ICE Endex

Corporate Action Policy

Contents

1.0 INTRODUCTION

1.1   This Policy Document details the policy of ICE Endex Markets B.V. (the "**Exchange**") in relation to Corporate Actions. It is issued pursuant to, and should be read in conjunction with, the Rulebook and Product Specifications for futures and options based on individual equity securities (including any Index containing a single stock).

1.2   This Policy Document explains the Exchange'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).

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 the Exchange'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;

   f.   Section 7 provides information on special products admitted to trading on the Exchange; and

   g.   The Appendices provide further information on the calculation of Fair Value and Equalisation Payments for Option Contracts and Futures Contracts.

2.0 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
Corporate Action Notice	means a notice issued to the market containing information concerning contract adjustments
Corporate Action	means 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 the Exchange, impacts or may impact on an Option Contract and/or Futures Contract in respect of the shares of a company
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 the Exchange 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 Rulebook and relevant Product Specifications
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 price calculated by the Exchange when Option Contracts and/or Futures Contracts are closed out for a cash amount, after a merger or takeover
Futures Contracts	means, collectively, the term for futures contracts (cash settlement and physical delivery) admitted to trading on the Exchange and based on individual shares, or futures contracts based on Indices falling within the description contained in Section 7.1 of this Policy Document; the term includes Dividend Adjusted Single Stock Futures Contracts where they are not explicitly excluded
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, or multiplier in case of futures based on indices

Minimum Price Movement	means the tick size of a contract, as defined in the Rulebook and relevant Product Specifications
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), admitted to trading on the Exchange, on individual shares
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 the Exchange
Reference Price	means the price specified by the Exchange 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 stock exchange on which such shares are available for trading as detail in the relevant List of Contract Details
Relevant Settlement System	means the settlement system designated by ICE Clear Netherlands through which such shares are delivered, as detailed in the relevant List of Contract Details
Rulebook and Product Specifications	Means the rulebook of ICE Endex Markets which include the product specifications of all listed products
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
Standard Lot Size	means the number of underlying shares in a contract or multiplier in case of futures based on indices falling within the description in Section 7.1 of this Policy Document, as specified in the Rulebook and relevant Product 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 Exchange
Underlying Currency Unit	means the currency of denomination of the underlying deliverable which is the subject of a lot

3.0 BACKGROUND

3.1   The publication of this Policy Document is intended to minimise uncertainty over the method of contract adjustment to be adopted by the Exchange when a company announces a Corporate Action and, consequently, to limit any unanticipated effect on contract prices when the Exchange thereafter announces its specific intentions on the contract adjustment.

3.2   The Exchange 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 the Exchange retains the right to determine how contracts should best be adjusted (if at all).

3.3   The Exchange will issue one or more Corporate Action Notices in respect of each Corporate Action where adjustment to an Option Contract or Futures Contract is required or expected under the terms of this Policy Document.

4.0 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, including as may be constrained by rounding under section 4.3 or the numbers of decimal places which relevant systems are able to handle) 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.

4.2 ADJUSTMENT OF LOT SIZE

For Flexible Contracts and standard Dividend Adjusted Single Stock Futures, the lot size will only be adjusted for maturities with open interest. For standard Single Stock Futures and standard Individual Equity Option Contracts, the lot size of all maturities up to and including the furthest maturity with open interest shall be adjusted by being divided by the ratio. Any subsequent strikes introduced in to a maturity that has been adjusted will inherit the adjusted lot size. For Dividend Adjusted Single Stock Futures Contracts, the lot size of maturities will not be adjusted in the case of the Corporate Actions as described in Section 6.3.2.

4.3 ROUNDING

Where application of the Ratio Method results in an adjusted exercise price that is not equal to an eligible exercise price, 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[1].

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 the Exchange, 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.

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 5.1 (as described in Appendix 2).

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[1] Eligible exercise prices are in increments as detailed on the IMEQ ICE Block Equity Contract document.

The equalisation payment amount will be determined by the Exchange and its transfer between clearing members arranged by the Clearing House.

4.5 NOTIFICATION OF CORPORATE ACTIONS

The Exchange 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 perform a Corporate Action. A Corporate Action Notice will detail the adjustment methodology the Exchange 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, the Exchange will publish a Corporate Action Notice confirming adjustments made to Option Contracts or Futures Contracts.

4.6 CURRENCY CONVERSIONS

Where a currency conversion is required, the relevant exchange rate applied will be the rate determined by the daily concertation procedure between central banks within and outside the European System of Central Banks (currently published by the European Central Bank at http://www.ecb.int/stats/exchange/eurofxref/html/index.en.html#latest) on the day or business day prior to the date on which the conversion is applied by the Exchange or, in the event that such rate is not available, an exchange rate determined by the Exchange at its discretion.

