



EURONEXT DERIVATIVES CORPORATE ACTIONS POLICY

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1. INTRODUCTION

- 1.1 This Policy Document details the policy of Euronext Derivative Markets in relation to Corporate Actions. It is issued pursuant to, and should be read in conjunction with, the terms of the relevant formal contract specifications and Trading Procedures.
- 1.2 This Policy Document explains Euronext's policy in relation to Corporate Actions in respect of:
 - a. Option Contracts (as defined in section 2.1); and
 - b. Futures Contracts (as defined in section 2.1); and
 - c. Index Options (as defined in section 2.1); and
 - d. Index Futures (as defined in section 2.1).
- 1.3 This Policy Document is structured as follows:
 - a. section 2 defines terms used throughout this Policy Document;
 - b. section 3 provides background information;
 - c. section 4 describes Euronext's policies and conventions in respect of Corporate Actions;
 - d. section 5 outlines the methodology to be used to formulate adjustments in respect of Option Contracts and Futures Contracts;
 - e. section 6 outlines the Corporate Action types and the adjustment methodology in respect of Option Contracts and Futures Contracts;
 - f. section 7 outlines the Corporate Action types and the adjustment methodology for Single Stock Dividend Futures, Index Options and Index Futures; and
 - g. the Appendices provide further information on the calculation of Fair Value and Equalisation Payments for Option Contracts, Futures Contracts, Single Stock Dividend Futures, Index Options and Index Futures.

2. DEFINITIONS

2.1 The following provisions apply to, or should be noted in connection with, the interpretation of this Policy Document:

Adjustment Ratio	means the ratio that will be multiplied by the Daily Settlement Prices and/or Exercise Prices, and by which Lot Sizes will be divided, in order to adjust contract terms to cater for a Corporate Action
COB Option Contracts	means Options Contracts which are available through the Euronext Central Order Book markets
Corporate Action Notice	means a Notice issued to the market containing information concerning contract adjustments
Corporate Action	means <ul style="list-style-type: none"> a. a cash and/or scrip dividend, a bonus or scrip issue, a rights issue, a share split, subdivision or consolidation, a demerger or any other event affecting or giving rise to a right or entitlement attaching or accruing to the Shares of, or ownership of Shares in, a company; or b. a takeover, merger or any arrangement, transaction or series of transactions which will or may result in the acquisition by any person or persons or any associated person or persons of a substantial proportion of the Shares of a company; or c. any other event which, in the opinion of Euronext, necessitates an amendment to be made to terms of an Option Contract and/or Futures Contract and/or Index Options and/or Index Futures in respect of the Shares of a company or an index
Cum entitlement	Means, in respect of a share, with the right, before a date determined and published from time to time by the Relevant Stock Exchange, to any Relevant Entitlement relating thereto
Daily Settlement Price	means the price calculated and published by Euronext and which is used by the Clearing House to perform daily margin calculations
Delivery Buyer	means the person who is obliged to take delivery of one lot pursuant to the exercise or assignment of an option
Delivery Seller	means the person who is obliged to make delivery of one lot pursuant to the exercise or assignment of an option
EDSP	means the Exchange Delivery Settlement Price, as defined in the relevant contract specifications
Euronext	means, as the context requires, one or all of the Relevant Euronext Market Undertakings defined in the Euronext Rulebook
Euronext Pricer	means the derivatives pricing application that is used by Euronext during the trading day to, amongst others, calculate reference prices for price validation of derivatives orders. Dividends and a volatility for each option series are determined within the Euronext Pricer, based on prices in the market. At end-of-day, the settlement volatility, dividend, interest rates and closing price of the underlying value are used to determine the Daily Settlement Price for the option series

Ex entitlement	means, in respect of a share, without the entitlement, on or after a date determined and published from time to time by the Relevant Stock Exchange, to any Relevant Entitlement relating thereto
Exercise	means to use the right one has as the holder of an option
Fair Value	means the prices calculated by Euronext when Option Contracts and/or Futures Contracts and/or Index Options and/or Index Futures are closed out for a cash amount, after a merger or takeover or delisting
Fair Value Volatility	means the volatility determined by Euronext which is used to calculate the Fair Value prices as described in Appendix 1.
Futures Contracts	means collectively the term for (i) futures contracts on individual Shares (cash settlement and physical delivery) and (ii) Single Stock Dividend Futures
Index Future	means a future contract on an index
Index Option	means an option contract on an index
Last Trading Day	means the last market day on which a contract is available for trading
Lot Size	means the number of underlying Shares or baskets of Shares of one Option Contract or Futures Contract
Minimum Price Movement	means the tick size of a contract, as defined in the relevant contract specifications or Trading Procedures
Open Interest	means the number of positions held at the close of any one business day
Option Contracts	means option contracts (cash settlement & physical delivery), listed on Euronext, on individual Shares or Exchange Traded Funds (“ETF”)
Package Method	means a method of adjusting contract specifications for existing contracts to cater for Corporate Actions, in which the original underlying deliverable is substituted by a package of other Shares or deliverable security
Policy Document	means this document
Ratio Method	means a method of adjusting contract specifications for existing contracts to cater for Corporate Actions, where the relationship between the contract before and after the event is altered using a ratio specified by Euronext
Relating Option or Future Contract	means, in case of Single Stock Dividend Futures, an Option Contract or futures contract on individual Shares whereby the underlying Shares of the Relating Option or Future Contract are the source of the underlying dividend of the Single Stock Dividend Future
Reference Price	means the price specified by Euronext and which shall be used as a reference price to determine the adjustments to be made further to a Corporate Action
Relevant Entitlement	means any one or more of a cash dividend, scrip dividend, bonus issue, scrip issue, rights issue, or any other right or entitlement, attaching or accruing to, or otherwise affecting, from time to time, a share or ownership of a share

