with:

- the minimum quantity attribute
- stop orders
- peg orders
- cross orders.

Processing in Call Phase

A VFCU order entered in Pre-opening Call phase (first Call phase of the trading day) is stored in the order book but is kept inactive and not yet valid. As long as the trading group is in a different state to the pre-closing Call phase, VFCU orders are kept inactive and not yet valid. They will be displayed as soon as the trading group enters the pre closing Call phase and then be able to take part in the Indicative Matching Price determination and in the closing uncrossing. In the same way, a VFCU order entered in pre-closing Call phase is immediately disseminated and takes part in the Indicative Matching Price determination and in the closing uncrossing.

At the closing uncrossing, the VFCU order can be:

- totally executed at the Indicative Matching Price
- partially executed at the Indicative Matching Price and, at the end of the uncrossing, the remaining quantity is automatically cancelled with a cancellation notice

- Not executable at all at the Indicative Matching Price: the order is automatically cancelled at the end of the uncrossing, with a cancellation notice
- Not executable at all because there is no Indicative Matching Price: the order is automatically cancelled as soon as the instrument opens
- Kept in the order book following a trading halt caused by an Indicative Matching Price outside the collars. It will then participate in the next instrument uncrossing.
- If there are VFCU orders remaining in the order book for any reason at the end of the trading day, all of them will be automatically cancelled in post-session.

Processing in the Continuous Trading Phase

A VFCU order entered in Continuous Trading phase will be stored in the order book but kept inactive as not yet valid .

It is displayed as soon as the instrument or the trading group returns to the pre-closing Call phase and follows the rules described above.

2.2.9 Execution parameters

2.2.9.1 Minimum-quantity Orders (in continuous trading only)

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 the minimum quantity is not immediately executed, the entire order is cancelled.

2.2.9.2 Execution parameters of market orders

During uncrossing market orders have priority over orders limited at the uncrossing price.

Pure Market 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 uncrossing: if pure market orders within the Central Order Book are not fully or partially executed during an uncrossing the remaining part will participate in the next uncrossing.

Market to limit

(Also applicable for Market on Opening as explained in text below)

Processing during uncrossing

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 uncrossing price. For Securities which are traded by uncrossing, a Market-to-limit order not executed at all during an uncrossing remains in the Central Order Book for the next uncrossing as a Market-to-limit order.

Processing 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.

2.2.9.3 Bonds – Amsterdam – Specific minimum quantity restriction

Orders on bonds (FMT) that have a minimum denomination ("Par Value" in MDG standing data) with smaller multiple tradable amounts ("lot size" in MDG Standing data), admitted to listing and trading on Euronext Amsterdam since the 2 May are subject to minimum quantity restriction equal to the minimum denomination.

Members have the flexibility to trade in smaller multiples of the lot size above the minimum denomination.

These bonds can be identified as follows :

- They are hosted on specific trading groups (cf Appendix to trading manual)
- The "Par Value" is set to the minimum denomination and the "lot size" is set to the multiple amount members can trade above the minimum denomination.

This restriction will not apply to :

- Remaining quantities resulting from partial execution that remain in the order book. These orders will be able to be executed and will receive price updates as long as the order is valid in the order book (depending on order type).
- Orders on bonds listed before 2 May 2016.

2.3 TRANSPARENCY PARAMETERS

2.3.1 Iceberg orders

The disclosed quantity of an iceberg 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. The disclosed quantity must be set by the member and member can also choose whether on refill to randomize or not this disclosed quantity. .

An iceberg 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). The peak must be a multiple of the lot size and at minimum ten times the lot size. The member also has the choice to have a randomized peak volume, meaning the system will automatically generate a new peak volume.

The total value of the iceberg order must be larger than EUR 10.000, otherwise the order will be automatically converted into a transparent Limit order.

The initial peak is introduced into the Central Order Book with the original timestamp of the iceberg order according to price/time priority. When an iceberg 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 iceberg orders are executed for their total amount according time priority. However, where the member is participating in the Internal Matching Facility, the execution priority will be price, then IMS pool members, and then time. The modification of the total quantity does not affect the order priority.

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

2.3.2 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.

As a reminder, guaranteed cross trades shall not be used with a view to crossing LP or house orders between each other. Only bona fide errors in the submission of guaranteed cross trades may result in the posting of both sides of the trade on an appropriate execution error account.

Guaranteed cross orders are considered as Negotiated transaction under the MIFID II regulation.

Guaranteed cross orders are available only for Equities and ETFs.

