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STOXX®

CALCULATION GUIDE



STOXX

INNOVATIVE. GLOBAL. INDICES.

1. INTRODUCTION TO THE STOXX INDEX GUIDES	3	6. INDEX PARAMETERS	12
		6.1. PRICE AND RETURN INDICES	12
2. CHANGES TO THE GUIDE BOOK	4	6.2. INDICES IN EUR, USD AND OTHER CURRENCIES	12
2.1. HISTORY OF CHANGES TO THE STOXX EQUITY CALCULATION GUIDE	4	7. INDEX VALUE CALCULATION	13
3. DISSEMINATION	5	7.1. INDEX FORMULAS	13
3.1. DISSEMINATION CALENDARS	5	7.1.1. MARKET CAPITALIZATION-WEIGHTED	13
3.1.1. REGIONAL CALENDARS	5	7.1.2. PRICE-WEIGHTED WITH WEIGHTING FACTORS	13
3.1.2. COUNTRY CALENDARS	5	7.2. INDEX DIVISOR CALCULATION	14
3.1.3. OTHER CALENDARS	5	7.2.1. MARKET CAPITALIZATION-WEIGHTED	14
3.2. DISSEMINATION PERIOD	5	7.2.2. PRICE-WEIGHTED WITH WEIGHTING FACTORS	14
3.3. REAL-TIME AND END-OF-DAY INDICES	6	7.2.3. DIVIDEND POINT CALCULATIONS	15
4. INPUT DATA	7	8. CORPORATE ACTIONS AND ADJUSTMENTS	16
4.1. SOURCES	7	8.1. CORPORATE ACTIONS	16
4.2. MONITORING	7	8.2. FREE FLOAT FACTORS AND SHARE ADJUSTMENTS	22
4.3. DATA ACCURACY	7	8.3. MERGERS AND TAKEOVERS	22
4.4. CURRENCY RATES	7	8.4. SPIN-OFFS	23
4.5. STOCK PRICES	8	8.5. SECTOR CHANGES	23
5. AVAILABLE DATA	9	8.6. ILLIQUIDITY, BANKRUPTCY AND DELISTING	25
5.1. OPEN QUOTATIONS	9	8.7. EXTREME MARKET AND COMPANY EVENTS	25
5.2. INDEX SETTLEMENT VALUES	9	9. CORRECTION POLICY	26
5.3. INTRADAY SNAPSHOTS DATA	9	9.1. INPUT AND REAL-TIME DATA	26
5.4. CLOSING DATA	9	9.2. INDEX DIVISOR CORRECTION	26
5.5. CORPORATE ACTION FORECASTS	10	9.3. PAYMENT DEFAULTS AND DIVIDEND DATA CHANGES	26
5.6. MONTHLY REPORTS AND SELECTION LISTS	10	10. CONTACT AND CUSTOMER SUPPORT	27
5.7. INDEX REVIEW LISTS	10	10.1. STOXX CUSTOMER SUPPORT	27
5.8. STOXX NEWS AND INDEX DATA NOTIFICATIONS	10		

1. INTRODUCTION TO THE STOXX INDEX GUIDES

The STOXX index guides are separated into the following sub-sets:

- » The **STOXX Calculation guide** provides a general overview of the calculation of the STOXX indices, the dissemination, the index formulas and adjustments due to corporate actions
- » The **STOXX Index Methodology guide** contains the index specific rules regarding the construction and derivation of the portfolio based indices, the individual component selection process and weighting schemes
- » The **STOXX Strategy guide** contains the formulas and description of all non-equity/strategy indices
- » The **STOXX Dividend Points Calculation guide** describes the dividend points products
- » The **STOXX Distribution Points Calculation guide** describes the distribution points products
- » The **STOXX ESG guide** contains the index specific rules regarding the construction and derivation of the ESG indices, the individual component selection process and weighting schemes
- » The **iSTOXX guide** contains the index specific rules regarding the construction and derivation of the iSTOXX indices, the individual component selection process and weighting schemes
- » The **STOXX Reference Rates guide** contains the rules and methodologies of the reference rate indices
- » The **STOXX Statistical Calculations** guide provides a detailed view of definitions and formulas of the statistical calculations as utilized in the reports, factsheets, indices and presentations produced by STOXX

