

# EQUITY INDEX METHODOLOGY

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## SYMBOLS

$adjP_p$	Corporate Action adjusted close price parent company at ex-date -1
$aS$	Adjusted Total Number of Shares
$ap$	Adjusted Price
$aw$	Adjusted Weight
$ax$	Adjusted Fraction of Shares
$CF$	Correction Factor
$CFI$	Conduit Foreign Income
$CP$	Cash Pocket
$d$	Dividend Amount
$DEL$	Index Component which is deleted from the Index due to Index Rebalance
$DDP$	Index Delta Dividend Points
$DWC$	Daily Weight Change of an Index Component in Multiday Index Rebalance
$D$	Divisor
$DP$	Index Dividend Point
$EX$	Ex-date
$f$	Foreign Exchange Rate
$fx_p$	Exchange rate parent instrument's currency into index currency at ex-date -1
$fx_s$	Exchange rate spin-off instrument's currency into index currency at ex-date -1
$FFF$	Free Float Factor
$g$	Number for Calendar Days for Adjusted Return Calculation
$i = 1, 2, \dots N$	Count for Index Members
$Index$	Index Level
$ID$	Implementation Date



$IN$	Indicative
$n$	Number of Index Components on Business Day $t$
$m$	Number of Index Components on Business Day $t+1$
$MCAP$	Index Market Capitalization
$NAD$	Number of Adjustment Days in Multiday Index Rebalance
$p$	Price of Index Component
$P_p$	Open price parent company at ex-date
$P_s$	Open price spin-off company at ex-date
$PAF$	Price Adjustment Factor
$S$	Total Number of Shares of the Index Component
$SAR$	Share Adjustment Ratio
$SP$	Subscription Price
$ST$	Stock Terms
$t = 1, 2, \dots N$	Count for Index Calculation Days
$T$	Issue Terms/ Spin-Off Terms
$TG$	Target
$TGW$	Index Target Weights after Rebalance
$w$	Withholding Tax Rate
$WCF$	Weighting Cap Factor
$x$	Fraction of Shares of the Index Component
$\alpha$	Pre-defined Divisor for Adjusted Return Calculation
$\Delta$	Delta
$\mu$	Pre-defined Rebalance Fee Factor
$\vartheta$	Pre-defined Decrement Factor
$\omega_p$	Old target weight of the parent company
$\omega_s$	Old target weight of the spin-off company



## INTRODUCTION

Solactive is committed to the highest standards of integrity and professionalism, which are reflected by a transparent and replicable Index design and calculation methodology. Accordingly, Solactive adheres to the following norms in developing methodologies, which are, inter alia:

- robust and reliable;
- rigorous and continuous;
- traceable and verifiable;
- resilient; and
- inclusive of information on the treatment of Corporate Actions.

In line with the above objectives, Solactive develops, calculates and maintains its equity Indices based on an exhaustive and coherent comprehensive Equity Index Methodology.

Solactive complies with the IOSCO principles on the quality and integrity of methodologies by giving its stakeholders detailed insight into the calculation and maintenance of its Indices. With further reference to the EU Benchmarks Regulation (Regulation (EU) 2016/1011), it is the objective of this Equity Index Methodology to define a general framework of applicability that can be referenced by individual Index Guidelines. Disclosure of the index maintenance rules as well as general calculation methods contained in the Equity Index Methodology should further enable issuers and investors to evaluate and utilize Solactive Indices.

Index Guidelines contain index specifications of the relevant Index, Index Component requirements, and calculation frequencies, whereas this Solactive Equity Index Methodology elaborates on the Index formulas used by Solactive and their respective adjustments. This Equity Index Methodology further defines the various Corporate Actions that are considered by Solactive in the index maintenance process and specifies their corresponding treatment. It explains the application with detailed step-by-step examples.

Solactive is also dedicated to developing customized Indices. Due to the variety of their different constructions, each customized Index follows its own unique Index Guideline. As such, the respective Index Guideline provides more detailed information on the index setup and maintenance. In the case the rules described in the Index Guideline differ from the framework of the Equity Index Methodology, the Index Guideline supersedes the Equity Index Methodology. While Solactive aims to create and maintain its Equity Index Methodology to be as comprehensive and transparent as possible and in line with above-mentioned regulatory requirements, it retains the right to deviate from the standard procedures described in this Equity Index Methodology in the case of any unusual or complex Corporate Action, or if such a deviation is made to preserve the comparability and representativeness of an Index over time.



In accordance with the principle of transparency, the Equity Index Methodology is directed to all stakeholders, such as financial issuers, potential investors as well as interested third parties, among others. As such, this methodology intends to be concise as well as comprehensible on all levels. The core concepts and terms are defined in Section 3 'Terms and Definitions' and the adjustment formulas are presented, explained as well as supplemented with examples to further illustrate the application of Index adjustments in practice.

## 1. INDEX CALCULATION

This section details the general calculation methodology for Solactive Indices, elaborating on the index types and the calculation formulas applied for the different cash reinvestment approaches. An overview of the rounding, settlement conventions and index adjustment rules used by Solactive for index calculation as well as the index data distribution process is also provided.

### 1.1 INDEX TYPES

Based on the client's objective and in line with industry standards, Solactive offers equity index calculation in Price Return, Gross Total Return, Net Total Return and Adjusted Return versions.

A Price Return Index reflects the market price movements of the Index Components, disregarding any payments made in respect of the Index Components, such as ordinary Cash Dividends whereas Special Cash Dividends are reinvested. A Price Return Index aims to reflect the price performance of a specific market, or a particular segment.

A Net Total Return Index seeks to replicate the overall return from holding a portfolio consisting of the Index Components. In order to achieve this aim, a Net Total Return Index considers payments, such as dividends, after the deduction of any withholding tax or other amounts an investor holding the Index Components would typically be exposed to.

A Gross Total Return Index seeks to replicate the overall return from holding a portfolio consisting of the Index Components. In order to achieve this aim, a Gross Total Return Index considers payments made in respect of the Index Components, such as dividends, without the deduction of any withholding tax or other amounts an investor holding the Index Components would typically be exposed to.

An Adjusted Return Index is an index which has a pre-defined Decrement deducted in either absolute or percentage terms at a predefined frequency.

### 1.1 CALCULATION FORMULAS

In respect of dividend reinvestment logic, Solactive follows different index calculation methodologies. Based on whether the dividend reinvestment affects only the dividend paying stock or the entire portfolio of Index, Solactive Indices can be calculated with either of the formulas outlined below.



### 1.1.7 Standard Index

The index level is the sum overall Index Components of the products of the Fraction of Shares of the Index Component and the price of the Index Component at the respective Exchange. If the currency of an Index Component is different from the currency in which the Index is calculated, the foreign exchange rate is used to convert the price into the currency in which the Index is calculated.

$$Index_t = \sum_{i=1}^n x_{i,t} * p_{i,t} * f_{i,t}$$

Dividend payments cause an adjustment in the Fraction of Shares. Due to the dividend payment, the Fraction of Shares of the dividend paying stock increases by an adjustment factor. Due to dividend reinvestment, the Fraction of Shares of other Index Components remains constant.

#### 1.1.7.1 Standard Index Calculation with Cash Pocket

In contrast to the dividend reinvestment methodology in a Standard Index described above, some indices use a Cash Pocket for the dividend reinvestment. The Cash Pocket is an additional component of an Index where dividend payments with an ex-date on t paid by any Index Component are collected in.

$$CP_t = \sum_{i=1}^n x_{i,t-1} * d_{i,t} * (1 - w_{i,t}) * f_{i,t-1}$$

The Cash Pocket remains in the Index until the next Index Rebalance and is included in the calculation of the index level.

$$Index_t = \sum_{i=1}^n x_{i,t} * p_{i,t} * f_{i,t} + CP_t$$

### 1.2.2 Divisor Index

For the calculation of the index level, the sum of the Market Capitalization of the Index Components is divided by the Divisor.

$$Index_t = \frac{\sum_{i=1}^n S_{i,t} * p_{i,t} * f_{i,t} * WCF_{i,t} * FFF_{i,t}}{D_t}$$

The Divisor is a mathematical factor defined at the inception of the Index. The Divisor is adjusted by certain Corporate Actions and Index Rebalances.

Dividends paid by any Index Component are applied across the entire basket by changing the Divisor.





### 1.2.2.1 Divisor Index Calculation with Cash Pocket

In contrast to the dividend reinvestment methodology in a Divisor Index described above, some indices use a Cash Pocket for the dividend reinvestment. The Cash Pocket is an additional component of an Index where dividend payments with an ex-date on  $t$  paid by any Index Component are collected in.

$$CP_t = \sum_{i=1}^n S_{i,t} * d_{i,t} * (1 - w_{i,t}) * f_{i,t-1} * WCF_{i,t} * FFF_{i,t}$$

The Cash Pocket remains in the Index until the next Index Rebalance and is included in the calculation of the index level.

$$Index_t = \frac{\sum_{i=1}^n S_{i,t} * p_{i,t} * f_{i,t} * WCF_{i,t} * FFF_{i,t} + CP_t}{D_t}$$

### 1.2.3 Adjusted Return

Solactive can offer the index calculation methodologies above with their adjusted return versions by deducting a Decrement of a pre-defined percentage value per annum on each Index Calculation Day from the Index Closing Level and reflecting it in the Index Opening Level.

This Decrement is calculated based on pre-defined parameters such as Decrement Factor  $\vartheta$ , calendar days  $\alpha$  and number of the index calculation days  $g$ .

The opening level after applying the Decrement is calculated as follows.

$$Index_{t+1}^{Open} = Index_t^{Close} * \left(1 - \left(\frac{\vartheta}{100} * \frac{g}{\alpha}\right)\right)$$

### 1.2.4 Calculation of Daily Closing Levels of the Index

In the calculation of the daily closing levels of the Index, the official close price of the respective Index Component on the respective exchange is used. In the case that an exchange does not provide an official closing price for an Index Component on a particular day, the Index is calculated with the last price available. If an exchange does not generally publish official closing prices, Solactive decides on a price collection mechanism that ensures tradability and representativeness of its Indices.



## 1.2.5 Special Rule for Calculation of Indices in connection with China Connect Stock Listings

For Index Components that are trading under the Shanghai- and Shenzhen Connect Programs<sup>1</sup> (the “China Stock Connect Program”) the intraday and closing prices provided under the China Stock Connect Program will be used. Days may occur when trading is not possible under the China Stock Connect Program due to a trading holiday, but the corresponding China domestic market is open for regular trading. In such instances the relevant intraday index level and the Index Closing Level are calculated based on the intraday and closing price for the relevant Index Components on the corresponding China domestic market. If the relevant China domestic market does not provide an official closing price, the Index is calculated based on the last price available from the relevant China domestic market.

## 1.3 ROUNDING CONVENTION

Solactive calculates its Indices in accordance with the following rounding convention:

1. Index Level: two decimal places (if not specified otherwise in Index Guideline)
2. Prices of Index Components: no rounding
3. Foreign exchange rates: no rounding
4. Fraction of Shares of an Index Component in a Standard Index: no rounding. Fraction of Shares of an Index Component in a Standard Index launched prior to 2023-07-03: six decimal places, (if not specified otherwise in Index Guideline).
5. Divisor: six decimal places

## 1.4 DISTRIBUTION OF INDEX VALUES

The Index values are distributed via the price marketing services of the Stuttgart Stock Exchange (Börse Stuttgart) and are published to all affiliated vendors.

## 1.5 FX RATES FOR CLOSING CALCULATIONS

Subject to the specifications of the individual Index Guideline, the closing prices of Index Components may be converted to the index currency using a fixing rate provided by WM/Refinitiv (the “WM/Refinitiv Rate”), either at 04:00 p.m. London time or 04:00 p.m. New York time as specified in the respective Index Guideline. If there is no 04:00 p.m. London time WM/Refinitiv Rate for the relevant Index calculation day,

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<sup>1</sup> With the China Connect Stock Program the People's Republic of China has allowed foreign and (residential) Hong Kong investors to participate within the Chinese stock market of Shanghai and Shenzhen.



the last available 04:00 p.m. London time WM/ Refinitiv Rate will be used for the closing level calculation. If there is no 04:00 p.m. New York time WM/Refinitiv Rate for the relevant Index calculation day, the last available 04:00 p.m. New York time WM/ Refinitiv Rate will be used for the closing level calculation.

## 2. INDEX ADJUSTMENTS

### 2.1 CORPORATE ACTIONS

The treatment of Corporate Actions is designed to aim at replicability, consistency, continuity and minimized turnover. It should reflect how such events are likely to be dealt with in investment portfolios to maintain the portfolio structure in line with the Index objective and the Index Methodology and to minimize the trading activity required by Index users to match the Index composition and Index performance.

The types of Corporate Actions described in this Equity Index Methodology are taken into account in the Index calculation. It is assumed that  $t$  is the last Business Day prior to the ex-date whereas  $t+1$  is the ex-date of the Corporate Action. If the details (ex-date, amount of distribution, terms of rights issue, etc.) of an event that may trigger an Index adjustment are not known prior to or on the ex-date, no Index adjustment is carried out. If an estimation of the details of a distribution from a reliable source exists (e.g., distributions by Japanese or South Korean companies), an Index adjustment may be carried out based on the estimation. Solactive may decide differently on a case-by-case basis.

All examples given to illustrate the application of the Index adjustment formula are purely hypothetical and exclusively intended to convey the concept of the Methodology. No rights can be derived from these examples in any way with regard to their correctness or applicability to specific cases.

For a corporate action event, if there are multiple terms available, or if a selection action is required by the shareholder, Solactive will implement the default treatment, as defined by Solactive based on the company announcement, wherever possible. If the terms are variable, Solactive will analyze and implement, if practical, a calculated value in order to match the effective date rather than wait for exact terms to be declared.

Solactive may apply discretion to make decisions on the most appropriate implementation method for Corporate Actions not described in this Equity Index Methodology or combinations of different types of Corporate Actions and other exceptional cases. Such exceptional cases shall include, but are not limited to:

- Corporate Actions which significantly decrease the impacted company's market capitalization;
- a strict application of this Equity Index Methodology results in inconsistency with the intention of the Index objective; and
- a strict application of this Equity Index Methodology would jeopardize replicability or would incur disproportionately high replication costs.