2.4 ORDER TYPES AND EXECUTION CONDITIONS AVAILABLE:

2.4.1 Order driven market model

	Day	Good till Date	Good Till Cancel	Good Till Time	IOC*	Fill or Kill (*)(**)	Valid for Uncrossing (**)	Valid for Closing Uncrossing (**)
Order types								
Pure Market order(*)(**)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Limit order	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Market to limit order (*)	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Market on-opening order(*)(**)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stop limit order (*)(**)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stop orders (*)(**)	Yes	Yes	Yes	Yes	No	No	No	No
Pegged order (*)(**)	Yes	Yes	Yes	Yes	No	No	No	No

* Not eligible for iceberg execution

** Not eligible for minimum quantity execution

2.4.2 LP quote driven market model.

	Day	Good till Date	Good Till Cancel	IOC(*)
Order types				
Limit order	Yes	Yes	Yes	Yes
Market order (*)	Yes	Yes	Yes	Yes
Stop-on-quote_order(*)	Yes	Yes	Yes	No

* Not eligible for iceberg execution

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.

For the LP quote driven market model in specific:

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 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. As far as RFE trading is concerned, these principles equally apply to the refreshment actions by LPs that turn indications of interest into firm orders.

Corporate Action

A corporate action is any event initiated upon a security by an Issuer or by an offer or / bidder, affecting an investor's entitlement to investments or benefits related to those investments.

There are two main categories of corporate actions which are:

- Distributions: Corporate action whereby the Issuer of a security delivers particular proceeds to the holder of the Underlying Security without affecting the Underlying Security.
- Reorganisations: A corporate action whereby the underlying security is replaced with proceeds (securities and / or cash).

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 reference price); or
 - The last indicative price.
- The delisting of an Instrument
- The listing of a new Instrument

Corporate Actions on the underlying instrument or reference on the LP quote driven market model

In principle, corporate actions on the underlying instrument or reference do not give rise to cancellation of orders in the central order book. It is for the Liquidity provider to adjust its quotes where appropriate.

Standard treatment of corporate actions

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

Corporate Actions	Consequences on the Central Order Book	Reference price
Stock split with ISIN change	Delisting of the "old" ISIN code and listing of the "new" ISIN code.	Adjustment
Stock split without ISIN change	Cancellation of orders	Adjustment
Reverse Split	Delisting of the "old" ISIN code and listing of the "new" ISIN code.	Adjustment
Dividends on equities and ETF's	Cancellation of orders	Adjustment
Interest on bonds quoted in Applicable currency/ EUR	Cancellation of orders	Adjustment
Interest on bonds quoted in percentage	N/A	N/A
Interest on structured notes and certificates	N/A	N/A
Capital amortization / Partial redemption (bonds)	Cancellation of orders	N/A
Drawing (bonds)	Cancellation of orders and suspension from trading one settlement cycle before the payment date	N/A
Bonus Issue	Cancellation of orders	Adjustment
Detachment of Rights	Cancellation of orders and possible listing of subscription right	Adjustment
Merger/absorption, Takeover, Public Exchange Offer	On a case by cases basis according to the transaction structure : suspension / cancellation of orders	N/A
Spin-off	Cancellation of orders	Adjustment
IPO/ IBO	Creation of the order book	Set up of the initial reference price
De-listing	Cancellation of orders	N/A
Exclusion from DSO / L&B facility	Cancellation of orders	N/A
Final and Early Bond Maturity	Delisting one settlement cycle before the payment date	N/A

Barring exceptions, Euronext will be processing an adjustment of the closing / reference price and/or the historical prices only in the event the Corporate Action proceeds are equally distributed / offered to all shareholders. The above also applies for the cancellation of orders in relation to a corporate action.

Other 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 unless the tick size changes due to the nature of the receiving trading group (fewer decimals) in that case orders will be cancelled
Change of Market of Reference	Cancellation of orders
Change of price expression (unit versus percentage)	Cancellation of orders
Change of minimum lot size	Cancellation of orders
Change of Security type	Cancellation of orders
Suspension	Nothing
Resumption	France/ Ireland: Cancellation of orders possible (indicated per notice). Netherlands/ Belgium/ Portugal / Norway: N/A

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.