Relevant Stock Exchange	means the primary stock exchange on which such Shares are available for trading
Scrip Dividend	A dividend payment where shareholders have the right to choose whether to receive a cash dividend or Shares
Shares	means, as the context requires, the relevant security, depository receipt or other such instrument which is the subject of the underlying of the relevant contract
Single Stock Dividend Futures	means futures contracts on projected dividend(s) on individual Shares (cash settlement).
Standard Lot Size	means the number of underlying Shares in a contract, other than Single Stock Dividend Futures, as specified in the relevant contract specifications
Stock Dividend	A dividend payment made in the form of additional Shares.
Trading Code	means the code under which the contract or class of contracts is trading on the Euronext trading platform.
Underlying Currency Unit	means the currency of denomination of the underlying deliverable which is the subject of a lot

3. BACKGROUND

- 3.1 The publication of this Policy Document is intended to minimise uncertainty over the method of contract adjustment to be adopted by Euronext when a company announces a Corporate Action and, consequently, to limit any unanticipated effect on contract prices when Euronext thereafter announces its specific intentions on the contract adjustment.
- 3.2 Euronext envisages that, in most situations, contracts will be adjusted in accordance with this Policy Document. However, it should be noted that in certain circumstances this may not be possible or appropriate, and Euronext retains the right to determine how contracts should best be adjusted (if at all).
- 3.3 Euronext will issue one or more Corporate Action Notices in respect of each Corporate Action where adjustment to an Option Contract, Futures Contract, Index Option or Index Future is required or expected under the terms of this Policy Document.

4. POLICY AND CONVENTIONS

4.1 APPLICATION OF ADJUSTMENTS

The methodology detailed in this Policy Document is based on the principle that, when the Shares underlying an Option Contract (which has not been exercised) or a Futures Contract become ex entitlement, contracts on such Shares should be amended to reflect in economic terms (as far as practicable) a holding equivalent to the ex-entitlement Shares and the Relevant Entitlement, and may be effected as follows:

- by altering the exercise prices of Option Contracts, creating Reference Prices for use as the basis for the determination of variation margin flow for Futures Contracts; and the Lot Size of the respective contracts; or
- by substituting the underlying Shares in a proportion determined by the ex-entitlement holding with the new underlying Shares; or
- by settling (closing) Option Contracts and Futures Contracts at their respective Fair Value.

Where the timing of a Corporate Action requires an adjustment to be made to Option Contracts or Futures Contracts prior to authorisation from shareholders, regulatory bodies or any other such party that has power to disqualify the Corporate Action, such adjustments will be made in order to maintain the contract's relationship with the underlying Shares. Adjustments made in the above manner are irrevocable, irrespective of whether approval is or is not obtained.

Please refer to section 8 for Index Options and Index Futures.

4.2 ADJUSTMENT OF LOT SIZE

For Futures Contracts, the lot size of all delivery months up to and including the furthest delivery month with open interest shall be adjusted by being divided by the ratio. For Option Contracts, the lot size of all expiry months up to and including the furthest maturity with open interest shall be adjusted by being divided by the ratio.

4.3 ROUNDING

Where application of the Ratio Method results in an adjusted exercise price that is not equal to an eligible exercise price in accordance with the relevant contract terms and/or trading procedures the exercise price will be rounded to the nearest eligible exercise price, and in the event that the unrounded exercise price is exactly halfway between two eligible exercise prices, then it shall be rounded up to the next eligible exercise price. Where application of the Ratio Method results in a rounded exercise price that is equal to zero, all open positions in that specific series will be cancelled and cash settled at intrinsic value, as determined on the business day preceding the effective date of the Corporate Action.

When the Ratio Method is applied, the resultant Reference Price will be rounded to the nearest increment of the Minimum Price Movement, or to such number of decimal places determined and advised by Euronext and in the event that the unrounded Reference Price is exactly halfway between two eligible Reference Prices, then it shall be rounded up to the next eligible Reference Price.

Where the application of the Ratio Method results in a Lot Size which is not equal to an increment of one share, the adjusted Lot Size will be rounded, to the nearest whole share, and in the event that the unrounded Lot Size is exactly halfway between two eligible Lot Sizes, then it shall be rounded up to the next eligible Lot Size. Where the application of the Ratio Method results in a rounded Lot Size that is equal to zero, all open positions in the contract will be cancelled and cash settled using the equalisation payment methodology (see section 4.5).

4.4 EQUALISATION PAYMENTS

For Option Contracts, an equalisation payment will be made to neutralise the effect observed due to rounding of the Lot Size as mentioned in section 4.4 and 5.1. (as described in Appendix 2).

The equalisation payment amount will be determined by Euronext and its transfer between clearing members arranged by LCH.