Solactive may consult with a range of Index users and market participants before deciding on the most appropriate implementation method, to ensure the replicability of the Index.



The decisions of Solactive shall be announced in accordance with Section 2.1.12 prior to the adjustments becoming effective in the Indices.

## 2.1.1 Dividends

A dividend or cash distribution is a common way to dispense accumulated profits and earnings to a company's shareholders. Generally speaking, a company may opt to pay a Cash Dividend to its shareholders under consideration of several economic and financial factors.

For the purpose of Index adjustment, Solactive distinguishes between two dividend types: Cash Dividends and Special Dividends. The former refers to cash distributions usually paid in regular intervals and the latter designates all other dividend payments falling outside the normal pattern, which are often substantially larger than regular cash distributions and are usually non-recurring.

With regard to the Solactive product portfolio, Cash Dividends are treated differently depending on the type of Index. The following distinction can be made:

A Net Total Return Index considers reinvestments of Cash and Special Dividend distributions after deducting the withholding tax.

A Gross Total Return Index considers reinvestments of Cash and Special dividend distributions without deducting the withholding tax.

A Price Return Index neglects the regular Cash Dividends and considers only the Special Dividends.

### 2.1.1.1 Dividend Adjustment in Standard Index

Dividend payments cause an adjustment in the Fraction of Shares. Due to the dividend adjustment, the Fraction of Shares of the dividend paying stock increases by the price adjustment factor.

The price adjustment factor (PAF) is the relation between the close price of the stock with the corporate action event one day prior to the ex-date and the theoretical stock price after the corporate action.

In respect of dividend adjustment, the close price of dividend paying stock one day prior to the dividend ex-date is divided by the theoretical stock price after dividend.

$$PAF_{i,t+1} = \frac{p_{i,t}}{p_{i,t} - d_{i,t+1} * f_{i,t} * (1 - w_{i,t+1})}$$

The theoretical close price after dividend is calculated as follows:

$$ap_{i,t+1} = \frac{p_{i,t}}{PAF_{i,t+1}}$$



The final shares after the implementation of the dividend is calculated by the multiplication of the number of shares on the dividend ex-date with the PAF.

$$ax_{i,t+1} = x_{i,t} * PAF_{i,t+1}$$

### 2.1.1.2 Dividend Adjustment in Divisor Index

In contrast to the Standard Index, in a Divisor Index the implementation of the dividend payment doesn't change the total number of the shares of the dividend paying company. The dividend adjustment is reflected in the Divisor.

$$D_{t+1} = \frac{D_t * Index_t - \Delta MCAP}{Index_t}$$

The implementation of the dividend payment leads to a change in the Market Capitalization of the Index since the theoretical stock price after dividend is used for the calculation of the post-dividend Market Capitalization of the Index.

To calculate the theoretical stock price after dividend, the above-described PAF is used.

$$\Delta MCAP = \sum_{i=1}^n S_{i,t} * p_{i,t} * f_{i,t} * WCF_{i,t} * FFF_{i,t} - \sum_{i=1}^m S_{i,t+1} * p_{i,t} * \frac{1}{PAF_{i,t+1}} * f_{i,t} * WCF_{i,t+1} * FFF_{i,t+1}$$

### 2.1.1.3 Exceptions

#### 2.1.1.3.1 Australia

Australia applies a franking procedure on dividends by which a company pays the applicable withholding tax to the Australian Taxation Office on behalf of the shareholders and provides them with what is known as a franking credit. Foreign nationals are only subject to taxation with regards to the unfranked percentage of the dividends received. In addition, the Australian tax system exempts conduit foreign income (CFI), which is income received by an Australian company from abroad and again distributed to its foreign shareholders. With regard to these particularities, the effective tax rate that includes the franking and CFI is calculated as follows:

$$Effective\ Tax\ Rate = Withholding\ Tax\ Rate\ in\ Australia * \left( 1 - Franking\ in\ \% - \frac{CFI\ Amount}{Declared\ Amount} \right)$$

This effective tax rate is to be applied for the declared dividend amount. The net amount after taxes is calculated as follows:

$$Net\ Dividend\ Amount = Declared\ Dividend * (1 - Effective\ Tax\ Rate)$$



Example: Dividend with Franking Credits and Conduit Foreign Income

Declared Dividend Amount: AUD 0.4

Franking: 50%

CFI: 30%

Withholding Tax Rate in Australia: 30%

*Effective Tax Rate = 30%\*(100%-50%-30%) = 6%*

*Net Dividend Amount = 0.4\*(100%-6%) = 0.376 AUD*

#### 2.1.1.3.2 Brazil

In addition to ordinary dividend payments, Brazilian companies often pay interest on the capital that is invested by shareholders in companies. In terms of taxation in Brazil, dividends and interest on capital repayments are subject to a different withholding rate. For reinvestment of dividend payments classified as Interest on Capital, Solactive uses a different tax rate declared in the document "Withholding-Tax-Rates" posted on <https://www.solactive.com/documents/>

#### 2.1.1.3.3 Japan

The majority of dividend distributions for shares listed in Japan are declared in estimated amounts and these estimations are not confirmed by companies prior to the ex-date. In addition to this, some companies do not provide an estimation for dividend amounts.

For the Standard Index specified in Section 1.2.1 and the Divisor Index specified in Section 1.2.2, Solactive will apply the the Post Ex-Date Dividend Adjustment specified in Section 2.1.1.3.8.

#### 2.1.1.3.4 South Korea

Companies listed in South Korea usually do not declare an estimation for their upcoming dividend distribution prior to the ex-date. The final dividend amount is announced a couple of months after the dividend ex-date.

For dividend reinvestments in the Standard Index specified in Section 1.2.1 and the Divisor Index specified in Section 1.2.2, Solactive will apply the Post Ex-Date Dividend Adjustment specified in Section 2.1.1.3.8.



#### 2.1.1.3.5 Depository Receipts Exceptions

Depository Receipts such as ADRs or GDRs are also treated differently and are considered an exception to the general implementation of cash distributions. Depository Receipts are certificates on shares. Financial institutions holding shares of public companies in a separate deposit issue certificates on such shares that are subsequently tradable on exchanges. While their valuation correlates to the underlying stocks' prices, Depository Receipts vary with respect to several characteristics, such as the fee payable to the issuing bank for its services. The main rationale behind such Depository Receipts is to open foreign equities to domestic investors, who can easily access these foreign company certificates on a local stock exchange (e.g. ADRs listed on the New York Stock Exchange). Only the net values of the cash distributions of the Depository Receipts are considered.

#### 2.1.1.3.6 REITs

In some countries, dividends issued by Real Estate Investment Trusts (REITs) might be subject to a different withholding tax rate compared to the standard withholding tax rate applicable to a company's country of incorporation.

Solactive uses the specific withholding tax applicable to REITs in those countries. The respective tax rates are available in the document "Withholding-Tax-Rates" posted on <https://www.solactive.com/documents/>.

A special case of such distributions by REITs incorporated in United Kingdom are referred to as Property Income Distributions (PID). REITs must distribute at least 90% of the tax-exempt profit from their property rental business, to qualify as PID payments. The PID part of dividends is subject to a withholding tax of 20%.

#### 2.1.1.3.7 Return of Capital

Return of capital payments that are paid to investors from their original investment but not paid from the company's net income are generally tax-exempt. These payments are applied in Indices as a special dividend and free of the withholding tax, unless the taxation practice is declared differently. When the return of capital payment shows a repetitive characteristic in terms of dividend amount and frequency, and the payment is made in lieu of a regular Cash Dividend, the dividend is considered an ordinary Cash Dividend.

#### 2.1.1.3.8 Post Ex-Date Dividend Adjustment

In some countries like Japan and South Korea, the dividends amounts are not confirmed prior to their ex-dates and the final confirmation is available thereafter. Solactive uses the estimations as dividend amounts on the ex-date. If no estimation for dividend amount is available prior to their ex-date, Solactive considers the dividend amount from the same dividend period of the previous year as the estimated dividend amount, adjusted for any share changes such as stock splits, stock dividends or rights issues between the relevant dividend period and the ex-date. If a company did not pay any dividend last year and



no estimation is available for the dividend amount, Solactive applies a dividend amount of zero as estimation to be able to conduct a further adjustment when the company confirms a dividend payment for this particular ex-date. Should the confirmed dividend amount differ from the estimated dividend amount that is applied on the ex-date Solactive performs a post ex-date dividend adjustment. With respect to the Post Ex-Date Dividend Adjustment the historical index levels are not restated.

The adjustment is only applicable if the affected dividend paying company with delta dividend amount was an Index Component on the ex-date. Furthermore, the adjustment of the delta dividend is performed even when the company with delta is not an Index Component on the Implementation Date anymore since this respective stock was an Index Component on the original ex-date.

The Post Ex-Date Dividend Adjustment is performed on the pre-defined Implementation Dates that are scheduled weekly on Friday. Should Friday not be a Trading Day for the affected market, the Implementation Date is to be postponed to the next Business Day.

The delta amount between the confirmed dividend amount and the estimated dividend amount will be applied to the affected Indices by using the index dividend points.

$$\Delta d_{i,t} = (d_{i,ID} - d_{i,EX}) * (1 - w_{i,EX})$$

#### 2.1.1.3.8.1 Adjustment in Standard Index

For the calculation of Index Delta Dividend Points on the Implementation Date in the Standard Index specified in Section 1.2.1, the calculation parameters of the Index Component from the ex-date are multiplied by the delta dividend and divided by the close index close from one day prior to the dividend ex-date:

$$DDP_{i,ID} = \frac{\Delta d_{i,ID} * x_{i,EX-1} * f x_{i,ID-1}}{Index_{EX-1}}$$

The Index Delta Dividend Points correspond to the delta dividend capitalization in relation to the index level. In case multiple number of index constituents have delta dividends, the individual delta dividend points of each constituent are aggregated.

$$\sum_{i=1}^n DDP_{i,ID}$$

The aggregated value of delta dividend points is added to 1 to create the Correction Factor.





$$CF_{ID} = 1 + \sum_{i=1}^n DDP_{i,ID}$$

This Correction Factor is applied to the close index level from one day prior to the Implementation Date to calculate final index level after applying the Post Ex-Date Dividend Adjustment Methodology.

$$Index_{ID}^{Open} = Index_{ID-1}^{Close} * CF_{ID}$$

Given the fact that the aggregated value of delta dividend points can be positive as well as negative, the Correction Factor can increase or decrease the Index Level.

The adjustment of the index level leads to a change on Fraction of Shares of all index constituents.

$$X_{i,ID}^{Open} = X_{i,ID-1}^{Close} * CF_{i,ID}$$

#### 2.1.1.3.8.2 Adjustment in Divisor Index

For the calculation of Index Delta Dividend Points on the Implementation Date, the calculation parameters of the particular share from the ex-date are multiplied by the delta dividend and divided by the Divisor from the ex-date:

$$DDP_{i,ID} = \frac{\Delta d_{i,ID} * S_{i,EX} * f_{i,ID-1} * WCF_{i,EX} * FFF_{i,EX}}{D_{EX}}$$

The index dividend points correspond to the delta of the Market Capitalization at the index level. In the case that multiple Index Components are affected, the individual dividend points of each constituent are aggregated. The aggregated value of index dividend points is added to the index level to reflect the delta dividends. Since the dividend point might be positive or negative, the index level is adjusted on the Implementation Date accordingly.

$$Index_{ID}^{Open} = Index_{ID-1}^{Close} + \sum_{i=1}^n DDP_{i,ID}$$

The adjustment of the index level at the opening of the Implementation Date triggers a Divisor adjustment. The Divisor from one day prior to the Implementation Date is adjusted by the ratio between the adjusted index level at the open of the Implementation Date and the close index level before the Implementation Date.



$$D_{ID}^{Open} = D_{ID-1}^{Close} * \frac{Index_{ID-1}^{Close}}{Index_{ID}^{Open}}$$

#### 2.1.1.3.9 New Zealand

Solactive uses as gross dividend amount declared by the company without the imputation credits since these credits are paid only to resident shareholders to reduce their own tax liabilities. For non-resident shareholders, tax credits can instead be attached in the form of supplementary dividends. Solactive applies the supplementary dividends as ordinary cash dividends unless they are declared differently by the dividend paying company.

Solactive calculates an Imputation Rate to distinguish between the imputed and non-imputed part of a dividend (if any imputation) since the withholding different tax rates are applied imputed part and non-imputed part. The respective withholding tax rates are available in the Withholding Tax Rate Table on [www.solactive.com](http://www.solactive.com).

$$Imputation\ Rate = \frac{Imputation\ Credit\ Amount * (1 - Company\ Tax\ Rate^{New\ Zealand})}{Company\ Tax\ Rate^{New\ Zealand} * Declared\ Dividend}$$

The effective tax rate applied to gross dividend amount to calculate the net dividend reinvestment is calculated based on the Imputation Rate.

$$Effective\ Tax\ Rate = Imputation\ Rate * Withholding\ Tax\ Rate^{Imputed} + (1 - Imputation\ Rate) * Withholding\ Tax\ Rate^{Non-Imputed}$$

This effective tax rate is to be applied for the declared dividend amount. The net amount after taxes is calculated as follows:

$$Net\ Dividend\ Amount = Declared\ Dividend * (1 - Effective\ Tax\ Rate)$$

## 2.1.2 Stock Dividend

A Stock Dividend refers to a dividend paid to existing shareholders in the form of additional shares instead of a cash payment. In contrast to an ordinary dividend payment, the dividend paying company's liquidity reserves remain constant by issuing dividends in the form of additional shares. This liquidity can be held in the company or used for other investments. Additionally, the Stock Dividend has an advantage in terms of taxation, since the shareholder's dividend gain is not subject to taxation until the newly issued shares are sold.



If a company issues a 2% Stock Dividend of newly issued shares pro rata, the total amount of shares is increased by the Stock Dividend terms (T) of 2% while these additional shares are distributed among the shareholders accordingly. A shareholder will receive one newly issued share for every 50 shares the shareholder currently holds. However, at the same time, the value of a single share decreases proportionally because the Market Capitalization of the company as a whole remains the same, as does the value of the shareholder's portfolio.