For Admitted Financial Instruments specified by a Euronext Market Undertaking, pre-clearing information relating to preferences in respect of choice of Clearing Organisation may be specified on an optional basis by such means as may be specified by the Euronext Market Undertaking and published in a Notice. Where the counterparties to a trade have indicated a preference for the same Clearing Organisation, the trade shall be sent to that Clearing Organisation for clearing and settlement; in all other cases the trade will be sent to LCH SA. This option is not applicable to Euronext Dublin, where all

trades are cleared by EuroCCP, nor to Oslo Børs where trades are subject to specific interoperability post-trade arrangements.

In relation to securities admitted to trading on Dublin and Oslo Børs markets, those transactions that are deemed to have been effected on the Dublin or Oslo Børs regulated market or multilateral trading facility, as appropriate, without having been processed in the central order book, so-called "OBOE (Off Book On Exchange)" trades, are not sent to the clearing house.

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,
- submitted pursuant to a market-making agreement,
- a Retail Liquidity Firm Quote,
- a Retail Order.

For purposes of Block Trade publication rules, order as identified as Affiliate or Liquidity Provider 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.

Euronext uses Short Codes (then mapped to the long codes) as one of the order characteristics. For the purpose of applying the Kill functionality the short code to be used will be the one of the first submission of the order.

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 part on filtering orders below does not apply to the LP quote driven market model.

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, it must comply with the following quantity or price thresholds. Failing this, the order will be rejected with no confirmation possibility.

The order validation process will be based on the parameters as shown below for bonds and equities or equivalent instruments.

a) Common control

For all types of financial instruments: if the order quantity (*) is greater than or equal to the common control limit , the order will be rejected.

- *I.e. 50 million € in nominal amount for bonds traded FMT
- 50 million in number of securities for other instruments
- 500 million NOK in nominal amount for bonds traded FMT on Oslo Børs markets
- 999 999 999 in number of securities for other instruments traded on Oslo Børs markets

b) Instrument-specific control

Bonds ()*

For instruments treated as bonds, if the order quantity is greater than or equal to the "Quantity Threshold" set for the trading group the instrument belongs to or configured per instrument where appropriate, the order will be rejected.

Equities, ETF's Structured Products, L&B Stocks^[1]

The value of orders is expressed in the following format:

Quantity of securities that is to be traded × price for which a single unit is to be bought or sold.

For instruments not treated as bonds, if the order value is greater than or equal to the "Amount Threshold" set for the trading group the instrument belongs to or configured per instrument where appropriate, the order will be rejected.

"Quantity Threshold" and "Amount Threshold" parameters are published in the Appendix to this Trading Manual at trading group level or in a standing data file at instrument level.

c) Price limit control

Orders with a price limit must be stipulated in a price range calculated around either a static, a dynamic or a valuation reference price as appropriate.

The acceptable range and method is made available to Members in the Appendix and can be amended intra-day after having notified Members by any means considered appropriate to ensure information, including messages in public market data feed.

^[1] Bonds traded in the central order book on the Euronext markets are traded in the FMT/% format. Bonds with a decreasing nominal value and French convertible bonds are traded in EUR/UNT. Information on the lot size and type of listing can be found in the 553 referential data files which are sent each day

2.9.5 Retail Trading Facility

- Pursuant to Euronext Rules, a Retail Member Organisation must have sufficient reason to believe that orders submitted under this capacity originate from a retail client.

Two requirements must be met:

i) Criteria

- on average, the monthly trade ratio for the trading activity undertaken by the Member as a Retail Member Organisation on Euronext (i.e. flagged accordingly) during continuous trading needs to be below 3 to 1.

$$\text{Trade ratio} = \text{orders introduced}^{[1]} / \text{trades executed}$$

- on average, the monthly cancellation rate for the trading activity undertaken by the Member as a Retail Member Organisation on Euronext (i.e. flagged accordingly) during continuous trading needs to be below 50%.

$$\text{Cancellation rate} = \text{orders cancelled} / \text{orders introduced}$$

ii) Due diligence

If a Retail Member Organisation does not have itself direct contact with the Client allowing it to classify such Client as "non-professional", it shall conduct sufficient due diligence to satisfy the "reasonable belief" test. Factors considered in such assessment shall include:

- whether the Client is a natural person or not; or
- whether the nature of the Client's order flow is such that it can be concluded that such orders do not originate from a trading algorithm or any equivalent computerized process.

- Orders can only be executed through the Retail Trading Facility during continuous trading.

[1] In that ratio, the 'orders introduced' do not take into account the IOC orders which are rejected because not immediately executed.

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 (Euronext Rulebook1).

3.1 DETERMINATION OF PRICES AND ALLOCATION OF SECURITIES DURING AN UNCROSSING

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

All uncrossings take place on a random basis over a time period specified in the Appendix.