4.5 NOTIFICATION OF CORPORATE ACTIONS

Euronext will inform participants of Corporate Actions via publication of a Corporate Action Notice. A Corporate Action Notice will be published in respect of a Corporate Action when information made public by the company gives sufficient certainty of that company's intention to effect a Corporate Action. A Corporate Action Notice will detail the adjustment methodology Euronext intends to apply, and the subsequent application of such adjustment, *ceteris paribus*.

Where necessary, at the close of business on the last day that a company's Shares are trading cum entitlement, Euronext will publish a Corporate Action Notice confirming adjustments made to Option Contracts or Futures Contracts.

5. ADJUSTMENT METHODOLOGIES FOR OPTION CONTRACTS AND FUTURES CONTRACTS

Where adjustments to the terms of a contract are required under the terms of this Policy to cater for a Corporate Action, Euronext shall use either of the Ratio Method or the Package Method, or substitute the underlying Shares of a contract.

In cases where it is inappropriate or impossible to adjust contracts in line with the below methodologies, or in cases where the Corporate Action is an event other than those listed in section 6 of this Policy Document, Euronext will have regard, as far as practicable, to the principle detailed in paragraph 4.1 above in determining the appropriate adjustment.

5.1 RATIO METHOD

Where the Ratio Method is used to make adjustments to Option Contracts and Futures Contracts, Euronext will disclose the adjustment ratio if known or the equation necessary to calculate the ratio. The following conventions will apply for an application of the Ratio Method:

- The adjustment ratio shall be calculated by dividing the ex-entitlement holding (or value thereof) by the cum entitlement holding (or value thereof), such that:

$$\text{Adjustment Ratio} = \frac{\text{Ex entitlement holding}}{\text{Cum entitlement holding}}$$

- The adjustment ratio will be rounded, using normal mathematical rounding conventions, to eight (8) decimal places.
- Application of the adjustment ratio with respect to exercise prices, the creation of Reference Prices, and Lot Sizes will be made with the rounded adjustment ratio.

For **Option Contracts** the ratio is used to alter the Lot Size (by dividing the lot size by the ratio) and the exercise price of each series (by multiplying the exercise price by the ratio). On exercise, Delivery Sellers are required to deliver the adjusted number of ex entitlement Shares in return for a consideration of the adjusted exercise price multiplied by the adjusted Lot Size.

Equalisation payments will be made for all **Option Contracts** to neutralise the effect observed due to rounding of the Lot Size (see section 4.4 and 4.5).

In the case of **Futures Contracts**, the ratio is used to alter the Lot Size (by dividing the Lot Size by the ratio) and to create the Reference Price of each contract (by multiplying the previous business day's Daily Settlement Price by the ratio).

5.2 PACKAGE METHOD

The Package Method entails substituting the underlying Shares in a contract with a package of the ex-entitlement Shares and the proportionate number of entitlements.

In the case of **physical delivery Option Contracts**, on exercise, Delivery Sellers are required to deliver the ex-entitlement Shares and the proportionate number of entitlements in consideration for the exercise price multiplied by the Lot Size. Fractions of Shares will be settled in cash. No adjustment will be made to the lot size or exercise prices.

In the case of **cash settlement Option Contracts** on exercise, the EDSP will be determined by aggregating the components which form the package. Daily Settlement Prices will not be adjusted to create Reference Prices and no adjustment will be made to the lot size or to the Trading Code.

In the case of **cash settlement Futures Contracts**, the ex-event EDSP will be determined by aggregating the components which form the package. Daily Settlement Prices will not be adjusted to create Reference Prices and no adjustment will be made to the lot size or to the Trading Code.

On the Last Trading Day of **physical delivery Futures Contracts**, Delivery Sellers are required to deliver the number of ex-entitlement Shares they have contracted to sell together with the proportionate number of entitlements. Fractions of Shares will be settled in cash. Daily Settlement Prices will not be adjusted to create Reference Prices and no adjustment will be made to the lot size or to the Trading Code.

In all cases, no new delivery months will be introduced where the Package Method has been applied.

Where an underlying share in a created package is itself subject to a corporate action for which the ratio method is applicable, Euronext may adjust the number of the relevant Shares in the package. No adjustment will be made to the lot size or exercise prices.

6. CORPORATE ACTION TYPES FOR OPTION CONTRACTS AND FUTURES CONTRACTS

The following section details the adjustment methodology Euronext will apply to Option Contracts and Futures Contracts to determine what adjustments (if any) will be applied to cater for the following Corporate Actions:

- Bonus issues
- Stock splits and reverse stock splits
- Subdivision or consolidation of share capital
- Rights issues and open offers
- Dividends
- Demergers
- Liquidation
- Mergers and takeovers
- Share repurchases

As noted, Euronext retains the right to determine how any particular Corporate Action will be reflected in contract adjustments. However, as a general rule, the following provides details of the methodology applied to cater for the above Corporate Actions.

In cases in which not all shareholders are entitled to the Relevant Entitlement, Euronext will decide on a case by case basis whether an adjustment needs to be made. In doing so, Euronext will have regard, as far as practicable, to the principle detailed in paragraph 4.1.