### 2.1.2.1 Stock Dividend Adjustment

The PAF for Stock Dividend is calculated as follows:

$$PAF_{i,t+1} = 1 + T$$

The theoretical close price after the Stock Dividend is calculated as follows:

$$ap_{i,t+1} = \frac{p_{i,t}}{PAF_{i,t+1}}$$

The final shares after the implementation of the Stock Dividend are calculated by the multiplication of the number of shares on the dividend ex-date with the adjustment factor.

$$ax_{i,t+1} = x_{i,t} * PAF_{i,t+1}$$

Since the shares in the index are increased by the PAF, the implementation of a Stock Dividend does not change the Index Market Capitalization. Consequently, a Stock Dividend doesn't trigger a Divisor change in Divisor Indices. In respect of implementation, a Stock Dividend is treated identically across all index types (Standard Indices and Divisor Indices).

### 2.1.3 Stock Split

The practice of Stock Splits describes a corporate event through which a company's existing shares are split and therefore multiplied by a given factor. This split ratio (2-for-1 or 3-for-1), doubles or triples the total amount of shares and the number of shares held by each shareholder. From a structural perspective, it resembles a Stock Dividend on a greater scale. In practice, the newly issued shares are distributed to existing shareholders pro rata.

At the same time the company's Market Capitalization is not affected, its total value remains the same and the value of a single share decreases proportionally. It is this nominal depreciation, the share price's reduction by half or two-thirds, which is the objective of such an operation.



Similar to a Stock Split, a Reverse Stock Split is a rather straightforward operation. The concept and process of Reverse Stock Splits is similar to Stock Splits. The actual Market Capitalization of a company remains unchanged, yet the total number of issued shares is reduced by a given factor, again usually 1-for-2 or 1-for-3, and the nominal value of a single share is increased accordingly.

### 2.1.3.1 Stock Split Adjustment

The PAF for a Stock Split is calculated as follows:

$$PAF_{i,t+1} = T$$

Stock Split terms (T) is the relation between the number of shares before the corporate action and the number of shares that are received for each share held by an investor after the corporate action. Consequently, T is greater than 1 in a Stock Split, whereas this relation is lower than 1 in a Reverse Stock Split.

The theoretical close price after a Stock Split is calculated as follows:

$$ap_{i,t+1} = \frac{p_{i,t}}{PAF_{i,t+1}}$$

The final shares after the implementation of a Stock Split is calculated by the multiplication of the number of shares on the ex-date with the adjustment factor.

$$ax_{i,t+1} = x_{i,t} * PAF_{i,t+1}$$

The implementation of a Stock Split is treated the same across all index types (Standard Indices and Divisor Indices).

### 2.1.4 Rights Issue

Unlike the events described above, the term Rights Issue refers to a wider set of Corporate Actions that may take a variety of forms. A Rights Issue raises the Market Capitalization of a company. Generally speaking, a Rights Issue has a diluting effect on the shareholder's existing shares as their individual number of shares remains the same while the total amount of stock increases.

In order to counterbalance such a dilution, legislators have provided for rights regimes. These entail the possibility for existing shareholders to pre-emptively purchase newly issued shares for a pre-defined



subscription price (SP) on a pro rata basis, i.e. in accordance with their existing number of the company's shares.

The stock price is likely to decrease at first in such a case. This depreciation of the share's nominal value due to such a corporate event has to be adequately reflected in the Index performance.

Solactive implements a Rights Issue only if the subscription price is lower than the stock's close price on the day before the ex-date.

#### *2.1.4.1 Rights Issue Adjustment in Standard Index*

The PAF for a Rights Issue is calculated as follows:

$$PAF_{i,t+1} = \frac{p_{i,t}}{\left(\frac{1 * p_{i,t} + T * SP}{1 + T}\right)}$$

The theoretical close price after a Rights Issue is calculated as follows:

$$ap_{i,t+1} = \frac{p_{i,t}}{PAF_{i,t+1}}$$

The Fraction of Shares prior to the ex-date is increased with the PAF. Following that, a Rights Issue does not affect the Index Market Capitalization in a Standard Index.

$$ax_{i,t+1} = x_{i,t} * PAF_{i,t+1}$$

#### *2.1.4.2 Rights Issue Adjustment in Divisor Index*

In contrast to the standard calculation formula, the implementation of a Rights Issue increases the Market Capitalization, since the number of shares is increased by the terms but not by the PAF.

$$aS_{i,t+1} = S_{i,t} * (1 + T)$$

This change in Market Capitalization requires a Divisor adjustment to keep the index level constant.

To calculate the theoretical stock price after a Rights Issue, the above-described PAF is used.

$$D_{t+1} = \frac{D_t * Index_t - \Delta MCAP}{Index_t}$$



$$\Delta MCAP = \sum_{i=1}^n S_{i,t} * p_{i,t} * f_{i,t} * WCF_{i,t} * FFF_{i,t} - \sum_{i=1}^m aS_{i,t+1} * \frac{1}{PAF_{i,t+1}} * p_{i,t} * f_{i,t} * WCF_{i,t+1} * FFF_{i,t+1}$$

## 2.1.5 Capital Decrease

The opposite procedure to a Rights Issue which increases capital is a Capital Decrease. A company may offer its shareholders the option to sell their shares at an agreed price.

To facilitate the buyback of larger quantities, companies often offer a fixed price with a moderate premium compared to the stock price. The repercussions to the stock price are complex and often depend on a set of additional factors.

Solactive implements a Capital Decrease only if the subscription price is higher than the stock's close price on the day before the ex-date.

### 2.1.5.1 Capital Decrease Adjustment in Standard Index

The PAF for a Capital Decrease is calculated as follows:

$$PAF_{i,t+1} = \frac{p_{i,t}}{\left( \frac{1 * p_{i,t} - T * SP}{1 - t} \right)}$$

The theoretical close price after a Capital Decrease is calculated as follows:

$$ap_{i,t+1} = \frac{p_{i,t}}{PAF_{i,t+1}}$$

The Fraction of Shares prior to the date ex-date is decreased with the PAF. Following that, a Capital Decrease does not affect the Index Market Capitalization in a Standard Index.

$$ax_{i,t+1} = x_{i,t} * PAF_{i,t+1}$$

### 2.1.5.2 Capital Decrease Adjustment in Divisor Index

In contrast to the standard calculation formula, the implementation of a Capital Decrease reduces the Market Capitalization, since the number of shares is decreased by the terms but not by the PAF.



$$aS_{i,t+1} = S_{i,t} * (1 - T)$$

This change in Market Capitalization requires a Divisor adjustment to keep the index level constant.

To calculate the theoretical stock price after a Capital Decrease, the above-described PAF is used.

$$D_{t+1} = \frac{D_t * Index_t - \Delta MCAP}{Index_t}$$

$$\Delta MCAP = \sum_{i=1}^n S_{i,t} * p_{i,t} * f_{i,t} * WCF_{i,t} * FFF_{i,t} - \sum_{i=1}^m aS_{i,t+1} * \frac{1}{PAF_{i,t+1}} * p_{i,t} * f_{i,t} * WCF_{i,t+1} * FFF_{i,t+1}$$

## 2.1.6 Spin-off

A Spin-off describes a procedure by which an existing company establishes a subsidiary or other company and confers some of its business activities to this newly established entity. Similarly, a company may distribute the assets it holds in a third company to its shareholders.

With reference to the Index calculation, an Index Component is subject to a Spin-off if the issuer of the shares ("Parent") distributes shares of one or multiple other companies to its own shareholders. Such a process has a direct impact on the Index Components, as assets of the parent company are transferred to another entity, which decreases the value of the parent company.

### 2.1.6.1 Spin-off Adjustment

In the case of a Spin-off affecting an Index Component, the spin-off company will be added to the Index according to the transaction terms on the effective date:

$$\text{Shares Spin-off Company} = \text{Shares Parent Company} * \text{Spin-off Terms}$$

The parent company will remain in the Index with unchanged calculation parameters. The spin-off company will remain in the Index until further notice or the next ordinary rebalancing.

The spin-off company will be added to the Index with a price of zero. The Index calculation will be switched to official prices once the spin-off company starts to trade.

If the spin-off company does not begin trading on the effective date, a theoretical price for the spin-off company will be implemented at a fixed price until it commences trading. If a theoretical price cannot be calculated, the spin-off company remains in the index at the entry price of zero.

$$\text{Price Spin-off Company} = [(\text{*Adjusted Close Price Parent Company prior to effective date}) - (\text{Open Price Parent Company on effective date})] / \text{Transaction Terms}$$

*\*Adjusted for any other corporate action.*



If the first Trading Day of the spin-off company is unknown, the pending listing spin-off company will be regularly reviewed and monitored under our Disruption Policy.

In the case that the spin-off company is already an Index Component, the additional shares demerged from the parent company will be added to the spin-off company on the effective date.

#### EXAMPLE: Spin-off

*Case: An equity Index intends to reflect the performance of the largest companies active in the automotive sector in a given region. One of the Index Components, Company A, has built up additional expertise in the field of highly automated driving and a considerable part of its R&D department is devoted to this topic. In order to improve efficiency, Company A decides to transfer this specific team into a newly created subsidiary, Company A2.*

*Company A currently has 1,000 shares outstanding, trading at EUR 100 each. It distributes shares of Company A2 at a rate of 1-for-5 among its shareholders. Company A2 will be added to the Index with 200 shares outstanding.*

*Company A2 will remain in the Index until the next ordinary rebalancing.*

#### 2.1.6.2 Alternative treatment for Spin-off

In the case where it is known on the announcement date that either;

- The Spin-off Instrument trades at a generally ineligible exchange; or
- The Spin-off Instrument trades however is not a standard equity instrument, but rather a digital asset or fixed income or alternative product,

The default addition treatment will not be applied and an alternative treatment will be applied either extraordinary dividend will be applied in its place; the amount of the dividend will be calculated to reflect the value the Spun off company would have had in the index if it had been added, or the instrument will be added temporarily and removed after its first trading date.

In the case where it is known on the announcement date that either;

- The Spin-off Instrument is not expected to list for trading at any exchange; or
- The Spin-off Instrument is restricted from trading due to sanctions, regulation, exchange or company reason;

The default addition treatment or any other alternative treatment will not be applied. Solactive will treat such Spin-off / Distribution as a non-event and no offsetting action will be applied.





### *2.1.6.3 Ad-hoc Adjustment in Spin-off*

The Spin-off will be added to the index on a date to match the effective date in the market. Normally 2 full Business Days' notice would be given in advance of the effective date, but spin-offs can be added to an index with reduced notice, including intraday in an ad-hoc situation. The addition of a spin-off does not need action by the index owner to replicate, thus the notice is not required.

### *2.1.6.4 Spin-off Taxation*

Spin-offs are weight neutral events and generally no withholding tax is taken into consideration. If the corporate action announcement explicitly states that the distribution of the spin-off company will trigger a taxation event (e.g., distributions from French Equities), Solactive ' will apply a negative net cash dividend to the Parent for the Net Total Return indices only. The negative dividend will be calculated as follows:

Open price of Spin-off company \* Tax Rate (Solactive WHT of country of the Parent).

In case Spin-off company is trading before the ex date, the close price will be used:

Close price of Spin-off company \* Tax Rate (Solactive WHT of country of the Parent)

## 2.1.7 Mergers & Acquisitions

The term Merger describes the fusion of two or more separate companies into one entity. It is part of a wider set of procedures usually referred to as Mergers & Acquisitions (M&A).

Mergers can take the form of horizontal integration or vertical integration, with the first term describing the fusion of comparable companies active in the same field, and the latter the fusion of companies on different production levels to control a larger part of the value chain. As such, the underlying rationale for a Merger can vary, and the same holds true for its technical execution. Generally speaking, a Merger is usually based on the consent of all parties and involves a multi-layered negotiation process. An acquisition, albeit generally understood as different from a Merger, is legally often the same, and precise delineations are difficult to make. In contrast to a Merger, which describes the fusion of two or more companies of comparable standing, an acquisition takes place when a company directly purchases another enterprise.

With regard to Solactive Indices and the impact on selection and calculation of Index Components, a Merger is:

- (i) a change in the security class or a conversion of the share class that results in a transfer or an ultimate definite obligation to transfer all the shares to another legal person;
  
- (ii) (either by acquisition or through forming a new structure) a binding obligation on the part of the issuer to exchange shares with another legal person (except in a Merger or share exchange under which the issuer of the Index Component is the acquiring or remaining company and that does not involve a change in security class or a conversion of all the shares);



- (iii) a takeover offer, exchange offer, other offer or another act of a legal person for the purposes of acquiring or otherwise obtaining from the issuer 100% of the shares issued that entails a transfer or the irrevocable obligation to transfer all shares (with the exception of shares that are held and controlled by the legal person); or

### 2.1.7.1 Mergers & Acquisition Adjustment

In the case an Index Component is subject to Merger or Acquisition, the acquired entity (i.e. the *target entity*) will be removed from the Index on the effective date as announced by Solactive. The Index is subject to further adjustments in accordance with the following cases.

- a) Merger or Acquisition of an Index Component with or by another Index Component:
  - i. Cash Terms: the weight of the target company based on its last close price will be distributed pro rata across the remaining Index Components.
  - ii. Stock Terms: the shares of the acquiring / surviving company will be increased according to the stock terms.
  - iii. Cash and Stock Terms: the cash portion will be reinvested pro rata across the remaining Index Components. The shares of the acquiring / surviving company will be increased according to the stock terms.
  
- b) Merger or Acquisition of an Index Component with or by a non-component:
  - i. Cash Terms: the weight of the target company based on its last close price will be distributed pro rata across the remaining Index Components.
  - ii. Stock Terms: the weight of the target company based on its last close price will be distributed pro rata across the remaining Index Components.
  - iii. Cash and Stock Terms: the weight of the target company based on its last close price will be distributed pro rata across the remaining Index Components.