5.0 ADJUSTMENT METHODOLOGIES

Where adjustments to the terms of a contract are required under the terms of this Policy to cater for a Corporate Action, the Exchange shall use either of the Ratio Method or the Package Method or an alternative adjustment method as determined under the following paragraph, or substitute the underlying shares of a contract.

In cases where it is deemed inappropriate or impossible to adjust contracts in line with the Ratio Method or Package Method, or in cases where the Corporate Action is an event other than those listed in section 6 of this Policy Document, the Exchange may at its discretion adopt an alternative adjustment method, provided that the Exchange includes details of the same in a Circular prior to the processing of the Corporate Action. The Exchange will have regard, as far as practicable, to the principle detailed in paragraph 4.1 above in determining the method and parameters for any such alternative adjustment.

5.1   RATIO METHOD

Where the Ratio Method is used to make adjustments to Option Contracts and Futures Contracts, the Exchange 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 five 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 4.5).

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). For Dividend Adjusted Single Stock Futures Contracts, the lot size of maturities will not be adjusted in the case of the Corporate Actions as described in section 6.3.2.

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, the Exchange may adjust the number of the relevant shares in the package. No adjustment will be made to the lot size or exercise prices.

6.0 CORPORATE ACTION TYPES

The following section details the adjustment methodology the Exchange 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, the Exchange 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, the Exchange will decide on a case by case basis whether an adjustment needs to be made. In doing so, the Exchange 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 share capital.

The ratio shall be constructed as follows:

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

Where:

P = The official closing price[2] of the cum-entitlement share 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:

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

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

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, the Exchange 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. The Exchange 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

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

Where:

E = Theoretical value of an entitlement
P = The official closing price[3] 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, the Exchange 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.

It should be noted that where a market auction facility is available on the Relevant Stock Exchange, the Exchange 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.

The Exchange 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.

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

6.3 DIVIDENDS

6.3.1 ADJUSTMENT OF OPTION AND FUTURES CONTRACTS (EXCLUDING DIVIDEND ADJUSTED SINGLE STOCK FUTURES CONTRACTS) IN THE CASE OF DIVIDENDS

In the case of cash, stock or Scrip Dividends, Option Contracts and Futures Contracts (excluding Dividend Adjusted Single Stock Futures Contracts) will only be adjusted if these dividends are special. The Exchange will use the following criteria for deciding whether a dividend should be considered to be a special dividend:

a. The declaration by a company of a dividend additional to those dividends declared as part of the company's normal results and dividend reporting cycle; merely an adjustment to the timing of the declaration of a company'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 normal results and dividend reporting cycle as an element that is unambiguously additional to the company's normal payment.

For the purpose of clarification, the Exchange 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:

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

Where:

P = The official closing price[4] of the cum-entitlement share on the Relevant Stock Exchange.

Od = Any ordinary dividend amount per share, to be paid to the shareholders 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 as published by the issuer

6.3.2 ADJUSTMENT OF DIVIDEND ADJUSTED SINGLE STOCK FUTURES CONTRACTS IN THE CASE OF A DIVIDEND

In the case of cash, stock or Scrip Dividends, Dividend Adjusted Single Stock Futures Contracts will be adjusted, regardless of whether these dividends are ordinary or special dividends. The adjustment ratio outlined below will be used in making adjustments to Dividend Adjusted Single Stock Futures contracts to cater for dividends, and shall be calculated as follows:

$$Adjustment\ Ratio = \frac{(P - Od - Ed) \times \left(\dfrac{O}{N}\right)}{(P)}$$

Where:

P = The official closing price[5] of the cum-entitlement share on the Relevant Stock Exchange.

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[4] Or such other price as defined in the relevant Corporate Action Notice.

[5] Or such other price as defined in the relevant Corporate Action Notice.

Od	=	Any ordinary dividend amount per share, to be paid to the shareholders as published by the issuer
Ed	=	The special dividend amount per share to be paid to the shareholders as published by the issuer which has the same ex-date as Od
O	=	Cum amount of shares (old)
N	=	Ex amount of shares (new)

The Exchange shall adjust Dividend Adjusted Single Stock Futures Contracts for the dividend amount as declared by the company. In case of Scrip Dividends, the Exchange shall adjust Dividend Adjusted Single Stock Futures Contracts for the cash alternative.

Where an adjustment is made to Dividend Adjusted Single Stock Futures Contracts in relation to cash dividends and/or Scrip Dividends then the settlement price of the Dividend Adjusted Single Stock Futures shall be adjusted by being multiplied by the Adjustment Ratio, and no adjustments shall be made to the lot size.