6.1 BONUS ISSUES, STOCK SPLITS, REVERSE STOCK SPLITS, SUBDIVISIONS OR CONSOLIDATIONS OF SHARE CAPITAL

The Ratio Method will be used to adjust Option Contracts and Futures Contracts to cater for a bonus issue, stock split, reverse stock split, subdivision or consolidation of Shares.

The ratio shall be constructed as follows:

$$\text{Adjustment Ratio} = \frac{(P - E) * \left(\frac{O}{N}\right)}{P}$$

Where:

- P = The official closing price¹ of the cum entitlement Shares on the Relevant Stock Exchange
- E = Value of the entitlement per share
- O = Cum amount of Shares (old)
- N = Ex amount of Shares (new)

For bonus issues, stock splits-, reverse stock splits, subdivisions or consolidations, P and E are irrelevant. Therefore the formula for the adjustment ratio for bonus issues, stock splits reverse stock splits, subdivisions or consolidations simply reads:

$$\text{Adjustment Ratio} = \frac{O}{N}$$

¹ Or such other price as defined in the relevant Corporate Action Notice.

In the case that the ratio results in a Lot Size divisible by the Standard Lot Size to an exact integer, the open interest shall be adjusted rather than the Lot Size in order to maintain the equivalent economic exposure pre and post event.

6.2 RIGHTS ISSUES AND OPEN OFFERS

The Ratio Method will be used to adjust Option and Futures Contracts to cater for rights issues and open offers. The adjustment ratio will be calculated by creating a ratio of the theoretical ex-entitlement share price to the cum entitlement share price.

For the avoidance of doubt, Euronext will make adjustments to Option Contracts and Futures Contracts where the entitlement issue creates an exclusive entitlement to existing shareholders, irrespective of the tradability of the entitlement. Euronext will interpret a rights issue or an open offer to shareholders as a Corporate Action that creates an exclusive entitlement to shareholders, insofar that the entitlement has positive value.

Calculations of the value of the entitlement and the adjustment ratio for a straightforward issue are as follows:

Value of the Relevant Entitlement per share

$$E = \frac{(P - d - S)}{\left(\frac{h}{r} + x\right)}$$

Where:

E	=	Theoretical value of an entitlement
P	=	The official closing price ² of the cum entitlement share on the Relevant Stock Exchange
S	=	Subscription price of one new share
d	=	Dividend to which new shareholders are not entitled
h	=	Number of existing Shares specified as eligible for the entitlement
r	=	Number of new Shares specified as the entitlement
x	=	1

Adjustment Ratio

$$\text{Adjustment Ratio} = \frac{(P - E)}{P}$$

The ratio will be applied to exercise prices of each series and Daily Settlement Prices as described in section 5.1 of this Policy, at the close of business on the last business day that the company's Shares are trading cum entitlement.

Where an entitlement issue entitles shareholders to take up securities that are not pari passu in all respects to those Shares which derived the entitlement, or will not immediately convert into those Shares, Euronext may determine the value of the entitlement by means of a members' survey. The survey will be conducted on the last business day that the company's Shares are trading cum entitlement.

² Or such other price as defined in the relevant Corporate Action Notice

It should be noted that where a market auction facility is available on the Relevant Stock Exchange, Euronext may, at its discretion, use the closing price of the rights from the market auction on the last cum entitlement trading day to determine a theoretical ex entitlement share price.

Euronext will have regard, where possible, to any adjustment or valuation methodology applied to any index which the underlying share may be a constituent of, to cater for the event.

6.3 DIVIDENDS

In the case of cash, Stock or Scrip Dividends, Option Contracts and Futures Contracts will only be adjusted if these dividends are special. Euronext will use the following criteria for deciding whether a dividend should be considered to be a special dividend:

- a. The declaration by a company or ETF-issuer of a dividend additional to those dividends declared as part of the company's or ETF's normal results and dividend reporting cycle; merely an adjustment to the timing of the declaration of a company's or ETF's expected dividend would not be considered as a special dividend circumstance; or
- b. The identification of an element of a dividend paid in line with a company's or ETF's normal results and dividend reporting cycle as an element that is unambiguously additional to the company's or ETF's normal payment.

For the purpose of clarification, Euronext will not make adjustment for the following situations:

1. Payment of ordinary dividends, irrespective of how they are financed;
2. The issue of redeemable Shares or any other entitlement in lieu of an ordinary dividend; or
3. An unexpected increase or decrease, resumption or cessation, or change in frequency to an ordinary dividend.

The Ratio Method will be used in making adjustments to Option Contracts and Futures Contracts to cater for special dividends, and shall be calculated as follows:

$$\text{Adjustment Ratio} = \frac{(P - Od - Ed)}{(P - Od)}$$

Where:

- P = The official closing price³ of the cum entitlement share on the Relevant Stock Exchange.
- Od = Any ordinary dividend amount per share, to be paid to the shareholders or ETF-holders as published by the issuer which has the same ex-date as Ed
- Ed = The special dividend amount per share to be paid to the shareholders or ETF-holders as published by the issuer

6.4 DEMERGERS

The Package Method will be used to cater for demergers where Shares of the demerged company can be delivered, settled and/or traded in the Relevant Euronext Market Undertaking where the Option Contracts and Futures Contracts are admitted to trading and/or listed and of which the underlying Shares are subject to the demerger. If the Shares of a demerged company cannot be delivered, settled and/or traded in the Relevant Euronext Market Undertaking where the Option Contracts and Futures Contracts are admitted to

³ Or such other price as defined in the relevant Corporate Action Notice.

trading and/or listed and of which the underlying Shares are subject to the demerger, then the Ratio Method will be applied to Option Contracts and Futures Contracts.