All rule books are available for download on <http://www.stoxx.com/indices/rulebooks.html>

2. CHANGES TO THE GUIDE BOOK

2.1. HISTORY OF CHANGES TO THE STOXX EQUITY CALCULATION GUIDE

- » February 2011: Publication of a complete new rule book series
- » August 2011: Modification of Free Float Factors and Share Adjustments
- » February 2013: Amendments of chapter 8 Corporate Actions and Adjustments; addition of chapter 5.8 STOXX News and Index Data Notifications and 10 Contact and Customer Support
- » July 2014: Interims solution: Treatment of Rights Issues with highly dilutive terms in chapter 8.1 and addition of chapter 8.7 Extreme Market and Company Events
- » September 2014: Treatment of Rights Issues with highly dilutive terms in chapter 8.1
- » December 2014: Clarification taxation of corporate actions in chapter 8
- » July 2016: Correction of wording in treatment of Spin-offs in chapter 8.4
- » May 2017: Update of Customer Support contact details
- » October 2017: Update of definition for Dissemination Calendar
- » November 2017: Calendars addition to the definition for Dissemination Calendar
- » December 2017: Calendars addition to the definition for Dissemination Calendar
- » December 2017 /2: Correction of typing error in spin-off adjustment formula
- » March 2018: Change of cut-off date for free-float research in section 8.2
- » July 2019: Change of announcement of events that involve takeover of US or Canadian company in section 8.3

3.1. DISSEMINATION CALENDARS

The STOXX indices are disseminated Monday through Friday between 0:00 and 22:15 CET, according to the calendars defined below.

In exceptional cases, the STOXX Management Board can make changes to the dissemination calendar.

3.1.1. REGIONAL CALENDARS

STOXX defines the following Regional Calendars:

- » STOXX Europe Calendar: every weekday except January 1st, Good Friday, Easter Monday, December 25th and December 26th (this is the default calendar for any index, unless differently specified in the relevant index methodology)
- » STOXX Americas Calendar: every weekday except January 1st, Good Friday and December 25th
- » STOXX Asia Calendar: every weekday except January 1st

3.1.2. COUNTRY CALENDARS

STOXX defines Country Calendars as every weekday except non-trading days which are defined as exchange holidays. The information is provided by STOXX on an annual basis and is available on the STOXX website under Resources, Methodology, Dissemination for the countries listed in chapter 4.3 of STOXX Index Methodology Guide.

For the latest update, please refer to the following link:
Dissemination period: <http://www.stoxx.com/res-dissemination.html>

3.1.3. OTHER CALENDARS

- » STOXX Target Calendar: every weekday except January 1st, Good Friday, Easter Monday, May 1st, December 25th and December 26th
- » STOXX Eurex Calendar: every weekday except January 1st, Good Friday, Easter Monday, May 1st, December 24th, December 25th and December 26th
- » STOXX Specific Calendar: Index specific calendars which cannot be associated to any of the above defined STOXX Calendars. In this case the dissemination days are specified in the relevant index methodology and are subject to STOXX approval.

3.2. DISSEMINATION PERIOD

The index dissemination period begins with the opening of the first trading system. Each index has a defined dissemination start and end time. The actual dissemination of each index is triggered, when the first opening stock price for that index is received within these time frames. The index dissemination period ends, when the last trading system in the regional universe closes.

For the latest update, please refer to the following links:

Dissemination period: <http://www.stoxx.com/indices/dissemination/period.html>

Individual index dissemination times: http://www.stoxx.com/data/vendor_codes.html

3.3. REAL-TIME AND END-OF-DAY INDICES

The indices are calculated and disseminated at different frequency standards:

- » Real-time indices: Calculated and disseminated every 15 seconds during the index dissemination period.
- » End-of-day indices: Calculated and disseminated once a day at the end of the index dissemination period.