3.1.1 Maximum Execution Principle

The uncrossing price is determined on the basis of the Central Order Book position at the end of call phases. The uncrossing price is the price with the highest executable volume for each limit.

3.1.2 Minimum Surplus

Should the aforementioned process result in more than one limit with the highest executable order volume, the lowest surplus for each limit is taken into account as a further criterion. The uncrossing price is the price with the highest executable volume and the lowest surplus.

3.1.3 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 uncrossing price will be the one closest to the reference price.

The reference price - as a general rule - is:

- the closing reference price of the previous trading day for the purposes of the opening uncrossing;

- the last traded price in the Central Order Book for subsequent uncrossings during the main session.

If this reference price is not available in proper conditions (e.g. after a long period of suspension, a merger/ reconstruction of the Issuer or new issue trading for the first time), another reference price will be determined by Euronext. Euronext can also set the reference price in function of other relevant information like a takeover, the 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 uncrossing 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).

3.1.4 Other Matching Principles

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

In the other situations, market orders (up to the counterparty available), buy orders with a limit above the uncrossing price and sell orders with a limit below the uncrossing price are filled in their entirety.

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

Applicable for the LP Quote driven Market Model

Instruments governed by the LP quote driven market model will not have an Opening Uncrossing. Rather, they will go from Call directly into Continuous phase. As a result, there will be no dissemination of Indicative Matching Price (IMP) before continuous trading in market data for these instruments.

For further information on the related specific execution / matching principles, please refer to section 3.2.4 Continuous Uncrossing process .

3.2 DETERMINATION OF PRICES OF SECURITIES DURING THE MAIN TRADING SESSION

3.2.1 Order Driven Market Model

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.

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.

3.2.2 LP Quote Driven Market Model

Main principles

For certain warrants and certificates where the activity of an LP is, in the sole opinion of Euronext, considered as mandatory to maintain an efficient market, the outstanding orders of such LP shall have first the status of indicative quotes (hereafter in this context "the indications of interest") during continuous trading phase.

However, the incoming LP orders that are immediately executable against the rest of the central order book shall be executed as firm orders and their balance, if any, shall be treated as indications of interest.

To allow for such market organization, market-to-limit orders shall not be allowed and stop orders shall run on a "stop-on-quote" basis, implying that they are triggered by reference to the LP indication of interest on the relevant side.

This implies that:

For certain warrants and certificates where, for the purposes of this Rule 4401/2, the activity of a Liquidity Provider is, in the sole opinion of Euronext, considered as mandatory to maintain an efficient market,

Either

Following the entering of an opposite order that could match the initial indication of interest; or

further to an attempt by two other orders to match inside the indication of interest spread,

the LP shall receive first a "request for execution" consisting of an alert that does not mention the side, price nor the quantity of the incoming order. After a refreshment period providing the LP with an opportunity to update its indications of interest where appropriate, LP indications of interest shall be turned into orders executable, on an immediate basis only, against other orders if:

Or

The LP has not refreshed its indications of interest in a way that would make the orders un-executable in the first case;

the LP has shifted its indications of interest and improved the relevant side thereof so as to make it executable in the second instance.

In both circumstances, the immediately active orders of the LP shall match according to the standard price/time priority, time priority of the LP active order being given by the time of the associated indication of interest provided the latter has not been altered in a way that downgrades its priority. Following execution, the balance of such orders shall return to the indication of interest status.

Euronext shall be empowered to suppress the refresh process if it determines that it results in a poor execution quality for a particular instrument, as measured solely by Euronext.

The Appendix to the Trading Manual specifies to which warrants and certificates such provision applies.

Operating Mode

Each new incoming order is immediately checked for execution against orders on the other side of the order book. The execution of orders during the main trading session is effected according to the price/time priority principle. Each new order is immediately checked to see if it can be executed against orders on the other side of the order book; the limits of the orders sitting in the book determine the price, it being understood that in the RFE trading mode the LP may improve such limit before execution.

For Securities traded according to the RFE mode, the attempt to execute an incoming order other than an LP one generates the following process:

- an RFE message is sent to the Liquidity provider;
- the Liquidity provider may, within the refresh period, update its indications of interest already posted;
- after such update, or the expiration of the refresh period without any action by the LP where such is the case, LP quotes are considered firm and may trade against the other orders depending on their resulting execution priority following the action performed.