The adjustment ratio will be calculated as follows:

$$\text{Adjustment Ratio} = \frac{(\text{Cum entitlement share price} - \text{value of demerged company per share})}{(\text{Cum entitlement share price})}$$

In the case that a demerger results in the creation of two or more companies, Shares of those demerged companies will be subject to the above conditions, such that if the Shares of each demerged company cannot be delivered, settled and/or traded in the Relevant Euronext Market Undertaking where the Option Contracts and Futures Contracts are admitted to trading and/or listed and of which the underlying Shares are subject to the demerger, then the Ratio Method will be applied to Shares of those demerged companies, in their respective proportions.

In determining the value of a demerged company's Shares for the purpose of applying the Ratio Method, Euronext may conduct a members' survey on the last date which the company's Shares are trading cum entitlement. However, on or prior to this date, if the value of Shares in the demerged company can be determined from market trading on any facility operated by the Relevant Stock Exchange, then this value will be used in place of a members' survey.

If the demerged company is already traded on an exchange designated by Euronext, Euronext may adjust the contracts in accordance with the Ratio Method.

6.5 LIQUIDATION

Where a company or ETF is delisted from its Relevant Stock Exchange as a consequence, amongst other things, of liquidation or bankruptcy Option Contracts and Futures Contracts will be settled according to their intrinsic value.

Where the underlying Shares in question are suspended from trading but still transferable through the relevant settlement system, trading, exercise and settlement in the Option Contracts may still be allowed.

6.6 MERGERS AND TAKEOVERS

To cater for a merger or takeover, Euronext will use the structure of the headline offer ("offer consideration") to determine what adjustment methodology to apply to Option Contracts and Futures Contracts.

In general all takeover offers shall lead to the determination of Fair Value Volatilities for the purpose of (a possible) Fair Value settlement as described in Appendix 1, whether the offer is in stock, or in cash or in a combination of both.

The Ratio Method will be applied where the offer consideration is **composed purely of Shares** in another company, and those Shares which form the headline offer can be delivered, settled and/or traded in the Relevant Euronext Market Undertaking where the Option Contracts and Futures Contracts are admitted to trading and/or listed and of which the underlying Shares are subject to the merger and/or takeover. In applying the Ratio Method to substitute the underlying value of the Option Contracts and/or Futures Contracts the ratio will be calculated as follows:

$$\text{Adjustment Ratio} = \frac{x}{y}$$

Where y is equal to the number of Shares offered under the headline offer for every X Shares held in the underlying company. This ratio will be applied as described in section 5.1 of this Policy, such that the underlying Shares of the contract will be substituted in the same proportion as determined by the headline offer, for the Shares that form the offer consideration. Use of the Ratio Method will ensure Daily Settlement Prices and exercise prices are adjusted in line with the level of the new underlying Shares.

If those Shares which form the offer consideration cannot be delivered, settled and/or traded in the Relevant Euronext Market Undertaking where the Option Contracts and Futures Contracts are admitted to trading and/or listed and of which the underlying Shares are subject to the merger and/or takeover, then the open positions in the Option Contracts and Futures Contracts will be settled at their theoretical Fair Value (as described in Appendix 1).

Where the offer consideration is **composed purely of cash**, the open positions in the Option Contracts and Futures Contracts will be settled at their theoretical Fair Value (as described in Appendix 1).

Where the **offer is composed of both Shares and cash**, and if the share element cannot be delivered, settled and/or traded in the Relevant Euronext Market Undertaking where the Option Contracts and Futures Contracts are admitted to trading and/or listed and of which the underlying Shares are subject to the merger and/or takeover, then all open positions in the Option Contracts and Futures Contracts will be settled at their theoretical Fair Value. If the share element can be delivered, settled and/or traded in the Relevant Euronext Market Undertaking where the Option Contracts and Futures Contracts are admitted to trading and/or listed and of which the underlying Shares are subject to the merger and/or takeover, then the Ratio Method will be applied, such that the resulting contracts would become contracts purely on the share element. In this case the ratio will be based on the share price of the company issuing the bid.

Generally Euronext will seek to use the official closing price of the Shares on the market where the company has its primary listing. However in cases where the company issuing the bid has its primary listing in a different time zone than the target company, Euronext may use an official closing/opening price established on a secondary venue, use a **VWAP calculation** or use the EDSP calculation. Lastly, if the price of the share of the company issuing the bid is not available or cannot be determined at an appropriate time, Euronext reserves the right to calculate the ratio on the basis of the share price of the target company.