All indices including their frequencies are listed in the data vendor code file:

http://www.stoxx.com/data/vendor_codes.html

The index values are disseminated over the Consolidated Exchange Feed (CEF) of Deutsche Börse and can be procured directly from data vendors. For further information:

<http://www.stoxx.com/indices/dissemination/realtime.html>

4. INPUT DATA

4.1. SOURCES

The input data sources for the index production include:

- » Trading platforms
- » Regulatory agencies
- » Companies in the investable stock universe
- » Real-time and end of day stock prices and currency exchange rates provided by Thomson Reuters
- » Related data and service providers

4.2. MONITORING

The real-time input data feeds for the index calculation are monitored by:

- » Data filters
- » Quality assurance tools
- » Verification against secondary sources

4.3. DATA ACCURACY

The data accuracy for the following factors of the index calculation is defined as (unless stated differently in the individual index methodologies):

- » Input data (e.g. pricing and currency rates) and other underlying data: rounded to seven decimal places
- » Index divisors and market capitalization: rounded to integer numbers
- » Free float factors: rounded to four decimal places
- » Product of (number of shares x Free float factor x weighting capfactor): rounded to integer numbers
- » Product of (weightfactor x weighting capfactor): rounded to integer numbers
- » Index values: rounded to two decimal places for dissemination
- » Weights: expressed in percentage with 5 decimals

4.4. CURRENCY RATES

All real-time indices use the following currency rates:

- » From 09:00 to 17:30 CET, the mid between the latest real-time bid and ask prices is used as the currency rate in order to calculate the indices for Europe, Eastern Europe and the EU Enlarged region.
 - » From 15:30 to 22:15 CET, the mid between the latest real-time bid and ask prices is used as the currency rate in order to calculate the indices for the Americas region.
-

4. INPUT DATA

» From 00:00 to 11:00 CET, the mid between the latest real-time bid and ask prices is used as the currency rate in order to calculate the indices for the Asia/Pacific region.

All end-of-day indices, as well as the closing procedure for the real-time indices, use currency rates as follows:

- » From 17:30 CET, fixed foreign exchange rates are used for the calculation of the indices (using WM fixed exchange rates from 17:00 CET).
- » The global closings set at 22:15 CET use the same fixed rates as the European indices.

The fixed foreign exchange rates are provided by the WM Company – for further information refer to Reuters page “WMRSPOT01” or Bloomberg page “WMCO”.

4.5. STOCK PRICES

The data hierarchy used to process stock prices and calculate the STOXX equity indices are as follows. All data are provided by Thomson Reuters. For all non-equity indices the individual index methodologies contain further descriptions about the pricing sources and types.

- » The opening price: the first traded price during the official trading hours of the stock’s trading system; until this is available, the previous day’s closing/adjusted price is used.
- » The intraday price: the currently traded price during the official trading hours of the stock’s trading system. When the stock is not traded, the last available stock price is used, this can either be the last available intraday stock price (e.g. if the stock is temporarily suspended) or the last available closing/adjusted price (e.g. if the stock exchange is closed).
- » The closing price: the last traded price or auction price during the official trading hours of the stock’s trading system is used. If the stock has not been traded all day, then the previous day’s closing/adjusted price is used.
- » The adjusted price: the closing price is adjusted to reflect a stock’s corporate action that will be effective the next trading day.
- » Stock prices in local currency are converted to EUR first before being converted to the index currency.

5. AVAILABLE DATA

5.1. OPEN QUOTATIONS

The index open quotation takes the opening prices of all stocks in a real-time index into account. This value indicates what the index value would have been, if all opening stock prices had been received at the same time.

The index open quotations for the real-time indices are calculated either as soon as all the relevant opening stock prices are received or, at the latest, at 10:30 CET. If an opening stock price is unavailable at 10:30 CET, the stock's previous day's closing/adjusted price is used.

Non-EUR stock prices are converted into EUR using the currency rate valid at the time of the opening stock price (or previous day's closing/adjusted price), i.e. opening stock prices are converted using real-time currency rates and the previous day's closing prices are converted using WM fixed exchange rates of the day before.

5.2. INDEX SETTLEMENT VALUES

The index settlement values are calculated daily as the average of the 41 index values disseminated between 11:50 CET and 12:00 CET.

5.3. INTRADAY SNAPSHOTS DATA

Intraday snapshot data for the STOXX indices are disseminated daily at:

- » 10:30 CET or earlier: opening stock prices for selected STOXX indices and open quotation index values for real-time indices.
- » 12:00 CET: final index settlement values (FSV) as well as component stock prices for selected STOXX indices.
- » 10:30 CET, 15:30 CET, 17:45 CET and 18:45 CET: intraday index values and component stock prices for selected STOXX indices.