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 order book will be executed according to the price/time priority principle. Orders or parts thereof which have not been executed are sorted in the order book according to price/time priority.

3.2.3 Continuous uncrossing process

At the start of continuous trading or if a reservation within the meaning of article 3.4.2 has been triggered, as soon as the posting of indications of interest by the Liquidity Provider allows to trade, orders collected or reserved in the central order book will be executed successively, by matching upon each step of the process the best two orders on each side, sorted out by price/time. The price of each trade results from the price of the order with the earliest timestamp.

Each trade is generated so as to keep its price in the Liquidity Provider's bid/ask spread: in the event where matching would lead to a price outside such spread, the price is adjusted to the Liquidity Provider's price that was to be crossed.

If one of the Liquidity Provider orders is fully filled in the course of that process, the Security is reserved after completion of all the preceding trades already executable. Otherwise, continuous trading starts or resumes as the case may be.

3.3 TRADE OR INDICATIVE PRICE CANCELLATIONS

Trade cancellations may be carried out under specific conditions published by Notice.

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

3.4.2.1 On the order driven market model

A Security is said to be "reserved":

- When normal trading pursuant to section 3:
 - has led to the breach of a collar; 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.

3.4.2.2 On the LP quote driven market model

A security is said to be "reserved":

- when the LP does not post prices in accordance with its presence obligations, which may consist depending on the market circumstances of two-way prices, bid-only, or offer-only.;
- when an order of the LP has just been completely filled, pending the entry of a new order by the LP (the balance, if any, of the aggressing order being automatically placed in the central order book);
- in the specific situation where a virtual collar is to be crossed as described below in article 3.4.4.

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 Bid-only status (Only applicable for the LP Quote Driven market model)

Pursuant to LP commitments' framework, the LP may be allowed to post only bid orders under the relevant circumstances where he has no more securities in inventory, without trading being reserved. In such a case, a virtual offer order will however be internally generated in the trading system so as to trigger reservation for attempts to trade beyond such internal limit. The range used for such virtual order is defined in the Appendix to this Trading Manual.

3.4.5 Offer-only status (Only applicable for the LP Quote Driven market model)

Pursuant to LP commitments' framework, the LP may be allowed to post only offer orders under the relevant circumstances where the application of the required spread would lead to a bid at or below zero, without trading being reserved.

3.4.6 Payment after knock-out (PAKO)

Upon request of the issuer, a Security with knock-out clauses may be switched to a PAKO mode if its barrier has been reached. PAKO mode does not target price discovery and merely aims at facilitating the payment of residual value due to holders: it implies accordingly that the LP, the sole person responsible for the determination of the residual value, only is allowed to enter bid orders, at the relevant residual value. Other members can place only sell orders to be matched consequently at the value posted by the LP.

3.4.7 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.

4. TRADING: REFERENCE PRICE, COLLARS AND RESERVATIONS

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

However, Euronext will temporarily reserve trading 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 trading safeguard threshold referred to hereafter as collars.

4.1 REFERENCE PRICE

For the Order Driven Market Model unless indicated otherwise.

4.1.1 The reference price and price range

The price range is defined around the reference price. The price of a security can develop within the price range around the reference price. The price range defines the maximum deviation (symmetrically positive and negative) from the reference price.

All price ranges, which are defined per trading group, can be found in the Appendix. Price ranges may differ between the uncrossing and the continuous phases, as set-out in the Appendix.

The reference price can follow two methods, depending on the Security type and its prevailing price formation mode:

- The reference price is determined directly from the prices generated by the central order book; or
- The reference price is determined by an external feed of benchmark prices aiming at giving an indication of the theoretical value.

4.1.2 Determination of the reference price

The reference price is primarily generated by the Central Order Book.

Determination for the reference price during the opening uncrossing and continuous trading phase

Before markets open:

- The closing reference 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.

At the opening uncrossing:

- The opening price becomes the new reference price; or
- If the Security opens without trades (no matching orders), the reference price remains unchanged. The first price traded will become the new reference price. In the event where the first execution involves several trades, the reference price will be defined by the price of the last trade of this first execution.

- If the Security is automatically reserved (no trades occur because potential trades were outside the collars Euronext will modify the reference price and the uncrossing process is resumed until it is possible to quote an opening price

During the continuous trading phase

The dynamic 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 dynamic reference price is only updated with the last trade generated in this way.