In the circumstance that the cash element represents over 67% of the total offer consideration, the open positions in the Option Contracts and Futures Contracts will be settled at their theoretical Fair Value (as described in Appendix 1), and the Ratio Method will not be applied. For the avoidance of doubt, once Euronext has determined the proportion of cash and made such announcement as to the type of adjustment methodology, the methodology will not then be changed simply due to share price movements affecting the proportion of cash.

$$\text{Adjustment Ratio} = \frac{(P_t - C) * \frac{O}{N}}{P_t}$$

$$P_t = C + (N * S)$$

Where:

P_t	=	Theoretical value of one share of the target company
N	=	Number of Shares of the offerer received per share of the target company
O	=	1
C	=	Cash element of the offer per share held
S	=	Cum event share price of the company that is issuing the offer (being the offerer)

Adjustments to Options and Futures Contracts will be made when a relevant offer is declared effective by the offerer and if the threshold of the majority of the outstanding Shares (50% + 1) is met.

In the case of Tender Offers, whereby the relevant offer is a mandatory offer by law, Euronext will use a threshold of 75% of the outstanding Shares to determine whether the relevant offer is effective.

6.7 SHARE REPURCHASES

Euronext will generally treat instances where a company repurchases its own Shares in the market as a non-adjustable event. However, on occasions where a company makes an offer for its own Shares at a premium to the prevailing market price, and where shareholders have equal opportunity to participate in the offer, Euronext may, where practical deem the share repurchase as an adjustable event.

6.8 DELISTING

Where a company or ETF is delisted from its Relevant Stock Exchange on request of the relevant company or ETF-issuer and, as a consequence, the underlying Shares are no longer deliverable on an exchange designated by Euronext, Euronext shall use the Fair Value method to settle the open positions in the Option Contracts and Futures Contracts as described in Appendix 1. The determination of the Fair Value Volatilities, for the purpose of settlement of the Options at their theoretical Fair Value, shall be based on the settlement prices of the relevant Options series over a ten business day period preceding the public announcement of the (intended) delisting by the company, ETF-issuer or the Relevant Stock Exchange (as described in Appendix 1).

6.9 SPECIAL CIRCUMSTANCES

If the underlying Shares of the Options and/or Futures Contracts are no longer tradable and/or deliverable due to circumstances not described in the Corporate Actions Policy, Euronext will decide on a case by case basis what the consequences for the Options and/or Futures Contracts will be, and will inform the regulator of the Relevant Euronext Market Undertaking on which the options and/or futures are traded before issuing a Corporate Action Notice.

7. SINGLE STOCK DIVIDEND FUTURES

Unless otherwise stated in the Policy, Single Stock Dividend Futures will be adjusted for a Corporate Action in case the Relating Option or Future Contract is adjusted. The adjustment method for the Single Stock Dividend Futures will be equal to the adjustment method of the Relating Option or Future Contract. In case of a Ratio Method adjustment, the calculated ratio of the Relating Option or Future Contract will be used for adjustment of the Single Stock Dividend Futures. In case that a Corporate Action results in a settlement at theoretical Fair Value of the Relating Option or Future Contract (as described in Appendix 1), Euronext will settle the Single Stock Dividend Futures against their theoretical Fair Value in accordance with Appendix 1. For the sake of completeness Euronext would like to point out that the trigger for adjusting the Single Stock Dividend Future will be the corporate action on the underlying Share and not on the dividend amount paid on the underlying share.

8. INDEX OPTIONS AND INDEX FUTURES

Fair Value settlement

Euronext shall use the Fair Value method as described in Appendix 1, to settle the open positions in any relevant Index Options or Index Futures, where:

- (i) an index used as an underlying value for Index Options or Index Futures ceases to exist and the provider of such index has publicly announced the cessation of the index;
- (ii) an index used as an underlying for Index Options or Index Futures only consists of Shares of one issuer and the provider of such index has publicly announced that such Shares will be removed from the index and not be replaced by different Shares;
- (iii) an index used as an underlying value for Index Options or Index Futures only consists of Shares of one issuer and the company issuing such Shares has publicly announced the delisting of such Shares on the Relevant Stock Exchange;
- (iv) an index used as an underlying value for Index Options or Index Futures only consists of Shares of one issuer, where such Shares are subject to a takeover-bid⁴.

Intrinsic value settlement (in case of liquidation or bankruptcy)

In the event that an index used as an underlying value for Index Options or Index Futures only consists of Shares of one issuer and the shares of the issuer are delisted from its Relevant Stock Exchange as a consequence of liquidation or bankruptcy, the Index Options and Index Futures will be settled according to their intrinsic value.

Other changes to the index

In the event that an index used as an underlying value for Index Options or Index Futures changes as a result of other circumstances than those detailed in this Policy, Euronext will determine, at its discretion and on a case by case basis, if and how the relevant Index Options or Index Futures are to be settled or adjusted. Any subsequent amendments to the relevant Index Options or Index Futures will be published in a Notice.

⁴ For the purpose of this policy, a bid is deemed to be announced as soon as a firm price has been mentioned by the company issuing the bid. This could be an intended bid.

APPENDIX 1: FAIR VALUE METHOD

The Fair Value method is used for the purpose of cash settling Options Contracts, Futures Contracts, Index Options and Index Futures. Fair Value prices are calculated on the effective date (for reference also see section 6.6 and section 8).

Euronext reserves the right, in special circumstances, to consult a panel of market parties and independent experts instead of using the Fair Value method described below.

A.1.1 OPTION CONTRACTS

For the purpose of settling Option Contracts, the Fair Value calculations will be made in the Euronext Pricer.