#### EXAMPLE: M&A in a Standard Index

*Company A is an engineering firm specialized in 3D printing. Company A is acquired by Company B, a larger technology corporation partly active on the same market. Both companies are Components of a 3D printing Index. As Company A will be delisted from the stock exchange, it will be removed from the Index. Depending on the type of payment (i.e. cash terms, stock terms, or cash and stock terms), the Index will be adjusted in line with the corresponding treatment.*

*The index level of an Index calculated with Standard formula is 200 and the Index has the following Index Components with the corresponding calculation parameter.*



Name	Closing Price $p$	Closing $f$	Weighting $w$	Fraction of Shares $x$
Company A	25.00	1	15.000000%	1.200000
Company B	20.00	1	30.000000%	3.000000
Company C	5.00	0.94459925	25.000000%	10.586500
Company D	10.00	0.94459925	20.000000%	4.234600
Company E	20.00	0.94459925	10.000000%	1.058650

$$Index_t = \sum_{i=1}^n x_{i,t} * p_{i,t} * f_{i,t}$$

#### M&A with Cash Terms in a Standard Index

*In this example Company B pays EUR 25.00 per share of Company A.*

*The corresponding treatment will be: the weight of the target company based on its last close price will be distributed pro rata across the remaining Index Components.*

*The adjusted Index weight of an Index Component  $aw_{i,t+1}$  will be calculated as follows:*

$$aw_{i,t+1} = \frac{x_{i,t} * p_{i,t} * f_{i,t}}{\sum_{i=1}^n x_{i,t} * p_{i,t} * f_{i,t}}$$

*The adjusted number of Index shares for the remaining Index Components will be calculated as follows:*

$$ax_{i,t+1} = \frac{aw_{i,t+1} * x_{A,t} * p_{A,t} * f_{A,t} + x_{i,t} * p_{i,t} * f_{i,t}}{p_{i,t} * f_{i,t}}$$

*When calculating the adjusted weights or the adjusted number of Index shares, the Index will contain on  $t+1$  the following Index Components with the corresponding calculation parameter.*



Name	Closing Price $p$	Closing $f$	Adjusted Weighting $aw$	Adjusted Number of Index Shares $ax$
Company B	20.00	1	35.29412%	3.529412
Company C	5.00	0.9445993	29.41176%	12.454706
Company D	10.00	0.9445993	23.52941%	4.981882
Company E	20.00	0.9445993	11.76471%	1.245471

### M&A with Stock Terms in a Standard Index

*Assuming Company B pays 1.25 shares of Company B per every share of Company A.*

*The corresponding treatment will be: the shares of the acquiring / surviving company will be increased according to the stock terms.*

*The adjusted number of Index shares for Company B will be calculated as follows.*

$$ax_{B,t+1} = x_{A,t} * ST + x_{B,t}$$

*When calculating the adjusted weights or the adjusted number of Index shares, the Index will contain on  $t+1$  the following Index Components with the corresponding calculation parameter.*

Name	Closing Price $p$	Closing FX $f$	Weighting	Number of Index Shares $x$
Company B	20.00	1	45.000000%	4.500000
Company C	5.00	0.9445993	25.000000%	10.586500
Company D	10.00	0.9445993	20.000000%	4.234600
Company E	20.00	0.9445993	10.000000%	1.058650

### EXAMPLE: M&A in a Divisor Index

*Company A is an engineering firm specialized in 3D printing. Company A is acquired by Company B, a larger technology corporation partly active in the same market. Both companies are Components of a 3D printing Index. As Company A will be delisted from the stock exchange, it will be removed from the Index. Depending on the type of payment (i.e. cash terms, stock terms, or cash and stock terms), the Index will be adjusted in line with the corresponding treatment.*

*The index level is 200 and the Index has the following Index Components with the corresponding calculation parameter.*



Name	Closing Price $p$	Closing $f$	Weighting	Number of Total Shares $S$	Free Float Factor $FFF$	Weighting Cap Factor $FFF$
Company A	25.00	1	11.83%	1000	1	1
Company B	20.00	1	18.92%	2000	1	1
Company C	5.00	0.94459925	6.70%	3000	1	1
Company D	10.00	0.94459925	17.87%	4000	1	1
Company E	20.00	0.94459925	44.68%	5000	1	1

$D_t$  = Divisor on Business Day  $t = 1057.064419$

$Index_t$  = Index value on Business Day  $t = 200.00$

#### M&A with Cash Terms in a Divisor Index

*Assuming Company B pays EUR 25.00 per share of Company A.*

*The corresponding treatment will be: the weight of the target company based on its last close price will be distributed pro rata across the remaining Index Components.*

*The adjustment is conducted in such a way that the value of the Index is unchanged. Consequently, the Divisor will change. As a formula:*

$$D_{t+1} = \frac{D_t * Index_t + \Delta MCap}{Index_t}$$

with:

$$\Delta MCap = \sum_{i=1}^m [a S_{i,t+1} * FFF_{i,t+1} * WCF_{j,t+1} * a p_{i,t+1} * f_{i,t}] - \sum_{i=1}^n [S_{i,t} * FFF_{i,t} * WCF_{i,t} * p_{i,t} * f_{i,t}]$$



*This results in the following Index.*

Name	Closing Price $p$	Closing FX $f$	Weighting $w$	Number of Shares $S$	Free Float Factor $FFF$	Weighting Cap Factor $FFF$
Company B	20.00	1	21.46%	2000	1	1
Company C	5.00	0.94459925	7.60%	3000	1	1
Company D	10.00	0.94459925	20.27%	4000	1	1
Company E	20.00	0.94459925	50.67%	5000	1	1

$$D_{t+1} = 932.064419$$

$$\text{Index}_t = 200.00$$

#### M&A with Stock Terms in a Divisor Index

*In this example Company B pays 1.25 shares of Company B per every share of Company A.*

*The corresponding treatment will be: the shares of the acquiring / surviving company will be increased according to the stock terms.*

*As a formula:*

$$aS_{B,t+1} = S_{A,t} * ST + S_{B,t}$$

*This results in the following Index.*

Name	Closing Price $p$	Closing FX $f$	Weighting $w$	Number of Shares $S$	Free Float Factor $FFF$	Weighting Cap Factor $FFF$
Company B	20.00	1	30.75%	3250	1	1
Company C	5.00	0.94459925	6.70%	3000	1	1
Company D	10.00	0.94459925	17.87%	4000	1	1
Company E	20.00	0.94459925	44.68%	5000	1	1

$$D_t = 1057.064419$$

$$\text{Index}_t = 200.00$$

*The Divisor will not be changed due to this adjustment.*



### *2.1.7.2 Timing of Adjustment*

An adjustment will be applied to the Index when:

- a) the Extraordinary Event leads to a Delisting of the Index Component or;
- b) the acquiring company initiates a squeeze-out procedure for the remaining outstanding shares of the target company; or
- c) the results of the tender offer or shareholder meeting are announced, the offer is successful, and unconditional and the resulting free float of the target company is set to drop below 15%.

The Index adjustment will be announced with a notice period of at least two Business Days, i.e., the Index adjustment will become effective on the opening of the third Business Day following the announcement (= the effective date) at the earliest. The instrument will reflect the last traded price until the stated effective date even if the market event has already occurred.

## *2.1.8 Delisting*

A Delisting takes place when a company's shares are no longer publicly traded on a stock exchange. This is, of course, the case when a company ceases to exist (e.g., after filing for bankruptcy), but there can also be other reasons. After a change in the ownership structure or a low percentage of free-float shares, companies can, depending on the jurisdiction, deliberately decide to go private.

Although the free float-shares remain intact, they are no longer publicly traded. This does not necessarily affect the enterprise as such, but has a fundamental impact on an Index containing a delisted company as component. Since the shares can only be bought and sold privately, no effective transaction prices can be determined, and the company falls out of the Index selection.

Another variation is a listing change whereby an Index Component delists from its primary exchange and re lists at an alternative stock exchange.

### *2.1.8.1 Delisting Adjustment*

In the case an Index Component is subject to a Delisting the removal from the Index will be on the effective date as announced by Solactive. The weight will be distributed pro rata across the remaining Index Components. If available, the Index Component is deleted on the basis of its last available stock price. Failing that, prices from alternative markets may be tracked (e.g., also by contacting the affected Index Component itself), and used. In all other cases, if no robust prices are available, the Index Component is removed from the Index with a stock price of 0.00000001 expressed in the trading currency of the relevant stock.

A change of listing venue will trigger a delisting event, except if the Index Component changes its primary listing to an eligible stock exchange, and the trading currency and country of incorporation are unchanged, in which case the relevant identifiers will be updated.



#### Example: Change of Listing

In case there is a change of primary listing within the same country, e.g., NYSE to Nasdaq, the position would be moved across on a 1 to 1 basis as the company is still governed by the same laws and regulations and the change to another primary listing does not change the eligibility of an Index Component to be incorporated in the composition.

#### Example: Change of Domiciliation

Change of listing however due to re-domiciliation (mandatory conversion to a foreign primary exchange) constitutes a significant change to the corporate structure of a company with business, regulatory and tax implications. In such an event, the weight of the Index Component based on its last close price will be distributed pro rata across the remaining Index Components. A re-domiciliation that does not involve a change of listing will not constitute a reason to remove an Index Component from the Index.

#### *2.1.8.2 Timing of Adjustment*

Subject to the provision of appropriate notification, the adjustment will be applied to the Index after close of business of the last Trading Day of the affected Index Component.

The Index adjustment will be announced with a notice period of at least two Business Day, i.e., the Index adjustment will become effective on the opening on the third Business Day following the announcement (= the effective date) at the earliest.

### 2.1.9 Nationalization of a Company

When a company is nationalized, the complete ownership or effective control of a legal entity is taken over by the state. The form and procedure vary and are generally subject to strong constitutional safeguards. Nevertheless, the nationalization of a company dispossesses shareholders of their property on a large scale and brings forth a situation in which shares are no longer publicly traded, i.e., the component no longer meets the selection criteria.

#### *2.1.9.1 Adjustment of Nationalization*

If an Index Component is nationalized, the security will be removed from the Index with notice period of two Business Days with the last available stock price. The weight will be distributed pro rata across the remaining Index Components.

If the security has already been delisted from the corresponding stock exchange and / or no valid price for the security is available, Solactive tries to the best of its knowledge to track prices from alternative liquid markets. The determined price from an official source will then be used for Index calculation until the security will be removed from the Index based on the new price.





If no appropriate price for the Index Component is available, the security will be removed from the Index with a price of 0.00000001 expressed in the trading currency of the relevant Index Component.

### *2.1.9.2 Timing of Adjustment*

Subject to the provision of appropriate notification, the adjustment will be applied to the Index when the nationalization:

- a) leads to a Delisting of the Index Component, after close of business of the last Trading Day of the affected Index Component; or
- b) is announced, unconditional and the resulting free float of the nationalized company is set to drop below 15%, after close of the effective date of the nationalization.

The Index adjustment will be announced with a notice period of at least two Business Days, i.e., the Index adjustment will become effective on the opening on the third Business Day following the announcement (= the effective date) at the earliest.

## **2.1.10 Bankruptcy / Insolvency / Liquidation**

In the context of this Equity Index Methodology the term bankruptcy refers to events where an Index Component (in the country of its incorporation) has become bankrupt, has filed for bankruptcy protection, enters into administration or receivership, is insolvent or is liquidated or subject to other equivalent proceedings in accordance with laws and regulations in the country of its incorporation. It also includes events where a supervisory authority or resolution authority takes over the operations of a failed banking or financial institution, e.g., under rules of the Federal Deposit Insurance Corporation (in the U.S.) or the Bank Recovery and Resolution Directive (in the EU).

### *2.1.10.1 Adjustment of Bankruptcy / Insolvency*

If an Index Component is bankrupt, the security will be removed from the Index with notice period of two Business Days. The final weight will be distributed pro rata across the remaining Index Components.

If the security has already been delisted from the corresponding stock exchange and / or no valid price for the security is available, Solactive will try to the best of its ability to track prices from alternative liquid markets. The determined price from an official source will then be used for Index calculation until the security is removed from the Index based on the new price.

If no appropriate price for the Index Component is available, a price of 0.00000001 (expressed in the trading currency of the relevant security) will then be used for Index calculation until the security is removed from the Index based on the new price.



#### EXAMPLE: Insolvency

*Case: Company A is an innovative IT start-up that experiences sudden problems after strong initial growth. Unexpected by its shareholders, the company files for insolvency and the management of its assets is taken over by an Insolvency administrator.*

*The shareholders are disenfranchised by the Insolvency proceedings and Company A's shares become virtually worthless. Although the company remains preliminarily listed, it is removed from the Index with a stock price of EUR 0.00000001.*

*Bankruptcy protection (e.g., Chapter 11) does not satisfy the conditions as shares remain legally in the hands of the original shareholders and no action will be taken unless a delisting is announced.*

#### 2.1.10.2 Timing of Adjustment

The adjustment will be applied to the Index after close of business of the last Trading Day of the affected Index Component.

The Index adjustment will be announced with a notice period of at least two Business Days, i.e. the Index adjustment will become effective on the opening on the third Business Day following the announcement (= the effective date) at the earliest.

#### 2.1.11 Notice Period for Corporate Action Adjustments

Solactive AG works on a best-efforts basis to provide accurate information in a timely manner.

Solactive shall seek to provide for an implementation period that provides sufficient time for potential adjustments that users of the Index may need to take to account for the adjustment.

Extraordinary events such as ad-hoc delisting, unspecified listing dates for spun-off companies, or undisclosed, incomplete or mismatched transaction terms require a high level of flexibility and fast reaction times. Ad-hoc situations are defined as circumstances where either Solactive receives information about the effectiveness of a transaction after the last Trading Day of the target security and / or the target security has been suspended from trading with immediate effect and will not resume trading until its Delisting and/or has been delisted from stock exchange with immediate effect.

In the case of ad-hoc situations, the Index adjustment will also be applied with a notice period of at least two Business Days, i.e., the Index adjustment will become effective on the opening on the third Business Day following the announcement (= the effective date). The instrument will reflect the last traded price until the stated effective date even if the market event has already occurred.