5.4. CLOSING DATA

The closing data for the STOXX indices are disseminated after the index dissemination period for the relevant region. The closing data includes the following sets of data:

- » Stock prices: both closing and adjusted prices for all components of the STOXX indices.
- » Index-related values: closing values, market capitalization and divisors for all indices.
- » Currency rates to EUR for all currencies used in any STOXX indices.
- » Corporate actions and dividends: effective the next trading day.
- » Other information like weightings, corporate actions and dividend forecasts.

5. AVAILABLE DATA

5.5. CORPORATE ACTION FORECASTS

The corporate action forecasts are updated daily and include information about future adjustments induced by confirmed corporate events. This includes, but it is not limited to:

- » Mergers, takeovers, spin-offs, price and shares adjustment, and IPOs for the coming week.
- » Initial public offerings (IPOs): recent IPOs that could qualify for the indices; for the STOXX Europe IPO Indices.

All corporate actions and dividend forecasts are subject to change. Customers are recommended to download regularly the forecast from the website and subscribe to corporate actions and dividend alerts to receive notification for the latest changes.

5.6. MONTHLY REPORTS AND SELECTION LISTS

The monthly reports are published each month and include the following data for selected indices:

- » Index composition and performance reports
- » Statistical and fundamental reports
- » Factsheets for various indices with information on fundamental ratios, performance data and other statistics

Selection lists are produced for indices with a fixed number of components in order to:

- » indicate possible changes in the composition of the index at the time of the next quarterly / semi-annual / annual review, and
- » determine replacements for any stock deleted from the indices due to corporate actions.
- » The STOXX Management Board¹ may decide to update the selection lists in between the regular publication dates to reflect extraordinary market movements and underlying data changes.

5.7. INDEX REVIEW LISTS

Each index has defined dates, when the new constituents, the underlying data (shares, free float, weighting-cap factors) are announced and implemented. The component and the underlying data announcement dates differ by index category and are therefore covered in the STOXX Methodology Guide. The quarterly implementation for all indices is always on the third Friday in March, June, September and December.

5.8. STOXX NEWS AND INDEX DATA NOTIFICATIONS

¹ The STOXX Management Board has delegated certain decisions to internal committees.

5. AVAILABLE DATA

For customers a subscription to e-mail notifications is available on the website. Notifications are sent out for short-term corporate actions and dividend changes, the periodic review announcements, index calculation and production issues and errors, new index launches and general information from STOXX.

6. INDEX PARAMETERS

6.1. PRICE AND RETURN INDICES

All indices are calculated as price and return indices. Dividend payments are invested in return indices only and neglected in price indices. Return indices are available as gross-return versions, calculated with a full dividend re-investment and as net-return investment, where dividends minus the withholding taxes are invested. .

6.2. INDICES IN EUR, USD AND OTHER CURRENCIES

All stock prices of the indices are converted to EUR and USD, as follows:

- » EUR indices: Non-EUR stock prices are converted to EUR for the index calculation.
- » USD indices: Non-EUR stock prices are converted to EUR first (as above), and then - together with the EUR stock prices - converted to USD for the index calculation.

Some indices are additionally available in other currencies. The following rule applies:

- » Indices in other currencies: non-EUR stock prices are converted to EUR first, and then - together with the EUR stock prices - converted to the appropriate index currency for the index calculation.

7. INDEX VALUE CALCULATION

7.1. INDEX FORMULAS

The indices are calculated with the Laspeyres formula, which measures price changes against a fixed base quantity weight. Each index has a unique index divisor, which is adjusted to maintain the continuity of the index's values across changes due to corporate actions.

7.1.1. MARKET CAPITALIZATION-WEIGHTED

The indices are calculated with the Laspeyres formula, which measures price changes against a fixed base quantity weight:

$$\text{Index}_t = \frac{\sum_{i=1}^n (p_{it} \cdot s_{it} \cdot ff_{it} \cdot cf_{it} \cdot x_{it})}{D_t} = \frac{M_t}{D_t}$$

Where:

- t = Time the index is computed
- n = Number of companies in the index
- p_{it} = Price of company (i) at time (t)
- s_{it} = Number of shares of company (i) at time (t)
- ff_{it} = Free float factor of company (i) at time (t)
- cf_{it} = Weighting cap factor of company (i) at time (t)
- x_{it} = Exchange rate from local currency into index currency for company (i) at time (t)
- M_t = Free float market capitalization of the index at time (t)
- D_t = Divisor of the index at time (t)