A.1.1.1 Calculation of Fair Value prices for Option Contracts

Euronext will use the following parameters to determine the Fair Value prices for each option series:

- **Fair Value Volatility:** Euronext will use the settlement volatility, which has been used for the calculation of the Daily Settlement Prices by the Euronext Pricer, of the relevant options series. These settlement volatilities will be collected over a period of ten trading days, immediately preceding the announcement of the takeover bid⁵. Subsequently, the average of each series settlement volatility over such ten trading day period is calculated, excluding the lowest and the highest observation of that series over the ten trading day period⁶.

Once determined, these Fair Value Volatilities are fixed until the moment of settlement, regardless of any changes in the price of the underlying share in the intervening period.

If the offerer increases the offer consideration or makes any other change to the respective offer (such as extending the acceptance period) during the course of a takeover, no new volatilities will be calculated. In addition, should a counter bid be launched by another company whilst a bid is still active (i.e. has not expired or been withdrawn), then the volatilities, calculated as described above and in relation to the initial bid, will be used if the counter bid should be declared effective.

- **Dividend forecasts:** The average dividend forecasts used for the calculation of Daily Settlement Prices by the Euronext Pricer collected over a ten trading day period.
- **Interest rates:** interest rates as used by the Euronext Pricer on the effective date⁷.

⁵ For the purpose of this policy, a bid is deemed to be announced as soon as a firm price has been mentioned by the company issuing the bid. This could be an intended bid.

⁶ If an option has been listed for less than ten trading days at the time that its Fair Value Volatility is determined, the Fair Value Volatility will be calculated on the basis of the days it has been listed. In addition, if the option has been listed for less than seven trading days, the lowest and highest settlement volatilities will not be excluded.

⁷ Interest rates that correspond to the relevant currency of the Option Contracts.

A.1.1.2 Introduction of new series after the publication of Fair Value Volatilities

In the event that new series are introduced after the initial publication of Fair Value Volatilities, the Fair Value Volatility for these new series shall be determined as follows:

- New strike prices higher than the highest existing strike price or lower than the lowest existing strike price in the same expiry month:

The Fair Value Volatility of the highest existing strike price in the specific expiry month will be used for all higher new strike prices in that expiry month. Similarly, the Fair Value Volatility for the lowest existing strike price in the specific expiry month will be used for all lower new strike prices in that expiry month.

- New strike price in between existing strike prices in the same expiry month:

The Fair Value Volatility for the new strike price will be calculated by interpolation of the Fair Value Volatilities of the existing strike prices in the specific expiry month.

- New strike prices in expiry month in between existing expiry months:

The Fair Value Volatility for the strike prices in a new expiry month will be calculated by interpolation of the Fair Value Volatility of the two equal strike prices in the nearest expiry months. If for a specific new strike price only one equal strike price is available, then the Fair Value Volatility will be calculated by interpolation by using the two nearest strike prices.

- New strike prices in expiry months with an expiry date after the furthest expiry month:

The Fair Value Volatility of strike prices of the furthest expiry month will be used for new strike prices in expiry months with an expiry date after the furthest expiry month.

A.1.2 CALCULATION OF FAIR VALUE PRICES FOR FUTURES

Fair Value calculations will be made in the Euronext Pricer. Euronext will use the following parameters to determine the Fair Value prices for single stock futures:

- **Dividend forecasts**, whereby the source of the dividend forecasts is:

- In the case that Euronext has an Option Contract on the same underlying value as the Future Contracts and the maturities of the Option Contract exceeds the maturities of the Future Contract:

The average dividend forecasts used for the calculation of Daily Settlement Prices by the Euronext Pricer collected over a ten trading day period;

- In the case that the maturities of the Future Contract on the same underlying value exceeds the longer maturity of the listed Option Contract on the same underlying value: Markit^{8,9} dividend forecasts on the day of the announcement of the takeover bid¹⁰, will be used for those maturities;
- In the case that Euronext has no Options Contract listed on the underlying value of the Future Contract: Markit^{8,9} dividend forecasts on the day of the announcement of the takeover bid¹⁰ will be used.

- **Interest rates:** interest rates as used by the Euronext Pricer on the effective date.¹¹

A.1.3 CALCULATION OF FAIR VALUE PRICES FOR SINGLE STOCK DIVIDEND FUTURES

Fair Value calculations will be made in the Euronext Pricer. Euronext will use the following parameters to determine the Fair Value prices for Single Stock Dividend Futures:

- **Dividend forecasts**, whereby the source of the dividend forecasts is Markit^{8,9}, dividend forecasts on the day of the announcement of the takeover bid¹⁰.
- **Interest rates:** interest rates as used by the Euronext Pricer on the effective date¹¹.

A.1.4 CALCULATION OF FAIR VALUE PRICES FOR INDEX OPTIONS

Euronext will use the following parameters to determine the Fair Value prices for each option series:

- **Fair Value Volatility:** Euronext will use the settlement volatility, which has been used for the calculation of the Daily Settlement Prices by the Euronext Pricer, of the relevant options series. These settlement volatilities will be collected as described below.