#### 2.1.12 Announcements of Corporate Action Adjustments

Solactive will communicate Corporate Action adjustments to subscribers via email or other communication channels and to the public via announcement on the Solactive website <https://www.solactive.com/news/announcements/>. Solactive will provide detailed information about the nature of the Corporate Action and the implications on the affected Indices.



Solactive shall seek to provide for an implementation period that provides sufficient time for potential adjustments that users of the Index may need to take to account for the change.

In case of an extraordinary treatment in accordance with Section 2.1 Solactive shall also provide the rationale for the adjustment.

## 2.2 ORDINARY INDEX REBALANCES

In order to ensure the validity of the Index composition, an Index is reviewed with a pre-defined frequency. The Index Guideline dictates the schedule of the Index Review and Index Rebalance. An Index rebalance may trigger a change in the Index Composition as well as the Index Calculation Parameters of the Index.

Where the Index Guideline provides for the involvement of a Selection Party in the Index Review or the use of Selection Data in the Index Review and the Selection Party or the provider of Selection Data fails to deliver the relevant information until the time agreed with Solactive or at the latest one day before the Adjustment Day, Solactive may at its discretion and taking into account the impact on the index objective, the reliability and representativeness of the Index, and the effect on index users:

- Utilize the information last delivered by the Selection Party or the provider of Selection Data, provided that the information is not older than 6 months;
- Postpone the Rebalancing Day for up to one month, provided that the next Index Review is scheduled later than one month from affected Index Review;
- Replace the Selection Party or the provider of Selection Data with an alternative natural or legal person that could deliver comparable services or information;
- Omit the scheduled Index Review, provided that the next scheduled Index Review will take place not later than 6 months from the affected Index Review;
- Terminate the Index, provided that, in the opinion of Solactive, none of the aforementioned options are adequate to maintain the Index and such termination is announced at least 30 days in advance.

Solactive will communicate the occurrence of a failure of a Selection Party or the provider of Selection Data to deliver the relevant information on time and any measures taken by Solactive in response to such event to subscribers via email or other communication channels and to the public via announcement on the Solactive website <https://www.solactive.com/news/announcements/>. Solactive will provide detailed information about such an event and the implications on the affected Indices. Solactive shall seek to provide for an announcement period that provides sufficient time for potential adjustments that users of the Index may need to take to account for such an event and measures taken by Solactive in response to such event.



## 2.2.1 Ordinary Rebalance in a Standard Index

The Index Composition of a Standard Index is adjusted based on the Index Guideline on the pre-defined Adjustment Day. For the adjustment of a Standard Index, Solactive uses one of the 3 rebalance methodologies described below and as specified in the relevant Index Guideline.

### 2.2.1.1 Index Rebalance in a Standard Index by Implementation of Target Weights

Target Weights of Index Components which are determined on the Selection Day according to the Index Guideline are used to calculate the Fraction of Shares of each Index Component on the Adjustment Day.

The Target Weight of an Index Component reflects the proportion of this stock in the index level after the Index Rebalance takes place. Since the Market Capitalization of the Index is given and reflected by the index level, the Fraction of Shares after the Index Rebalance is calculated based on the market data such as stock price and currency foreign exchange rate as of the Adjustment Day t:

$$x_{i,t+1}^{TG} = \frac{Index_t * TGW_i}{p_{i,t} * f_{i,t}}$$

The opening level of the Index after the Index Rebalance is determined in accordance with the following formula:

$$Index_{t+1}^{Open} = \sum_{i=1}^n x_{i,t+1}^{TG} * p_{i,t} * f_{i,t}$$

### 2.2.1.2 Index Rebalance in a Standard Index by Share Fixing

This rebalance methodology contains two steps in terms of the calculation of the final Fraction of Shares after the Index Rebalance. In the first step, the indicative Fraction of Shares of each Index Component is calculated based on the market data as of the Fixing Day.

$$x_{i,Fixing\ Day+1}^{IN} = \frac{Index_{Fixing\ Day}^{Close} * TGW_i}{p_{i,Fixing\ Day} * f_{i,Fixing\ Day}}$$

In the second step, the indicative Fraction of Shares is adjusted by the Share Adjustment Ratio (SAR) to calculate the final Fraction of Shares after the index rebalance. This value represents the ratio between the index level as of the Adjustment Day using the indicative Fraction of Shares and the index level of the Adjustment Day t.



$$SAR_t = \frac{Index_t^{Close}}{\sum_{i=1}^n x_{i, Selection\ Day+1}^{IN} * p_{i,t} * f_{i,t}}$$

$$x_{i,t+1}^{TG} = SAR_t * x_{i, Selection\ Day+1}^{IN}$$

The opening level of the Index after the Index Rebalance is determined in accordance with the following formula:

$$Index_{t+1}^{Open} = \sum_{i=1}^n x_{i,t+1}^{TG} * p_{i,t} * f_{i,t}$$

In the case that share changing Corporate Action events, such as Rights Issue, Stock Splits, Stock Dividends, occur between the Selection Day and Adjustment Day for any Index Component after Index Rebalance, the number of the Target Shares is adjusted according to the Corporate Action terms.

### 2.2.1.3 Multiday Index Rebalance in a Standard Index

In contrast to the other index rebalance methodologies, during a Multiday Index Rebalance the index is adjusted during a pre-defined Rebalance Period rather than on one particular Adjustment Day. The final Fraction of Shares after the last day  $t$  of the Rebalance Period is reached by moving from the initial weights on the first day of the Rebalancing Period to the Target Weights successively in an equal portion every day throughout the Rebalance Period. The daily weight change of an Index Component during the Rebalance Period is determined in accordance with the following formula:

$$DWC_i = \frac{TGW_i^{Final} - W_{i,t-1}}{NAD}$$

with:

$$x_{i,t+1}^{TG} = \frac{Index_t * TGW_{i,t}}{p_{i,t} * f_{i,t}}$$

and



$$TGW_{i,t} = W_{i,t-1} + DWC_i$$

	Current Weight	Target Weight ( $TGW_i^{Final}$ )	1. Day Index Weight ( $TGW_{i,1}$ )	2. Day Index Weight ( $TGW_{i,2}$ )
Stock A deleted from the Index	60%	0%	30%	0%
Stock B remains in the Index	40%	50%	45%	50%
Stock C added to the Index	0%	50%	25%	50%

The overview above illustrates a Multiday Index Rebalance which is applied during an Rebalance Period of 2 days.

The opening level of the Index after the index rebalance is determined in accordance with the following formula:

$$Index_{t+1}^{Open} = \sum_{i=1}^n x_{i,t+1}^{TG} * p_{i,t} * f_{i,t}$$

## 2.2.2 Ordinary Rebalance in a Divisor Index

The index composition of a Divisor Index is adjusted on the pre-defined Adjustment Day specified in the respective Index Guideline. For the adjustment of a Divisor Index, Solactive uses one of the rebalance methodologies described below and as specified in the relevant Index Guideline.

### 2.2.2.1 Index Rebalance in a Divisor Index by Target Weights

The Target Weights, Weighting Cap Factors and Free Float Factors of Index Components which are determined on the Selection Day according to the Index Guideline are used to calculate the Total Number of Shares of each Index Component after the close of business on the Adjustment Day t. The exact method of calculation of the Total Number of Shares of each Index Component differs according to whether the Index applies a Cash Pocket for dividend reinvestment (as referred to in section 1.2.2.1).

For indices without a Cash pocket, the following formula applies:



$$S_{i,t+1}^{TG} = \frac{MCAP_t * TGW_i}{p_{i,t} * f_{i,t} * FFF_{i,t+1} * WCF_{i,t+1}}$$

For Indices with a Cash Pocket (as referred to in section 1.2.2.1), the following formula applies:

$$S_{i,t+1}^{TG} = \frac{(MCAP_t + CP_t) * TGW_i}{p_{i,t} * f_{i,t} * FFF_{i,t+1} * WCF_{i,t+1}}$$

This rebalance methodology does not trigger any Divisor change since the adjusted Total Number of Shares in t+1 are calculated based on the Market Capitalization of the Index as of the Adjustment Day t.

The opening level of the Index after the Index Rebalance is determined in accordance with the following formula:

$$Index_{t+1}^{open} = \frac{\sum_{i=1}^n S_{i,t+1}^{TG} * p_{i,t} * f_{i,t} * WCF_{i,t+1} * FFF_{i,t+1}}{D_t}$$

### 2.2.2.2 Index Rebalance in a Divisor Index by Share Fixing

The Target Shares, Weighting Cap Factors and Free Float Factors are determined on the Fixing Day and the Index Rebalance is executed based on these calculation parameters on the Adjustment Day t. Since the new Calculation Parameters of the Index might cause a change on the Market Capitalization of the Index as of the Adjustment Day t, this change is reflected by adjusting the Divisor to ensure that the index level is not affected by the Index Rebalance. The exact method of calculation of the Divisor differs according to whether the Index applies a Cash Pocket for dividend reinvestment (as referred to in section 1.2.2.1).

For indices without a Cash pocket, the following formula applies:

$$D_{t+1} = \frac{D_t * Index_t + \Delta MCAP}{Index_t}$$

$$\Delta MCAP = \sum_{i=1}^n S_{i,t+1}^{TG} * p_{i,t} * f_{i,t} * WCF_{i,t+1} * FFF_{i,t+1} - \sum_{i=1}^n S_{i,t} * p_{i,t} * f_{i,t} * WCF_{i,t} * FFF_{i,t}$$

whereas the formula below refers to the index level calculated using the pre-rebalance composition.



$$\sum_{i=1}^n S_{i,t} * p_{i,t} * f_{i,t} * WCF_{i,t} * FFF_{i,t}$$

For Indices with a Cash Pocket (as referred to in section 1.2.2.1), the following formula applies:

$$D_{t+1} = \frac{D_t * Index_t + \Delta MCAP}{Index_t}$$

$$\Delta MCAP = \sum_{i=1}^n S_{i,t+1}^{TG} * p_{i,t} * f_{i,t} * WCF_{i,t+1} * FFF_{i,t+1} - \left( \sum_{i=1}^n S_{i,t} * p_{i,t} * f_{i,t} * WCF_{i,t} * FFF_{i,t} + CP_t \right)$$

whereas the formula below refers to the index level calculated using the pre-rebalance composition.

$$\left( \sum_{i=1}^n S_{i,t} * p_{i,t} * f_{i,t} * WCF_{i,t} * FFF_{i,t} + CP_t \right)$$

The opening level of the Index after Index Rebalance is determined in accordance with the following formula:

$$Index_{t+1}^{open} = \frac{\sum_{i=1}^n S_{i,t+1}^{TG} * p_{i,t} * f_{i,t} * WCF_{i,t+1} * FFF_{i,t+1}}{D_{t+1}}$$

In the case that share changing Corporate Action events, such as Rights Issue, Stock Splits, Stock Dividends, occur between the Selection Day and Adjustment Day for any Index Component after Index Rebalance, the number of the Target Shares is adjusted according to the Corporate Action terms.





### 2.2.2.3 Multiday Index Rebalance in a Divisor Index

Similar to the practice in the Standard Index, the Multiday Index Rebalance is implemented in a pre-defined Rebalance Period. The Target Weights which are defined on the Selection Day are used to determine the Number of Total Shares of each Index Component.

The final Number of Total Shares after the last day  $t$  of the Rebalance Period is achieved by implementing the Target Weights of each constituent successively in the same portion per day.

$$DWC_i = \frac{TGW_i^{Final} - W_{i,t-1}}{NAD}$$

with:

$$x_{i,t+1}^{TG} = \frac{Index_t * TGW_{i,t}}{p_{i,t} * f_{i,t}}$$

and

$$TGW_{i,t} = W_{i,t-1} + DWC_i$$

The exact method of calculation of the Total Number of Shares of each Index Component differs according to whether the Index applies a Cash Pocket for dividend reinvestment (as referred to in section 1.2.2.1).

For indices without a Cash pocket, the following formula applies:

$$S_{i,t+1}^{TG} = \frac{MCAP_t * TGW_{i,t}}{p_{i,t} * f_{i,t} * WCF_{i,t+1} * FFF_{i,t+1}}$$

For Indices with a Cash Pocket (as referred to in section 1.2.2.1), the following formula applies:

$$S_{i,t+1}^{TG} = \frac{(MCAP_t + CP_t) * TGW_{i,t}}{p_{i,t} * f_{i,t} * WCF_{i,t+1} * FFF_{i,t+1}}$$



Since the Total Number of Shares after the Index Rebalance is calculated based on the Market Capitalization of the Index as of the Rebalance Date  $t$ , the Divisor remains constant.

For the calculation of the opening level of the Index after Index Rebalance the following formula is used:

$$Index_{t+1}^{Open} = \frac{\sum_{i=1}^n S_{i,t+1}^{TG} * p_{i,t} * f_{i,t} * WCF_{i,t+1} * FFF_{i,t+1}}{D_t}$$

### 2.2.3 Rebalance Fee

A Rebalance Fee is an optional component which can be included in the index calculation to reflect the theoretical costs due to Index Replication in terms of Index Rebalance.

The sum of the weights of Index Components on Rebalance Day  $t$  which are removed from the Index in the Index Rebalance, are added to the sum of the absolute delta between the Target Weights of Index Components on Rebalance Day  $t+1$  and close index weights on Rebalance Day  $t$ . This number is then multiplied by a pre-defined Rebalance Fee Factor  $\mu$ .

The opening level of the Index after Index Rebalance is reduced as follows, whereas  $W_t = 0$  for additional Index Components which are not in the Index on Rebalance Day  $t+1$ .

$$Index_{t+1}^{Open} = Index_t^{Close} * (1 - (\mu * (\sum_{i=1}^n W_t^{DEL} + \sum_{i=1}^n |W_t - W_{t+1}|)))$$

## 2.3 MERGERS & ACQUISITIONS AND SPIN-OFFS BETWEEN SELECTION DAY AND ADJUSTMENT DAY

This section shall provide a detailed description of the handling of Mergers & Acquisitions and Spin-offs that occur between the SELECTION DAY and ADJUSTMENT DAY. For clarification: Events that occur before or on the SELECTION DAY as well as events that occur on the INDEX CALCULATION DAY following the ADJUSTMENT DAY or, in case of a MULTIDAY INDEX REBALANCE, the last ADJUSTMENT DAY, shall follow the treatments already defined in sections 2.1.6 to 2.1.7 of this document.