For all other corporate action adjustments made to Dividend Adjusted Single Stock Futures Contracts, including Stock Dividends, both the Settlement price and the lot size are adjusted. For the avoidance of doubt, in the case of an adjustment for cash dividends and/or Scrip Dividends in combination with another type of Corporate Action as described in this Document, then both the settlement price and the lot size of Dividend Adjusted Single Stock Futures Contracts shall be adjusted. In these cases, settlement prices of Dividend Adjusted Single Stock Futures Contracts shall be adjusted by being multiplied by the Adjustment Ratio, and the lot size of Dividend Adjusted Single Stock Futures Contracts shall be adjusted by being divided by the Adjustment Ratio.

Where the dividend amount has not been published by the issuer on the business day prior to the ex-date, the Exchange will use the dividend forecast as published by Markit Dividend Forecasting.

6.4 DEMERGERS

The Package Method will be used to cater for demergers where shares of the demerged company can be delivered and settled in a Relevant Settlement System and/or traded on a Relevant Stock Exchange and are denominated in the Relevant Currency of the Options and Futures Contract. If the shares of a demerged company cannot be delivered and settled in a Relevant Settlement System and/or traded on a Relevant Stock Exchange and are not denominated in the Relevant Currency of the Options and Futures Contract, as deemed by the Exchange, 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 and settled in a Relevant Settlement System and/or traded on a Relevant Stock Exchange and are not denominated in the Relevant Currency of the Options and Futures Contract, 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, the Exchange 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 the Exchange, the Exchange may adjust the contracts in accordance with the ratio method.

6.5   LIQUIDATION

Where a company 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 by the Exchange in a manner deemed to befit the circumstances at hand. The ascribed settlement price will also be applicable to cash settled contracts.

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, the Exchange will use the structure of the headline offer ("offer consideration") to determine the adjustment methodology to apply to Option Contracts and Futures Contracts.

In general all takeover offers shall lead to the calculation of implied 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. The Ratio Method will only be employed should the exchange deem that the shares which form the headline offer can be delivered and settled in a Relevant Settlement System and/or traded on a Relevant Stock Exchange and are denominated in the Relevant Currency of the Options and Futures Contract.

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:

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

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. The Ratio Method will only be applied on cases where the new underlying shares that have resulted from the merger or takeover are denominated in the same currency as the Relevant Currency for the Options and Futures contracts. Where this is not the case, a Fair Value methodology will be employed.

If the Exchange deems that those shares which form the offer consideration cannot be delivered and settled in a Relevant Settlement System and/or traded on a Relevant Stock Exchange and are not denominated in the Relevant Currency of the Options and Futures Contract, 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 the exchange deems that the share element cannot be delivered and settled in a Relevant Settlement System and/or traded on a Relevant Stock Exchange and are not denominated in the Relevant Currency of the Options and Futures Contract, 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 and settled in a Relevant Settlement System and/or traded on a Relevant Stock Exchange and are denominated in the Relevant Currency of the Options and Futures Contract, the exchange will deem whether Ratio Method may 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 the Exchange 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, the Exchange 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, the Exchange 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 the Exchange 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.

$$adjustment\ ratio = \frac{(Pt - C) * \frac{O}{N}}{Pt}$$

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

Where:

Pt	=	Theoretical value of one share of the target company
N	=	Number of shares of the offeror 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 offeror)

Adjustments to Options and Futures Contracts will be made when a relevant offer is declared effective by the offeror 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, the Exchange will use a threshold of 75% of the outstanding shares to determine whether the relevant offer is effective.

6.7   SHARE REPURCHASES

The Exchange 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, the Exchange may, where practical, deem the share repurchase as an adjustable event.

6.8   SUSPENSION AND DELISTING

Where a company is suspended or delisted from its Relevant Stock Exchange and, as a consequence, the underlying Share is no longer deliverable via a Relevant Settlement System , the Exchange shall use the Fair Value method to settle the open positions in the Option Contracts and Futures Contracts as described in Appendix 1, whereby the determination of the implied volatilities for the purpose of settlement of the Options at fair value shall be based on the settlement prices of the relevant Options series over a ten business day period preceding the suspension and / or delisting.

6.9   SPECIAL CIRCUMSTANCES

If the underlying Share of the Options and/or Futures is no longer tradable and/or deliverable due to circumstances not described in the Corporate Actions Policy, the Exchange will decide on a case by case basis what the consequences for the Options and/or Futures will be, and will inform the regulator at the same time as issuing a Corporate Action Notice.