4.1.3 Special provisions for reference prices for specific types of securities

4.1.3.1 “Penny stock” policy

In addition, Euronext applies a special policy to low price equities (so-called “penny stocks”), defined for the purposes of this rule as equities with a market price below 0.20€ (or equivalent order of magnitude deemed appropriate if not traded in euros). To account for their specific situation, the static collars shall be set with a minimum of +/-0.02€ (or equivalent order of magnitude deemed appropriate if not traded in euros) around their static reference price. More details on penny stocks are available in the appendix to this Trading Manual.

4.1.3.2 Securities linked to a benchmark: use of external reference prices

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.

4.1.3.3 Bonds

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.

4.1.3.4 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 (if an LP is appointed) to provide the necessary information in order to adapt the reference price according to a theoretical pricing of the Security.

4.1.3.5 ETFs, ETNs and ETVs

Collars consist of applying a range above or below an estimate of the net asset value (« indicative net asset value » referred to as « iNAV ») for ETFs or , as appropriate, an iNAV or a reference price contributed by the selected Liquidity provider for ETNs and ETVs, as updated during the Trading Day according to the movements of the underlying index or asset.

The level of this range is set between 0.25% and 3%, in steps pre-defined of 0.25%. ETFs based on money market indices may be submitted to lower ranges. The collars are decided by Euronext upon the issuer's suggestion based on the tests run and its findings that the collars will sustain high market quality and reduce and prevent trading at aberrant prices as best as possible. Upon request of the issuer the collars allocated to each ETF, ETN and ETV can be changed.

For products providing a cap or a floor-value, the trading collars 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 collars 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.

This article 4.1.3.5 is not applicable to ETFs admitted to trading on Oslo Børs where collars remain computed by reference to the last traded price.

4.2 COLLARS AND RESERVATIONS FOR THE ORDER DRIVEN MARKET MODEL

General principle

An aggressing order can match available orders in the order book and can get partially executed before causing a collar breach. At the moment of the collar breach the system automatically reserves the security. In the central order book, for the partially executed aggressing order creating the collar breach, the quantity of the order is changed and only the unexecuted quantity will remain.

When a security reserves due to a collar breach, Euronext disseminates this information to members through market data. The time at which the trading will resume, subject to randomization, and the new price range if modified will equally be communicated to the markets by Euronext through market data.

During the reservation period, members can enter, modify or cancel orders without matching. The re-opening of the security is done by uncrossing.

4.2.1 Dynamic Collars

4.2.1.1 Dynamic Collars during continuous trading

All trading groups that operate on a continuous basis are subject to dynamic collars. If a sent order causes a matching price that breaches the collars, trading reserves.

4.2.1.2 Dynamic Collars for securities traded by uncrossing

If outstanding buy and sell orders are likely to result in trades that would breach the collars, Euronext initiates a reservation period on the security until the next uncrossing.

4.2.2 Static collars during the continuous session

A reference price is also used for calculating static collars. The static reference price will be equal to the opening price. If a security has not yet traded the last reference price at of the previous trading day will be used (i.e. the closing price). The static reference price will change as soon as the security has traded for the first time, the first traded price will become the new static reference price. The static reference price does not move automatically as is the case with the dynamic reference price. Upon the breach of the static collars, trading reserves and the static reference price will be adjusted according to the same principle as the dynamic collars. In specific market conditions a different approach to the adjustment of the static reference price may be taken at Euronext's discretion.

As far as equities collars are concerned, Euronext policy depends on the respective liquidity of equities, according to the following principle: Euronext will not amend the static reference price until a static collar has been reached. If Euronext determines to adjust the static reference price, the new static reference price will be defined by the static collar reached.

4.2.3 Management of collars during the closing auction

For equities, the uncrossing process is repeated with accelerated frequency and necessary threshold adjustment until an uncrossing price can be determined, to the extent possible.

4.2.4 Trading resumptions during the main trading session after a reservation due to a collar breach

For securities trading continuous:

General principle

Euronext initiates a reservation period if, during the continuous trading phase, the theoretical price at which a security can be traded breaches the applicable thresholds. The reservation period shall last at least 3 minutes.

Dynamic collars

Upon the first reservation caused by dynamic collars breach, the attempt to resume trading may take place following two possible processes depending on the type of securities:

- Manual process with parameters determined by Euronext after an assessment of market conditions;
- Automatic process with updated dynamic collars using the interval for uncrossing process mentioned in the Appendix. If upon this first trading resumption attempt, the updated collars are breached in the same direction (i.e. second consecutive downwards or second consecutive upwards reservation), any decision to adjust the collars and the reference price before resuming continuous trading will be made after an assessment of market conditions.