The concept outlined below also applies to Indices where the weighting concept initially targets a certain approach, including:

- equal weighting



- UCITS weighting (specific weighting to meet the diversification criteria under Directive 2009/65/EC (UCITS))
- cap-weighted Indices

This process is intended to ensure the integrity of the individual Indices while preventing unnecessary turnover for clients.

### 2.3.1 Default Treatment of Mergers & Acquisitions (M&A)

In case a FUTURE INDEX COMPONENT is subject to an M&A event before the EFFECTIVE DAY of an index rebalance, the acquired FUTURE INDEX COMPONENT will be removed from the future index composition on the EFFECTIVE DATE (of the M&A event) as announced by Solactive, i.e., it will not be included in the Index on the EFFECTIVE DAY. In addition, the Index is subject to further adjustments in accordance with the following specifications and depending on the index type (Standard Indices and Divisor Indices) as well the rebalance methodology.

#### 2.3.1.1 Standard Index

The section below will cover the different treatments that will be applied for Indices following the "Standard Index" calculation formula (as specified in Section 1.2.1 above). A distinction is made between the different rebalance methods.

##### 2.3.1.1.1 Implementation of Target Weights over one day

###### *Merger or Acquisition of a Future Index Component with / by another Future Index Component*

- CASH TERMS: The TARGET WEIGHT of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS.
- STOCK TERMS: The TARGET WEIGHT of the acquired FUTURE INDEX COMPONENT will be added to the TARGET WEIGHT of the acquiring / surviving company.
- CASH AND STOCK TERMS: The cash portion will be reinvested pro rata across the remaining FUTURE INDEX COMPONENTS. The TARGET WEIGHT of the acquiring / surviving company will be increased according to the stock terms, i.e., the stock percentage of the consideration for the acquisition will be re-invested entirely in the TARGET WEIGHT of the acquiring / surviving company.<sup>2</sup>

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<sup>2</sup> The stock percentage of the consideration for the acquisition is calculated by dividing the product of the close price of the acquirer and the stock terms of the deal by the product of the close price of the acquirer and the stock terms of the deal plus the cash terms.



### *Merger or Acquisition of a Future Index Component with / by a Non-Future Index Component*

- CASH TERMS: The TARGET WEIGHT of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS.
- STOCK TERMS: The TARGET WEIGHT of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS.
- CASH AND STOCK TERMS: The TARGET WEIGHT of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS.

#### *2.3.1.1.2 Implementation of Target Weights over multiple days (Multiday Index Rebalance)*

Index rebalances over multiple days will not only impact final allocation of the new INDEX COMPOSITION but will also affect the weight path determined to migrate towards the final TARGET WEIGHT of the new INDEX COMPOSITION after the last ADJUSTMENT DAY of the MULTIDAY INDEX REBALANCE. The different cases that can occur are described below.

##### *2.3.1.1.2.1 Acquisition completed before the first Adjustment Day*

In case an acquisition will be completed before the first ADJUSTMENT DAY, the weight path of all INDEX COMPONENTS (future components and current components) will be adjusted to reflect the new allocation.

##### *2.3.1.1.2.2 Acquisition completed on or after the first Adjustment Day*

In case an acquisition will be completed on or after the first ADJUSTMENT DAY (effective open) but before the last ADJUSTMENT DAY, the MULTIDAY INDEX REBALANCE path adjustment will be determined based on the current opening weights on the EFFECTIVE DATE and after the completion of (in order):

- The respective rebalance
- Mergers & Acquisitions and Spin-offs
- Corporate Actions (specified in Section 2.1 above)
- Fees (Management and Rebalance fees)

The impact on the weight path depending on the treatment is summarized below. The TARGET WEIGHT of the INDEX COMPONENTS will be adjusted accordingly in the following reinvestment scenarios:

Proportional: the M&A target's final weight will be allocated pro-rata to all remaining INDEX COMPONENTS, where the TARGET WEIGHT is not already zero.

Uniform: the M&A target's final weight will be allocated uniformly to all remaining INDEX COMPONENTS, where the TARGET WEIGHT is not already zero.

Reinvestment in Member: the M&A target's final weight will be allocated entirely to the specified INDEX COMPONENT unless the TARGET WEIGHT of the designated INDEX COMPONENT is zero in which case the TARGET WEIGHT will remain at zero and the M&A target's weight will be distributed pro rata to all remaining INDEX COMPONENTS.



Stock Terms: the M&A target's final weight will be allocated entirely to the acquiring member unless the acquiring member has a TARGET WEIGHT of zero, in which case the weight will be allocated pro-rata to all remaining INDEX COMPONENTS. If the Acquiring company is added to the Index as a result of the M&A event, the weight will be allocated entirely to such INDEX COMPONENT.

Cash and Stock Proportional: On the ex-date the relative proportion of the M&A deals value, arising from Cash or Stock terms will be ascertained. The percentage of the consideration for the acquisition that is Cash will determine the percentage of the M&A target's final weight that can be allocated pro-rata to all remaining INDEX COMPONENTS whose TARGET WEIGHT is not already zero. The percentage of the deal terms that is stock will determine the percentage of the M&A target's final weight that can be allocated to the acquiring member unless the acquiring member has a TARGET WEIGHT of zero, in which case the weight will be allocated pro-rata to all remaining INDEX COMPONENTS.

For example:

If the M&A event combines Cash and Stock deal and the stock element is 75% of the deal value based on close prices on ex-1, then 75% of the M&A target's TARGET WEIGHT will be allocated to the acquirer and the balance is allocated pro-rata to all remaining INDEX COMPONENTS, unless the acquiring member has a TARGET WEIGHT of zero, in which case the 75% of the M&A target's TARGET WEIGHT will be allocated pro-rata to all remaining INDEX COMPONENTS.

Cash and Stock Reinvest: On the ex-date the value of the CASH AND STOCK TERMS are ascertained, and their relative weights determined. The percentage of the deal terms that is Cash will determine the percentage of the M&A target's weight that can be allocated to the identified reinvestment constituent unless the member has a TARGET WEIGHT of zero, in which case the weight will be allocated pro-rata to all remaining INDEX COMPONENTS. The percentage of the deal terms that is stock will determine the percentage of the M&A target's weight that can be allocated to the acquiring member unless the acquiring member has a TARGET WEIGHT of zero, in which case the weight will be allocated pro-rata to all remaining INDEX COMPONENTS.

For example:

If the M&A event combines Cash and Stock deal and the stock element is 75% of the deal value based on close prices on ex-1, then 75% of the M&A target's TARGET WEIGHT will be allocated to the acquirer and the balance is allocated to the identified reinvestment constituent, unless the acquiring member has a TARGET WEIGHT of zero, in which case the 75% of the M&A target's TARGET WEIGHT will be allocated pro-rata to all remaining INDEX COMPONENTS.

#### *2.3.1.1.2.3 Calculation of the daily weight paths during the Multiday Index Rebalance period:*

Each remaining day's weight will follow a linear path from the new open weights to the determined final weight.



### *2.3.1.1.3 Share Fixing on the Selection Day*

In the event of the FRACTION OF SHARES being fixed on the selection/fixing date and floating of weights until the ADJUSTMENT DAY is possible, the below treatments will be applied.

#### *Merger or Acquisition of a FUTURE INDEX COMPONENT with / by another FUTURE INDEX COMPONENT*

- CASH TERMS: The TARGET WEIGHT (as determined on the SELECTION DAY) of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS. The fraction of shares of the remaining FUTURE INDEX COMPONENTS will be increased accordingly based on the Pro-Forma FRACTION OF SHARES of the acquired FUTURE INDEX COMPONENT.
- STOCK TERMS: The TARGET WEIGHT (as determined on the SELECTION DAY) of the acquired FUTURE INDEX COMPONENT will be added to the TARGET WEIGHT of the acquiring / surviving company. The fraction of shares of the acquiring company will be increased in accordance to the terms with the fractions of shares of the acquired FUTURE INDEX COMPONENT based on the PRO-FORMA fraction of shares of the acquired FUTURE INDEX COMPONENT.
- CASH AND STOCK TERMS: The cash portion will be reinvested pro rata across the remaining FUTURE INDEX COMPONENTS. The TARGET WEIGHT (as determined on the SELECTION DAY) of the acquiring / surviving company will be increased according to the stock terms, i.e., the stock percentage of the deal will re-invested entirely in the TARGET WEIGHT of the acquiring / surviving company. The fraction of shares of the remaining FUTURE INDEX COMPONENTS will be increased accordingly based on the PRO-FORMA fraction of shares of the acquired FUTURE INDEX COMPONENT.

#### *Merger or Acquisition of a FUTURE INDEX COMPONENT with / by non-FUTURE INDEX COMPONENT*

- CASH TERMS: The TARGET WEIGHT (as determined on the SELECTION DAY) of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS. The fraction of shares of the remaining FUTURE INDEX COMPONENTS will be increased accordingly based on the PRO-FORMA fraction of shares of the acquired FUTURE INDEX COMPONENT.
- STOCK TERMS: The TARGET WEIGHT (as determined on the SELECTION DAY) of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS. The fraction of shares of the remaining FUTURE INDEX COMPONENTS will be increased accordingly based on the PRO-FORMA fraction of shares of the acquired FUTURE INDEX COMPONENT.
- CASH AND STOCK TERMS: The TARGET WEIGHT (as determined on the SELECTION DAY) of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS. The fraction of shares of the remaining FUTURE INDEX COMPONENTS will be increased accordingly based on the PRO-FORMA fraction of shares of the acquired FUTURE INDEX COMPONENT.



### 2.3.1.2 Divisor Index

#### 2.3.1.2.1 Implementation of Target Weights over one day

##### *Merger or Acquisition of a FUTURE INDEX COMPONENT with / by another FUTURE INDEX COMPONENT*

- CASH TERMS: The TARGET WEIGHT of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS.
- STOCK TERMS: The TARGET WEIGHT of the acquired FUTURE INDEX COMPONENT will be added to the TARGET WEIGHT of the acquiring / surviving company.
- CASH AND STOCK TERMS: The cash portion will be reinvested pro rata across the remaining FUTURE INDEX COMPONENTS. The Target Weight of the acquiring / surviving company will be increased according to the stock terms, i.e., the stock percentage of the deal will re-invested entirely in the Target Weight of the acquiring / surviving company.<sup>3</sup>

##### *Merger or Acquisition of a FUTURE INDEX COMPONENT with / by non-FUTURE INDEX COMPONENT*

- CASH TERMS: The TARGET WEIGHT of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS.
- STOCK TERMS: The TARGET WEIGHT of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS.
- CASH AND STOCK TERMS: The TARGET WEIGHT of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS.

#### 2.3.1.2.2 Implementation of Target Weights over multiple days (Multiday Index Rebalance)

Index rebalances over multiple days will not only impact final allocation of the new Index Composition but will also affect the weight path determined to migrate towards the final TARGET WEIGHT of the new INDEX COMPOSITION after the last ADJUSTMENT DAY of the MULTIDAY INDEX REBALANCE. The different cases that can occur are described below.

##### 2.3.1.2.2.1 Acquisition completed before the first Adjustment Day

In case an acquisition will be completed before the first ADJUSTMENT DAY, the weight path of all INDEX COMPONENTS (future component and current components) will be adjusted to reflect the new allocation.

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<sup>3</sup> The stock percentage of the consideration for the acquisition is calculated by dividing the product of the close price of the acquirer and the stock terms of the deal by the product of the close price of the acquirer and the stock terms of the deal plus the cash terms



### *2.3.1.2.2.2 Acquisition completed on or after the first Adjustment Day*

In case an acquisition will be completed on or after the first ADJUSTMENT DAY (effective open), but before the last ADJUSTMENT DAY, the MULTIDAY INDEX REBALANCE path adjustment will be determined based on the current opening weights on the EFFECTIVE DATE and after the completion of (in order):

- The respective rebalance
- Mergers & Acquisitions and Spin-offs
- Corporate Actions (specified in Section 2.1 above)
- Fees (Management and Rebalance fees)

The impact on the weight path depending on the treatment is summarized below. The TARGET WEIGHT of the INDEX COMPONENTS will be adjusted accordingly in the following reinvestment scenarios:

Proportional: the target's final weight will be allocated pro-rata to all remaining INDEX COMPONENTS, where the TARGET WEIGHT is not already zero.

Uniform: the target's final weight will be allocated uniformly to all remaining INDEX COMPONENTS, where the TARGET WEIGHT is not already zero.

Reinvestment in Member: the target's weight will be allocated entirely to the specific INDEX COMPONENT unless the TARGET WEIGHT of the designated INDEX COMPONENT is zero in which case the TARGET WEIGHT will remain at zero and the weight will be distributed pro rata.

Stock Terms: the target's final weight will be allocated entirely to the acquiring member unless the acquiring member has a TARGET WEIGHT of zero, in which case the weight will be allocated pro-rata to all remaining INDEX COMPONENTS. If the Acquiring instrument is added to the Index as a result of the M&A event, the weight will be allocated entirely to such instrument.

Cash and Stock Proportional:

On the ex-date the relative proportion of the M&A deals value, arising from Cash or Stock terms will be ascertained. The percentage of the consideration for the acquisition that is Cash will determine the percentage of the target's final weight that can be allocated pro-rata to all remaining INDEX COMPONENTS, whose TARGET WEIGHT is not already zero. The percentage of the deal terms that is stock will determine the percentage of the target's final weight that can be allocated to the acquiring member unless the acquiring member has a TARGET WEIGHT of zero, in which case the weight will be allocated pro-rata to all remaining INDEX COMPONENTS.

For example:

If Cash and Stock deal and the stock element is 75% of the deal value based on close prices on ex-1 then 75% of the target's TARGET WEIGHT will be allocated to the acquirer and the balance is allocated pro-rata to all remaining INDEX COMPONENTS unless the acquiring member has a TARGET WEIGHT of zero, in which case the weight will be allocated pro-rata to all remaining INDEX COMPONENTS.