7.0 SPECIAL PRODUCTS ADMITTED TO TRADING ON THE EXCHANGE

7.1   INDEX FUTURES

In the event that an Index contains only one single stock and this stock will be removed from the Index without being replaced by another stock or if this single stock is subject to a takeover or delisting, the Exchange will settle the Future against the theoretical Fair Value and in accordance with Appendix 1.

In the event that an Index contains only a single stock which becomes subject to liquidation, the Exchange will settle the Index Future according to the intrinsic value. In this case, the last known price of the relevant Index shall be taken into account to calculate the theoretical settlement of this Future.

APPENDIX 1: CALCULATION OF FAIR VALUE

The Fair Values of Options and Futures contracts are calculated on the effective date (for reference see Section 6.6).

A.1.1   OPTION CONTRACTS

For the purpose of settling Option Contracts at fair value, the Exchange will use the trinomial valuation model. The method will be the same used to produce daily settlement prices for Option Contracts.

The Exchange 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.

Determination of implied volatility

The option valuation model takes several factors into account, including the volatility of the option, interest and future dividends. For the purpose of settling Options Contracts at fair value, the Exchange will use an average implied volatility based on the settlement prices of the relevant Options series over a ten trading day period preceding the announcement of the takeover bid[6].

For each day of the ten day period an implied volatility is determined for each series based on:

- The settlement price of each series[7]
- The underlying share price at the time of the settlement price calculation

Subsequently, the average of each series implied volatility over the 10 day period is calculated, excluding the lowest and the highest implied volatility observation of that series over the ten day period[8].

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

If during the course of a takeover the offeror increases the offer consideration or makes any other change to the respective offer (such as extending the acceptance period), new implied volatilities will not 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 implied volatilities, calculated as described above and in relation to the initial bid, will be used if the counter bid should be declared effective.

In the case where no strikes or Open Interest exist at the time the implied volatility calculations are made, one 'fixed implied volatility' will be set. This volatility figure will be used for all series introduced after the announcement of the 'fixed implied volatility'.

For strikes and expiries introduced after the implied volatilities have been calculated:

The implied volatility of the highest existing strike in an expiry month will be used for all higher strikes

The implied volatility of the lowest existing strike in an expiry month will be used for all lower strikes

The implied volatility will be interpolated for a strike introduced between existing strikes

The implied volatility of the nearest preceding expiry will be used for a new expiry in between existing expiries

The implied volatility of the furthest existing expiry will be used for any new further dated expiries

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[6] 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.

[7] If the settlement price of any series is lower than the lowest possible theoretical price of that series, then the implied volatility will be based on the lowest possible theoretical price. For the purpose of determining implied volatilities, the lowest possible theoretical price is deemed to be the intrinsic value, corrected to take into account interest and future dividend payments.

[8] If an option has been listed for less than ten trading days at the time that its implied volatility is determined, the implied 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 implied volatility will not be excluded.

At the time of the announcement the Exchange will determine whether any further expiry months shall be listed.

Calculation of fair value

The trinomial model is used to calculate the fair value of an Option. The trinomial method sets up a matrix of possible underlying prices during the lifetime of the option, based on a given starting price, where each node has three possible paths (up, down, middle). The underlying price movements for up, down, middle are:

$$u = e^{2\sigma\sqrt{\frac{\Delta t}{2}}}$$
$$d = \frac{1}{u}$$
$$m = 1$$

The corresponding probabilities are:

$$P_i^{[u]} = DF_i^2$$
$$P_i^{[d]} = (1 - DF_i)^2$$
$$P_i^{[m]} = 2 \times DF_i \times (1 - DF_i) = 1 - P_i^{[u]} - P_i^{[d]}$$

Where:

$$DF_i = \frac{\left(e^{b\frac{\Delta t}{2}} - e^{-\sigma\sqrt{\frac{\Delta t}{2}}}\right)}{\left(e^{\sigma\sqrt{\frac{\Delta t}{2}}} - e^{-\sigma\sqrt{\frac{\Delta t}{2}}}\right)}$$

b = interpolated interest rate minus dividend yield
σ = underlying volatility
t = time to expiry

Before a matrix of underlying prices can be constructed, the starting price has to be adjusted to take account of dividends that will be paid out during the lifetime of the option. This is done by subtracting the discounted cash value of all the expected dividends over the lifetime of the option from the starting price.

$$S = Z - \sum_{i=1}^{m} D_i \, e^{-rt_i}$$

Di = Dividends amounts published by Markit Dividend Forecasting[9],[10] where the ex-date is during the option lifetime
m = Number of dividends paid out during the option's lifetime
r = Interest rate over the option's lifetime[11]

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[9] If the information available on Markit is not sufficient then the Exchange may extrapolate these forecasted dividends. If there is no information available on Markit then the Exchange may use historical dividends and/or forecasted dividends from different information sources and extrapolate these when necessary.