Static collars

In the event of static collar breach, Euronext will, if warranted by market conditions, modify the static thresholds and, depending on the direction of the market, either the upper or lower thresholds will become the new reference price.

Index constituents

If a security that is an index constituent (AEX, BEL20, CAC40, ISEQ 20, OBX, PSI) halts for a second time in the same direction (i.e. second consecutive downwards or second consecutive upwards reservation), a minimum reservation period of 10 minutes will apply. For securities that are not constituents of the before mentioned indices, the minimum reservation period will remain 3 minutes.

For Securities traded by uncrossing:

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

Euronext may in certain market conditions modify the length of the reservation period and may accept fluctuation ranges broader than those stipulated in the Appendix.

4.3 REFERENCE PRICE, COLLARS AND RESERVATIONS FOR THE LP QUOTE DRIVEN MARKET MODEL

Pursuant to the operating mode described in section 3.2.2 and 3.4.2 LP indications of interest shall play the role of collars.

Accordingly, trades shall take place inside the bid/ask spread resulting of such indications of interest as the case may be, boundaries included. As a consequence, trading shall be reserved when the LP has not posted indications of interest in compliance with its presence obligations, it being understood that such obligation may consist of bid-only or offer-only posting in specific circumstances.

4.4 INDICATIVE PRICE/VALUATION PRICE

4.4.1 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.

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.

4.4.2 Valuation price applicable for the LP quote driven Market Model

Principle

Twice a day, at the end of the opening uncrossing and upon closing, Euronext carries out a valuation process when the following conditions are met:

- 1) as far as the opening uncrossing is concerned, there is no trade already resulting from that uncrossing phase;
- 2) the Liquidity Provider is present in the Central Order Book according to its obligations, provided that in an offer-only situation no valuation price will be produced.

The valuation price is equal to the mid-point of the best bid and offer limits of the Central Order Book. In the case of a bid-only situation, limits will be adjusted where appropriate so as to comply with the virtual offer collar.

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

Identification

A MDG message Price update is disseminated with a particular market data price type "23".

Impact on trading

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

4.4.3 Valuation price Applicable for the Order Driven Market Model

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.

ETFs, ETVs and ETNs (as specified in the Appendix)

Principle

Twice a day at the end of opening and closing uncrossing phase, or at the end of the opening uncrossing phase only as far as equities are concerned, Euronext carries out a valuation process when all four of the following conditions are met:

- 1) There is no trade during the uncrossing 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

A MDG message Price update is disseminated with a particular market data price type "23".

Legal regime

The valuation price produces the effects of any trade carried out in the Central Order Book, including where appropriate use as reference for some off-order book trades or trading price thresholds setting on the next Trading Day, but is not included in the volumes published by Euronext.

Equities

Principle

Liquidity Providers active on a Share are allowed to send a valuation price message in order to provide the market with a reference price and update the collars accordingly. A valuation price is sent out as a particular Order Entry Message "Price Input". This instruction shall be placed during the order accumulation period preceding the first auction of the day.

Identification

A MDG message Price update is disseminated with a particular market data price type "23".

Legal regime

The valuation price produces the effects of any trade carried out in the Central Order Book, including where appropriate use as reference for some off-order book trades or trading price thresholds setting on the next Trading Day, but is not included in the volumes published by Euronext.

4.5 SPECIAL PROVISIONS FOR INITIAL PUBLIC OFFERINGS (IPOS)

During the first day of trading of a new Security, Euronext shall apply the provisions of sections 4.5.1 and 4.5.2.

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 doing so.

4.5.1 Single listing

In case of a single listed Security on one of the Euronext Markets, the price range will be set at a percentage around the reference price that is larger than the standard bandwidth of the trading group that the product will be listed in. The exact percentage will be communicated per listing notice as the price range may vary per issue. The reference price is the issuing price.

If the price is outside the price range of the security, trading will be reserved. Trading will resume within a timeframe at Euronext's discretion according to market conditions. If it is determined to resume trading, a new reference price will be used. The new reference price will be the collar (up or down) reached previously. In specific cases Euronext may decide to use a different way to determine the new reference price if due to market conditions the abovementioned reference price determination wouldn't allow trading to resume. The price range will be set back to the applicable width of the respective trading group at Euronext's discretion when it considers the market to be stabilised. The bandwidth around the reference price is as stipulated in the appendix to the Trading Manual

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 the applicable price range (specific percentages per trading group as stipulated in the appendix of the trading manual). Usual trading rules in term of collars and of reservation period shall apply.