Cash and Stock Reinvest: On the ex-date the value of the CASH AND STOCK TERMS are ascertained, and their relative weights determined. The percentage of the deal terms that is Cash will determine the





percentage of the target's weight that can be allocated to the identified reinvestment constituent unless the member has a TARGET WEIGHT of zero, in which case the weight will be allocated pro-rata to all remaining INDEX COMPONENTS. The percentage of the deal terms that is stock will determine the percentage of the target's weight that can be allocated to the acquiring member unless the acquiring member has a TARGET WEIGHT of zero, in which case the weight will be allocated pro-rata to all remaining INDEX COMPONENTS.

For example:

If Cash and Stock deal and the stock element is 75% of the deal value based on close prices on ex-1, then 75% of the target's TARGET WEIGHT will be allocated to the acquirer and the balance is allocated to the identified reinvestment constituent unless the member has a TARGET WEIGHT of zero, in which case the weight will be allocated pro-rata to all remaining INDEX COMPONENTS.

#### *2.3.1.2.2.3 Calculation of the daily weight paths during the Multiday Index Rebalance period*

Each remaining day's weight will follow a linear path from the new open weights to the determined final weight.

#### *2.3.1.2.3 Share Fixing on the Selection Day*

In the event of the TOTAL SHARES being fixed on the SELECTION/FIXING DAY and floating of weights until the ADJUSTMENT DAY is possible, the below treatments will be applied.

#### **Merger or Acquisition of a FUTURE INDEX COMPONENT with / by another FUTURE INDEX COMPONENT**

- CASH TERMS: The value of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS. The treatment will be performed through a divisor adjustment to balance the market value drop of the FUTURE INDEX COMPONENTS (caused by the removal of the acquired FUTURE INDEX COMPONENT).
- STOCK TERMS: The TOTAL SHARES of the acquiring company will be increased according to the deal terms. The target TOTAL SHARES of the acquired FUTURE INDEX COMPONENT will be multiplied with the stock terms and added to the TOTAL SHARES of the acquiring company.
- CASH AND STOCK TERMS: The cash portion will be reinvested pro rata across the remaining FUTURE INDEX COMPONENTS. The treatment will be performed through a divisor adjustment to balance the market value drop of the FUTURE INDEX COMPONENTS (caused by the removal of the acquired FUTURE INDEX COMPONENT). The stock portion will be reflected by increasing the TOTAL SHARES of the acquiring company. The target TOTAL SHARES of the acquired FUTURE INDEX COMPONENT will be multiplied with the stock terms and added to the TOTAL SHARES of the acquiring company.

#### **Merger or Acquisition of a FUTURE INDEX COMPONENT with / by non-FUTURE INDEX COMPONENT**

- CASH TERMS: The value of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS. The treatment will be performed through a divisor adjustment to balance the market value drop of the future components (through the removal of the acquired FUTURE INDEX COMPONENT).



- STOCK TERMS: The value of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS. The treatment will be performed through a divisor adjustment to balance the market value drop of the future components (through the removal of the acquired FUTURE INDEX COMPONENT).
- CASH AND STOCK TERMS: The value of the acquired FUTURE INDEX COMPONENT will be distributed pro rata across the remaining FUTURE INDEX COMPONENTS. The treatment will be performed through a divisor adjustment to balance the market value drop of the future components (through the removal of the acquired FUTURE INDEX COMPONENT).

### 2.3.2 Default Treatments for Spin-Offs

If an INDEX COMPONENT (i.e., the parent company) distributes part of its business into a subsidiary or other company (i.e., the spin-off company), the spin-off company will be added to the Index rebalance (i.e., future composition) according to the transaction terms on the ex-date. The treatment and calculation will vary based on the rebalance logic.

The below sections will provide further information on the different treatments based on index calculation and rebalance logic.<sup>4</sup>

#### 2.3.2.1 Standard Index

##### 2.3.2.1.1 Implementation of Target Weights over one day

For weight implementation over one day, the spin-off company will be added leaving the combined TARGET WEIGHT of the company, i.e., parent company and spin-off company unaffected.

The number of shares added for the spin-off company will be based on the composition of the parent on ex-1 and the Spin-off-terms. For the weight calculation the spin-off company will be considered with its initial market price on the ex-date or with a calculated theoretical price.

Given the following:

$T$  – Spin-off terms

$P_p$  – Open price parent company at ex-date

$P_s$  – Open price spin-off company at ex-date

$\omega_p$  – Old target weight of the parent company

$\omega_s$  – Old target weight of the spin - off company

$adjP_p$  – Corporate Action adjusted close price parent company at ex-date - 1

$fx_p$  – Exchange rate parent instrument ' s currency into index currency at ex-date - 1

$fx_s$  – Exchange rate spin - off instrument ' s currency into index currency at ex-date - 1

The theoretical open price for the spin-off company is determined as follows:

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<sup>4</sup> If the spin-off company will not start trading until the Adjustment Day, it will not be included in the new composition.



$$\text{Theoretical Open Price Spin-Off company} = \frac{adjP_p - P_p}{T}$$

The spin-off parent ratio and the new TARGET WEIGHTS is determined as follows:

$$\text{Spin-Off-Parent Ratio: } R = \frac{P_s \times T \times fx_s}{P_p \times fx_p}$$

$$\text{New Target Weight Parent: } w_p = \left( \frac{1}{(1 + R)} \right) \times \omega_p$$

$$\text{New Target Weight Spin-Off: } w_s = \left( \frac{R}{(1 + R)} \times \omega_p \right) + \omega_s$$

The TARGET WEIGHTS for the spin-off company and parent company will be assigned as provided with the formulas above. The remaining INDEX COMPOSITION will be unaffected by this event.

### 2.3.2.1.2 *Implementation of Target Weights over Multiple Days (Multiday Index Rebalance)*

#### *Parent will remain in the future composition*

In case the parent company is deemed to remain in the future INDEX COMPOSITION, the parent TARGET WEIGHT is adjusted on the ex-date of the spin-off according to the approach designed in section 2.3.2.1.1

The spin-off company will also be added to the future INDEX COMPOSITION based on the same approach. The weight path will be adjusted accordingly for parent company and spin-off company. The remaining INDEX COMPOSITION will remain unaffected.

#### *Parent will be removed from the future composition with rebalance*

In case the parent company is deemed to be removed from the future INDEX COMPOSITION within the MULTIDAY INDEX REBALANCE, the spin-off company will be added to the INDEX COMPOSITION according to the spin off terms on ex-date. The TARGET WEIGHT path of the parent and spin-off company will be zero. The weight path of the remaining INDEX COMPOSITION will remain unaffected.

### 2.3.2.1.3 *Share Fixing on the Selection Day*

In case of the approach of fixing the FRACTION OF SHARES on the SELECTION DAY / FIXING DAY, the spin-off company will be added to the future INDEX COMPOSITION according to the Spin-off-terms on the ex-date.

The indicative Fraction of Shares of the on the ex-date -1 of the parent company will serve a reference for the addition to the future composition.

### 2.3.2.2 *Divisor Index*



### 2.3.2.2.1 Implementation of Target Weights over one day

For weight implementation over one day, the spin-off company will be added leaving the combined TARGET WEIGHT of the company, i.e., parent company and spin-off company unaffected.

The TOTAL SHARES added for the spin-off company will be based on the composition of the parent on ex-1 and the Spin-off-terms. For the weight calculation the spin-off company will be considered with its initial market price on the ex-date or with a calculated theoretical price.

Given the following:

$T$  – Spin-off terms

$P_p$  – Open price parent company at ex-date

$P_s$  – Open price spin-off company at ex-date

$\omega_p$  – Old target weight of the parent company

$\omega_s$  – Old target weight of the spin - off company

$adjP_p$  – Corporate Action adjusted close price parent company at ex-date - 1

$fx_p$  – Exchange rate parent instrument ' s currency into index currency at ex-date - 1

$fx_s$  – Exchange rate spin - off instrument ' s currency into index currency at ex-date - 1

The theoretical open price for the spin-off company is determined as follows:

$$\text{Theoretical Open Price Spin-Off company} = \frac{adjP_p - P_p}{T}$$

The spin-off parent ratio and the new TARGET WEIGHTS is determined as follows:

$$\text{Spin - Off - Parent Ratio: } R = \frac{P_s \times T \times fx_s}{P_p \times fx_p}$$

$$\text{New Target Weight Parent: } w_p = \left( \frac{1}{(1 + R)} \right) \times \omega_p$$

$$\text{New Target Weight Spin - Off : } w_s = \left( \frac{R}{(1 + R)} \times \omega_p \right) + \omega_s$$

The TARGET WEIGHTS for spin-off company and parent company will be assigned as provided with the formulas above. The remaining future INDEX COMPOSITION will remain unaffected by this event.



### *2.3.2.2.2 Implementation of Target Weights over Multiple Days (Multiday Index Rebalance)*

#### *Parent will remain in the future composition*

In case the parent company is deemed to remain in the future INDEX COMPOSITION, the parent TARGET WEIGHT is adjusted on the ex-date of the spin-off according to the approach specified in Section 2.3.2.2.1.

The spin-off company will also be added to the future INDEX COMPOSITION based on the same approach. The weight path will be adjusted accordingly for parent company and spin-off company. The remaining future INDEX COMPOSITION will remain unaffected.

#### *Parent will be removed from the future composition with rebalance*

In case the parent company is deemed to be removed from the future INDEX COMPOSITION within the MULTIDAY INDEX REBALANCE, the spin-off company will be added to the INDEX COMPOSITION according to the spin off terms on ex-date. The TARGET WEIGHT path of the parent company and spin-off company will be zero. The weight path of the remaining INDEX COMPOSITION will remain unaffected.

### *2.3.2.2.3 Share Fixing on the Selection Day*

In case of the approach of fixing the TOTAL SHARES on the SELECTION DAY / FIXING DAY, the spin-off company will be added to the future composition according to the Spin-off-terms on the ex-date.

The TOTAL SHARES of the parent on the ex-date -1 will serve as reference for the addition of the spin-off company.

## 2.4 EXTRAORDINARY INDEX REBALANCES IN CONNECTION WITH CHINA CONNECT STOCK LISTINGS

### 2.4.1 Introduction

The Index guidelines may contain requirements that potential Index Components must be available for trading under the China Stock Connect Program in order to be eligible for inclusion in the Index. Accordingly, such Indices may contain Index Components that are traded under the China Stock Connect Program.

### 2.4.2 Corporate Actions

For Index Components traded under the China Stock Connect Program, days may occur when trading is not possible under the China Stock Connect Program due to a trading holiday, but trading continues on the corresponding China domestic market. Prices for the Index Components will continue to be determined and any price adjustments due to a Cash Dividend, a Stock Dividend, a Stock Split, A Reverse Stock Split, a Rights Issue, a Capital Decrease or a Spin-off will be made.



In order to take this particularity into account, corporate action events that are “passive”, i.e. that do not require an action by investors to account for the event in order to replicate the Index (Stock Splits, Reverse Stock Split, Stock Dividends, Spin-off) will be applied on the announced ex-date on the corresponding China domestic market, while the implementation of other events that do require an action by investors to account for the event in order to replicate the Index (Rights Issue, Capital Decrease, Cash Dividend) will be postponed to the next Trading Day for the relevant Index Components under the China Stock Connect Program.

### 2.4.3 Index Rebalances

In order to be eligible for inclusion in the Index securities must appear on the „ Lists of securities eligible for unrestricted buying and selling“ published by the Hong Kong Stock Exchange concerning the eligibility of securities under the China Stock Connect Program (the “Positive List”). The Positive List is available from the website of the Hong Kong Stock Exchange ([https://www.hkex.com.hk/Mutual-Market/Stock-Connect/Eligible-Stocks/View-All-EligibleSecurities?sc\\_lang=en](https://www.hkex.com.hk/Mutual-Market/Stock-Connect/Eligible-Stocks/View-All-EligibleSecurities?sc_lang=en)).

	“Shanghai Connect”	“Shenzhen Connect”
List of securities eligible for unrestricted buying and selling	List of SSE Securities/China Connect Securities (stocks eligible for both buy and sell)	List of SZSE Securities/China Connect Securities (stocks eligible for both buy and sell)

#### 2.4.3.1 Deletion

In general, removals from the Positive List will be treated equivalent to a delisting (described in Section 2.1.8). The instrument will be removed and its weight will be redistributed pro-rata to the other Index Components.

#### 2.4.3.2 Transparency

Solactive will communicate and announce the removal of the Affected Index Component and the measures taken by it in a timely manner, and provide the necessary details and updates.

Solactive shall seek to provide for an implementation period that provides sufficient time for potential adjustments that users of the Index may need to take to account for the change.

All decisions by Solactive are to be duly recorded and published at the website <https://www.solactive.com/news/announcements/>.



## 2.5 SANCTIONS

Sanctions can make it difficult or even impossible for users of an Index to trade securities included or represented in the Index on certain markets. By their nature, sanctions can take various forms and can either be comprehensive or selective. They can include broad based trade restrictions or target selected individuals or entities that prevent new investment in or require a divestment from certain markets, securities or financial instruments. Solactive reviews sanctions and their impact on the Indices on a case-by-case basis.

As a general rule, Solactive only considers sanctions imposed by U.S., U.K. and/or European Union authorities. Securities and financial instruments impacted by sanctions may be treated as follows (but not limited to):

- freezing of their current weight or number of shares for the duration of the sanctions; and/or
- deletion from the Indices; and/or
- becoming ineligible for inclusion in Indices;
- exclusion from specific global or regional Indices.

In all cases, Solactive announces to clients the specific treatment when new sanctions are imposed or removed with effect on the Indices. For Indices that are publicly available on the Solactive website a corresponding notice on the treatment will be published at the website

<https://www.solactive.com/news/announcements/>.



### 3. TERMS AND DEFINITIONS

For the purpose of this document, the defined terms used herein shall have the following meaning:

An 'Adjustment Day' is as of which the index rebalance takes place.