1. over a period of ten trading days preceding the public announcement made by the provider of the index as described in section 7.2 (i) and section 7.2 (ii), or
2. over a period of ten business days preceding the public announcement of the delisting of the Shares, as described in section 7.2 (iii), or
3. over a period of ten trading days preceding the announcement of the takeover bid¹⁰

⁸ If the information available on Markit Dividends is not sufficient then Euronext may extrapolate these forecasted dividends, If there is no information available on Markit Dividends then Euronext may use historical dividends and/or forecasted dividends from different information sources and extrapolate these when necessary.

⁹ The data provided by Markit is on "as if" basis and neither Markit, its affiliates nor any other person or entity that has participated in any respect in the development or collection of the data makes any warranty, express or implied, as to be accuracy, timeliness or completeness of the data or as to the results to be attained from the use of the data. There are no express or implied terms of merchantability or fitness for a particular purpose or use, and no reliance shall be placed upon any warranty, guaranty or representation made by Markit, its affiliates or any data provider. The data shall not be used, copied, redistributed or transferred without the appropriate license from Markit.

¹⁰ For the purpose of this policy, a bid is deemed to be announced as soon as a firm price has been mentioned by the company issuing the bid. This could be an intended bid.

¹¹ Interest rates that correspond to the relevant currency of the Futures Contracts

Subsequently, the average of each series settlement volatility over such ten trading day period is calculated, excluding the lowest and the highest observation of that series over the ten trading day period¹².

Once determined, these Fair Value Volatilities are fixed until the moment of settlement, regardless of any changes in the price of the underlying share in the intervening period.

If the offeror increases the offer consideration or makes any other change to the respective offer (such as extending the acceptance period) during the course of a takeover, no new volatilities will be calculated. In addition, should a counter bid be launched by another company whilst a bid is still active (i.e. has not expired or been withdrawn), then the volatilities, calculated as described above and in relation to the initial bid, will be used if the counter bid should be declared effective.

- **Dividend forecasts**, whereby the source of the dividend forecasts is Markit^{13,14} dividend forecasts on the day of the announcement.

- **Interest rates**: interest rates as used by the Euronext Pricer on the effective date¹⁵.

A.1.5 CALCULATION OF FAIR VALUE PRICES FOR INDEX FUTURES

Fair Value calculations will be made in the Euronext Pricer. Euronext will use the following parameters to determine the Fair Value prices for Index Futures:

- **Dividend forecasts**, whereby the source of the dividend forecasts is Markit^{13,14} dividend forecasts on the day of the announcement.

- **Interest rates**: interest rates as used by the Euronext Pricer on the effective date¹⁵.

¹² If an option has been listed for less than ten trading days at the time that its Fair Value Volatility is determined, the Fair Value Volatility will be calculated on the basis of the days it has been listed. In addition, if the option has been listed for less than seven trading days, the lowest and highest settlement volatilities will not be excluded.

¹³ If the information available on Markit Dividends is not sufficient then Euronext may extrapolate these forecasted dividends, If there is no information available on Markit Dividends then Euronext may use historical dividends and/or forecasted dividends from different information sources and extrapolate these when necessary.

¹⁴ The data provided by Markit is on "as if" basis and neither Markit, its affiliates nor any other person or entity that has participated in any respect in the development or collection of the data makes any warranty, express or implied, as to be accuracy, timeliness or completeness of the data or as to the results to be attained from the use of the data. There are no express or implied terms of merchantability or fitness for a particular purpose or use, and no reliance shall be placed upon any warranty, guaranty or representation made by Markit, its affiliates or any data provider. The data shall not be used, copied, redistributed or transferred without the appropriate license from Markit.

¹⁵ Interest rates that correspond to the relevant currency of the Option Contracts.

APPENDIX 2: EQUALISATION PAYMENTS

A.2.1 EQUALISATION PAYMENT AND THE RATIO METHOD

In the case that an equalisation payment is made necessary under this Policy Document, the Ratio Method will be applied in the following manner (as described in section 5.1):

1. The exercise prices (K) will be multiplied by the ratio to create the adjusted exercise prices (K1), rounded as described in section 4.3 and 4.4.
2. The Lot Size (Q) will be divided by the ratio to create the new Lot Size (Q1) which will be rounded to the nearest whole share (Q2) as described in section 4.3 or rounded to the Standard Lot Size (Q2) as described in section 4.4.

A.2.2 EQUALISATION PAYMENT CALCULATION

1. The settlement price of the modified series (c) must be equal to the ratio (R) multiplied by the settlement price of the unadjusted series.
2. The theoretical position has to be preserved post an adjustment, such that:

$$Q1 \times K1 = Q \times K$$

However, as the new Lot Size is rounded to the nearest whole share (Q2), this relationship will not always hold true, so that, where rounding has occurred:

$$Q2 \times K1 \neq Q \times K$$

The variation (V) of a position (expressed as a percentage) is thus:

$$V = \frac{(Q2 \times R) - Q}{Q}$$

3. The equalisation payment (S) for each series is calculated as follows:

$$S = c \times V \times Q$$

Where:

- | | | |
|---|---|---|
| c | = | Series settlement price of the previous day |
| V | = | The Variation of a position (expressed as a percentage) |
| Q | = | The Lot Size before the corporate action |

4. If $S < 0$, then option buyers will receive S. If $S > 0$, then option sellers will receive S.

DISCLAIMER

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