For Securities traded by uncrossing, Euronext will proceed with two new attempts every 15 minutes if the product halts on the opening by changing the reference price, The new reference price will be the collar (up or down) depending on the level of the theoretical opening price. The change of the price range will be compliant with the applicable price range (specific percentages per trading group as stipulated in the appendix of the trading manual.).Euronext will inform the participants about the mode of trading continuation.

4.5.2 Multi listing

For the purpose of this section, Euronext shall determine on its own which market, the market of reference is for a security (if the Security is admitted to trading on several markets).

4.5.2.1 Security simultaneously listed on several markets

One of the Euronext Securities Markets is the Market of Reference

If one of the Euronext Securities Market is the market of reference, 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 Markets is the Market of Reference

If Euronext is not the market of reference, Euronext will not proceed with the opening of the security until the first traded price in the security will have been established on the market of reference. 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 market of reference. 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.

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

4.5.2.2 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 market of reference.

5. DISSEMINATION OF MARKET DATA

Market data are disseminated throughout the Euronext Trading Platform. Euronext disseminates the following data.

5.1 MARKET BY ORDERS

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.

In addition, the identity of Members having produced the orders is displayed on the fixed income segments of trading venues run by Oslo Børs.

5.2 MARKET BY LIMITS

The market by limit's information are disseminated through the feed for the full depth of the order book. For each limit, the system reports the number of orders and the aggregated volume displayed in the Central Order Book at that price.

LP Indications of interest are marked with a specific flag.

During the order accumulation periods, the theoretical price is disseminated as soon as it can be calculated. For buy orders with prices higher than the theoretical price and for sell order with prices lower than the theoretical price, the price limit displayed is the theoretical price.

5.3 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.

5.4 TRADING DAY PRICE SUMMARY

In addition, Euronext specifically disseminates:

- An opening price, if any. In continuous trading mode, the opening price is the opening uncrossing price or, if no match was possible during such uncrossing, the first trade of the continuous session;
- In addition to the last traded price accessible in the data feed of post-trade information referred to in Article 5.3 above, a closing reference price. The

closing reference price results from the following alternative methods. It may still be adjusted further to events that occurred in the meantime, notably due to a corporate event. If the applicable method does not allow to determine a closing reference price based on data of the Trading Day, the closing reference price of that Trading Day will be the closing reference price of the previous Trading Day, adjusted where appropriate.

For the avoidance of doubt, the following types of trade data are not taken into account when implementing the possible closing reference price methods: off order book reported trades, guaranteed cross trades and principal trades and TAL trades.

The appendix to this Trading Manual specifies which method applies to each trading group.

Last traded price

The closing reference price will be equal to the last traded price or to the last valuation price if calculated after the last trade.

Closing uncrossing price or VWAP

The closing reference price will be equal to:

- the closing uncrossing price;
- where it is not possible to determine the closing uncrossing price, the closing reference price shall be the weighted average price of the trades concluded in an interval of the continuous trading phase, excluding guaranteed crosses, as specified by Euronext;
- if it is not possible to determine the closing uncrossing price and no trades were concluded during the interval of the continuous trading phase referred to in the preceding letter, the closing reference price shall be the price of the last trade concluded prior to the closing uncrossing during the entire trading session, excluding guaranteed crosses.

Closing uncrossing price or BBO

The closing reference price will be equal to:

- the closing uncrossing price;
- where it is not possible to determine the closing uncrossing price, the closing reference price shall be equal to the average of a significant number of different best bids and offers displayed in the Central Order Book during the continuous trading phase, giving priority to the most recent;
- where it is not possible to determine the closing reference price pursuant to letter b), the closing reference price shall be equal to the average of a significant number of best bids displayed in the Central Order Book during the continuous trading phase, giving priority to the most recent;

VWAP or BBO

The closing reference price will be equal to:

- the weighted average price of the trades concluded in an interval of the continuous trading phase, excluding guaranteed crosses, as specified by Euronext.
- If no trades were concluded during the interval of the continuous trading phase referred to in the previous letter, the closing reference price will be equal to the average of a significant number of different best bids and best offers displayed in the Central Order Book during that continuous trading phase or, failing availability of complete bids and offers, an average of the different best bids for the required number of observations.
- The interval referred to above for computing average prices shall be equal to 10 minutes, unless Euronext establishes, on a general basis and with reference to specific trading segments or financial instruments, a different interval and announces its decision in a notice.