An 'ADR' is an acronym for American Depository Receipt, i.e. a Depository Receipt issued by an American bank.

A 'Business Day' is a day on which Stuttgart Stock Exchange is open for trading.

'Calculation Parameters' are inputs that are used for the calculation of the index level. Among those are: Fraction of Shares, Total Shares, Index Shares and Divisor.

When a company carries out a 'Capital Decrease' it buys back shares from its shareholders, often at a premium. It is a way to invest excess earnings or to modify the shareholder structure strategically, leading to a decrease in the Market Capitalization.

A 'Cash Dividend' takes place when a company pays an amount of cash to its shareholders. This is generally decided by the general assembly of shareholders and carried out on a pro-rata-basis. Solactive further distinguishes between two types of Cash Distributions: Regular Dividends and Special Dividends.

'Cash Terms' means in respect of an M&A event that only cash consideration is offered in exchange for each acquired entity's share.

'Cash and Stock Terms' means in respect of an M&A event that both cash and stock consideration (a defined amount of shares of the acquiring company plus cash) is offered in exchange for each acquired entity's share.

'China Stock Connect Program' shall have the meaning as defined in Section 1.2.5.

A 'Corporate Action' is specifically:

- a Cash Dividend;
- a Stock Dividend;
- a Stock Split;
- a Reverse Stock Split;
- a Rights Issue;
- a Capital Decrease;
- a Spin-off;
- a Merger;
- a Delisting;
- a Nationalization of company; or
- Bankruptcy / Insolvency





An Index Component is subject to 'Delisting' if the Exchange announces, pursuant to the Exchange regulations, that the listing of, the trading in or the issuing of public quotes on the Index Component at the Exchange has ceased immediately or will cease at a later date, for whatever reason (provided the Delisting is not because of a Merger or a Takeover bid), and the Index Component is not immediately listed, traded or quoted again on an exchange, trading or listing system, acceptable to the Index Calculator.

'Decrement' is a pre-defined calculation parameter which is deducted from the index either in absolute or percentage terms at a predefined frequency.

A 'Depository Receipt' is a certificate on a share issued by a financial institution. The banks purchase and hold shares of a company in the country where it is listed and issue certificates granting particular rights to the underlying shares. The precise legal construction may vary depending on the jurisdiction. The certificates are subsequently publicly tradeable and are often listed on stock exchanges, thus enabling domestic investors to invest in foreign equities.

The 'Divisor' divides the total value of an Index into a more comprehensible number. It is one of the key tools to ensure the accuracy and continuity of the Index over time and is adjusted to offset changes due to Corporate Actions.

'Effective Date' is, in respect of an INDEX COMPONENT subject to Merger or Acquisition, the effective date of the Merger or Acquisition, as announced by Solactive, on which the acquired entity will be removed from the Index.

'Effective Day' is defined as the INDEX CALCULATION DAY following the ADJUSTMENT DAY

An 'Exchange' is, in respect of this document, the respective primary exchange where an Index Component has its primary listing. Solactive may decide to declare a different stock exchange the Exchange for trading reasons, even if an Index Component is only listed there via a stock substitute.

'Fixing Day' is defined as the day on which the TOTAL SHARES or the FRACTIONS OF SHARES of the FUTURE INDEX COMPONENTS are based upon.

'Fraction of Shares' is in respect of an Index Component and any given Business Day, the number of shares included in a Standard Index.

'Free Float Factor' with regard to a share is a ratio of (A) the number of shares in circulation and (B) the number of shares outstanding of the respective company.

'Free Float Market Capitalization' with regard to a share is its Market Capitalization multiplied by the ratio of (A) the number of shares in circulation and (B) the number of shares outstanding of the respective company.

Future Index Component is a security which has been selected to be part of the Index after Adjustment Day

A 'GDR' is an acronym for Global Depository Receipt, i.e. a Depository Receipt issued by any bank other than an American bank. In some contexts, GDR is also understood to refer to a German Depository Receipt.

An 'Implementation Date' is a day on which the post ex-date dividend adjustments are implemented to the affected indices.



An 'Index' (or 'Indices') is, simply put, a number describing the average value of its Index Components and their development over a longer time period.

'Index Calculation Day' is the day on which an Index calculated.

'Index Calculation Parameters' are all components used for calculating the index level.

'Index Closing Level' is an index value that is calculated with Index Calculation Parameters at the closing time of the Index Calculation Day.

'Index Opening Level' is an index value that is calculated with Index Calculation Parameters at the opening time of the Index Calculation Day.

An 'Index Component' is a financial instrument or other constituent currently included in the respective Index. The terms Index Component and Index Constituent are used indiscriminately throughout this Methodology.

An 'Index Composition' is a construction which consists of Index Components.

An 'Index Guideline' is a document ruling the composition, calculation and maintenance of an Index.

An 'Index Review' refers to the assessment of an Index to determine the Index Composition based on the criteria defined in the respective Index Guideline.

An 'Index Rebalance' is the adjustment of an Index to implement the Index Composition dictated by the respective Index Guideline.

'Index Replication' refers to the trading activities to reflect the value of an Index in portfolios tracking the Index.

'Market Capitalization' with regard to a share is the value of the issuing company calculated by multiplying the number of outstanding company shares by their share price.

A 'Market Disruption Event' occurs if:

1. one of the following events occurs or exists on a Trading Day prior to the opening quotation time for an Index Component:
  - A) trading is suspended or restricted (due to price movements that exceed the limits allowed by the Exchange, or for other reasons):
    - 1.1. across the whole Exchange; or
    - 1.2. in options or futures contracts on or with regard to an Index Component; or
    - 1.3. on an Exchange or in a trading or quotation system (as determined by Solactive AG) in which an Index Component is listed or quoted; or
  - B) an event that (in the assessment of Solactive AG) generally disrupts and affects the opportunities of market participants to execute transactions on the Exchange in respect of an Index Component or to determine market values for an Index Component or to execute transactions with regard to options and futures contracts on these shares or to determine market values for such options or futures contracts; or



2. trading on the Exchange or an Affiliated Exchange is ceased prior to the usual closing time (as defined below), unless the early cessation of trading is announced by the Exchange on this Trading Day at least one hour before
  - (aa) the actual closing time for normal trading on the Exchange on the Trading Day in question or, if earlier.
  - (bb) the closing time (if given) of the Exchange for the execution of orders at the time the quote is given.

With regard to an Index Component a 'Merger' is:

- a change in the security class or a conversion of the share class that results in a transfer or an ultimate definite obligation to transfer all the shares to another legal person;
- a Merger (either by acquisition or through forming a new structure) or a binding obligation on the part of the issuer to exchange shares with another legal person (except in a Merger or share exchange under which the issuer of the Index Component is the acquiring or remaining company and that does not involve a change in security class or a conversion of all the shares);
- a takeover offer, exchange offer, other offer or another act of a legal person for the purposes of acquiring or otherwise obtaining from the issuer 100% of the shares issued that entails a transfer or the irrevocable obligation to transfer all shares (with the exception of shares that are held and controlled by the legal person); or

The 'Merger Date' is the date on which a Merger is concluded or the date specified by Solactive AG if such a date cannot be determined under the law applicable to the Merger.

A 'Methodology' is, in accordance with the EU Benchmarks Regulation, the central guideline documenting the administrator's rules for the determination of a benchmark. This Equity Index Methodology is a vital part of the overall Methodology and particularly identifies how and when discretion may be exercised in the situation of Corporate Actions.

A 'Multiday Index Rebalance' is defined as the implementation of a new index composition spread over a specific number of days.

'Nationalization' is a process whereby all shares or the majority of the assets of the issuer of the shares are nationalized or are expropriated or otherwise must be transferred to public bodies, authorities or institutions.

'Normal exchange closing time' is the time at which the Exchange is normally closed on working days without taking into account after-hours trading or other trading activities carried out outside the normal trading hours; or a general moratorium is imposed on banking transactions in the country in which the Exchange is resident if the above-mentioned events are material in the assessment of Solactive, whereby Solactive takes its decision based on those circumstances that it considers reasonable and appropriate.

'Positive List' shall have the meaning as defined in Section 2.3.1.

The 'Rebalance Fee' shall reflect the trading costs associated with the replication of the index during the rebalance.



The 'Rebalance Fee Factor' is a number expressed in percent which shall describe the trading costs associated with the replication of the index during the rebalance.

A 'Rebalance Period' is in respect of an Index Rebalance the timeframe where during which the adjustment takes place.

A 'Regular Dividend' refers to Cash Distributions paid in regular intervals, such as once every month or, more commonly, on a quarterly basis, depending on the pattern previously established by the individual company or as is common practice in the respective jurisdiction (cf. Cash Distribution).

A 'Reverse Stock Split' occurs when the existing shares are withdrawn from the shareholders and replaced by newly issued shares. The actual Market Capitalization of a company remains untouched, yet the total number of issued shares is reduced by a given factor, usually 2-for-1 or 3-for-1, and the nominal value of a single share is increased accordingly.

A 'Rights Issue' refers to actions raising the Market Capitalization of a company, often facilitated by issuing new shares. Existing shareholders may usually acquire the newly issued shares at a slight discount thus retaining their existing percentage of the free float.

"Selection Data" refers to data is provided by a third party for the purpose of use in the Index Review and in accordance with the criteria defined in the respective Index Guideline.

A 'Selection Day' is the day as of which the Index is reviewed based on the selection criteria described in the in the Index Guideline and on which basis the FUTURE INDEX COMPONENTS are selected. A 'Special Dividend' is any Cash Distribution that falls outside the general pattern of dividend payments, either with regard to its timing or the amount paid out to shareholders (cf. Regular Dividend and Cash Distribution).

'Selection Party' is the natural or legal person specified in the Index Guideline for an Index appointed by Solactive for the determination of the Index Components in the Index Review process.

A 'Stock Split' describes a Corporate Action through which a company's present shares are split and therefore multiplied by a given factor. The newly issued shares are distributed based on what is known as a split ratio, often 2-for-1 or 3-for-1, thus doubling or tripling the total amount of shares and the number of shares held by each shareholder. The stock price decreases proportionally.

An Index Component is subject to a 'Spin-off' if the issuer of the shares that are currently Index Components splits its business activities into two or more entities and distributes equity shares in the newly created entities to the shareholders of the parent (i.e. status before the Spin-off took place) entity.

A 'Squeeze-out' refers to a procedure by which a majority shareholder may take a company private by compensating minority shareholders appropriately. The requirements and process of a squeeze-out vary depending on the jurisdiction at hand, but the majority shareholder generally needs to control a certain percentage of the company.

A 'Stock Dividend' is similar to a Cash Dividend but the shareholders receive shares pro rata by the company instead of cash. Usually this involves the issuing of new shares.

'Stock Terms' means in respect of an M&A event that only stock consideration (a defined amount of shares of the acquiring company) is offered in exchange for each acquired entity's share.



A 'Takeover bid' with respect to an Index Component is a bid to acquire, an exchange offer or any other offer or act of a legal person that results in the related legal person acquiring as part of an exchange or otherwise more than 10% of the shares of an issuer or the right to acquire these shares, as determined by Solactive AG based on notices submitted to public or self-regulatory authorities or other information considered by Solactive AG to be relevant.

A 'Target Weight' with respect to an Index Component is the portion of an Index Component in the Index which is to be used for the calculation of the Fraction of Shares / Total Shares on the Adjustment Day.

'Total Shares' are in respect of an Index Component and any given Business Day, the number of shares included in a Divisor Index.

A 'Trading Day' is in relation to an Index Component a trading day on the Exchange (or a day that would have been such a day if a market disruption had not occurred), excluding days on which trading may be ceased prior to the normal Exchange closing time. Solactive AG is ultimately responsible as to whether a certain day is a Trading Day with regard to an Index Component or in any other connection relating to this document, the Index Calculation Guideline or an Index term sheet.

The 'Trading Price' for this Index Component on the day the event came into effect is the last available market price for this Index Component quoted on the Exchange on the day the event came into effect (or, if a market price is not available for the day the event came into effect, the last available market price quoted on the Exchange on a day specified as appropriate by Solactive AG), as determined by Solactive AG. This price is used as the Trading Price of the particular Index Component until the end of the day on which the composition of the Index is next set.

'Weighting Cap Factor' with respect to an Index Component is a factor defining the relative weight of an Index Component to the Index Market Capitalization.



## 4. HISTORY OF CHANGES

Version*	Date	Description
1.8	14 February 2022	Inclusion of the new section 2.3 for the treatment of Mergers & Acquisitions and Spin-offs between Selection Day and Adjustment Day
1.9	20 May 2022	Inclusion of the new sections 1.2.5 and 2.4.2 with special rules on calculation and adjustment for Corporate Actions for Indices that contain Index Components traded under the China Stock Connect Program on days when trading is not possible under the China Stock Connect Program due to a trading holiday
1.10	13 December 2022	Guideline reviewed and clarification to the text have been implemented throughout.
1.11	8 March 2023	Clarification of the wording for: 2.1.6.2 Alternative treatment for Spin-off.
1.12	10 July 2023	Update to 2.1.6.1 Spin-off Adjustment; pending listing spin-off company will be regularly reviewed and monitored under our Disruption Policy Update to section 1.3 changes in rounding of shares in standard index methodology.
1.13	17 July 2023	Revision and clarification of sections 2.1 and 2.1.10 (Bankruptcy / Insolvency / Liquidation). Addition of section 2.1.12 regarding Announcements of Corporate Action Adjustments. Minor technical corrections.
1.14	20 January 2024	Inclusion of the new section 2.1.1.3.9 for the clarification of dividend treatment in New Zealand.
1.15	02 February 2024	Inclusion of measures in section 2.2 to be taken by Solactive in the event a Selection Party or the provider of Selection Data fails to deliver the relevant information until the time agreed with Solactive.

\* Versions prior to the first entry are historical.

# CONTACT

**Solactive AG**

**German Index Engineering**

Platz der Einheit 1

60327 Frankfurt am Main

Germany

Tel.: +49 (0) 69 719 160 00

Fax: +49 (0) 69 719 160 25

Email: [info@solactive.com](mailto:info@solactive.com)

Website: <http://www.solactive.com>

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