[10] 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 the 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.

[11] For the purpose of the Fair Value Method, Overnight Index Swap Rates shall be used. The interest rate for the relevant expiry date shall be determined by linear interpolation of the two nearest relevant available Interest Rates.

S   =   Share price, adjusted to take dividends into account[12]
Z   =   Starting price of the share
t_i =   Time remaining until dividend payment (in years)

A.1.2   CALCULATION OF THE THEORETICAL VALUE FOR FUTURES

The Exchange will use the following model for the purpose of settling Futures Contracts at theoretical value.

Step 1: Adjustment of the price of the underlying security for future dividend flow

For futures, the price of the underlying security has to be adjusted for future dividends paid out during the remaining life time of the Futures Contract. Future dividends will be determined by Markit.

$$D^* = \sum_{i=1}^{n} D_i\, e^{-rt_i}$$

Where:

Di   =   Dividends that are ex-entitlement in period i
D*   =   Present value of the future dividends during the remaining life of the Futures Contract
r   =   Interest rate for the remaining life of the Futures Contract[13]
t_i =   The time to payment of a dividend, expressed in years
n   =   Total number of all dividend payable in period i during the remaining life of the Futures Contract

Step 2: Calculation of the futures price

$$F = (S - D^*)\, e^{r(T-t)}$$

Where:

F   =   The futures price
S   =   The share price
T-t   =   The remaining life of the Futures Contract, expressed in years
r   =   Interest rate for the remaining life of the Futures Contract
D*   =   Present value of the future dividends during the remaining life of the Futures Contract

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[12] In the case of an offer as described in section 6.6, the share price will represent either a cash only offer price or, in the case of a share only or mixed offer, the value of the offer determined by the Exchange.

[13] For the purpose of the Fair Value Method, Overnight Index Swap Rates shall be used. The interest rate for the relevant expiry date shall be determined by linear interpolation of the two nearest relevant available Interest Rates.

A.1.3 CALCULATION OF THE THEORETICAL FAIR VALUE FOR INDEX FUTURES

Pursuant to Section 7.1 of this Policy Document, the Exchange will use the following model for the purpose of settling Futures Contracts based on Indices at theoretical Fair Value.

Step 1: Adjustment of the price of the underlying security for future dividend flow

For futures, the price of the underlying security has to be adjusted for future dividends paid out during the remaining life time of the Futures Contract. Future dividends will be determined by Markit Dividend Forecasting and will be converted into Index points

$$D^* = \sum_{i=1}^{n} D_i \, e^{-rt_i}$$

Where:

D_i	=	Dividends that are ex-entitlement in period i
D^*	=	Present value of the future dividends during the remaining life of the Futures Contract
r	=	Interest rate for the remaining life of the Futures Contract
t_i	=	The time to payment of a dividend, expressed in years
n	=	Total number of all dividends payable during the remaining life of the Futures Contract

Step 2: Calculation of the futures price

$$F = (S - D^*)e^{r(T-t)}$$

F	=	The futures price
S	=	The last known price of the Index
$T\text{-}t$	=	The remaining life of the Futures Contract, expressed in years
r	=	Interest rate for the remaining life of the Futures Contract
D^*	=	Present value of the future dividends during the remaining life of the Futures Contract

A.1.4 CALCULATION OF THE THEORETICAL VALUE FOR DIVIDEND ADJUSTED SINGLE STOCK FUTURES CONTRACTS

The Exchange will use the following model for the purpose of settling Dividend Adjusted Single Stock Futures Contracts at theoretical value.

Calculation of the futures price:

$$F = (S) e^{r(T-t)}$$

Where:

F   =   The futures price
S   =   The share price
T-t   =   The remaining life of the Futures Contract, expressed in years
r   =   Interest rate for the remaining life of the Futures Contract

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 (R) to create the adjusted exercise prices (K1), rounded as described in section 4.3.

2. The Lot Size (Q) will be divided by the ratio (R) to create the new Lot Size (Q1) which will be rounded to the nearest whole share (Q2) as described in section 4.3.

A.2.2   EQUALISATION PAYMENT CALCULATION

The Policy seeks to preserve the position post an adjustment, such that:

Q1 x K1 = Q x 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:

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

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

S = c x V x 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

If S < 0, option buyers will receive S.

If S > 0, option sellers will receive S.

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