7.1.2. PRICE-WEIGHTED WITH WEIGHTING FACTORS

The indices are weighted based on the components' stock prices and weighting factors:

$$\text{Index}_t = \frac{\sum_{i=1}^n (p_{it} \cdot wf_{it} \cdot cf_{it} \cdot x_{it})}{D_t} = \frac{M_t}{D_t}$$

Where:

- t = Time the index is computed
- n = Number of companies in the index
- p_{it} = Price of company (i) at time (t)
- wf_{it} = Weighting factor of company (i) at time (t)
- cf_{it} = Weighting cap factor of company (i) at time (t)
- x_{it} = Exchange rate from local currency into index currency for company (i) at time (t)
- M_t = Total 'units' of the index at time (t)
- D_t = Divisor of the index at time (t)

7. INDEX VALUE CALCULATION

7.2. INDEX DIVISOR CALCULATION

7.2.1. MARKET CAPITALIZATION-WEIGHTED

Each index has a unique index divisor that is adjusted to maintain the continuity of the index's values across changes due to corporate actions. Changes in weights due to corporate actions are distributed proportionally across all index components. The index divisors are calculated as follows:

$$D_{t+1} = D_t \cdot \frac{\sum_{i=1}^n (p_{it} \cdot s_{it} \cdot ff_{it} \cdot cf_{it} \cdot x_{it}) \pm \Delta MC_{t+1}}{\sum_{i=1}^n (p_{it} \cdot s_{it} \cdot ff_{it} \cdot cf_{it} \cdot x_{it})}$$

Where:

- D_{t+1} = Divisor at time (t+1)
- D_t = Divisor at time (t)
- n = Number of companies in the index
- p_{it} = Price of company (i) at time (t)
- s_{it} = Number of shares of company (i) at time (t)
- ff_{it} = Free float factor of company (i) at time (t)
- cf_{it} = Weighting cap factor of company (i) at time (t) (only applicable if index is capped)
- x_{it} = Exchange rate from local currency into index currency for company (i) at time (t)
- ΔMC_{t+1} = The difference between the closing market capitalization of the index and the adjusted closing market capitalization of the index:
For companies with corporate actions effective at time (t+1), the free float market capitalization is calculated with adjusted closing prices, the new number of shares at time (t+1) and the free float factor at time (t+1) minus the free float market capitalization calculated with closing prices, number of shares at time (t) and free float factor at time (t).

7.2.2. PRICE-WEIGHTED WITH WEIGHTING FACTORS

Each index has a unique index divisor that is adjusted to maintain the continuity of the index's values across changes due to corporate actions. Changes in weights due to corporate actions are distributed proportionally across all index components. The index divisors are calculated as follows:

$$D_{t+1} = D_t \cdot \frac{\sum_{i=1}^n (p_{it} \cdot wf_{it} \cdot cf_{it} \cdot x_{it}) \pm \Delta MC_{t+1}}{\sum_{i=1}^n (p_{it} \cdot wf_{it} \cdot cf_{it} \cdot x_{it})}$$

Where:

- D_{t+1} = Divisor at time (t+1)
- D_t = Divisor at time (t)
- n = Number of companies in the index
- p_{it} = Price of company (i) at time (t)
- wf_{it} = Weighting factor of company (i) at time (t)
- cf_{it} = Weighting cap factor of company (i) at time (t) (only applicable if index is capped)
- x_{it} = Exchange rate from local currency into index currency for company (i) at time (t)

7. INDEX VALUE CALCULATION

ΔMC_{t+1} = The difference between the units in the index at closing and the units in the index after calculation parameters have been adjusted:
 For companies with corporate actions effective at time (t+1), the units in the index are calculated with adjusted closing prices, the adjusted weighting factors at time (t+1) and the adjusted weighting cap factors at time (t+1) minus the units in the index calculated with closing prices, weighting factors at time (t) and weighting cap factors at time (t).

7.2.3. DIVIDEND POINT CALCULATIONS

Dividend Point Calculations

For a detailed overview also consult the STOXX Dividend Point Calculation Guide.

$$DP_t(DVP) = \frac{\sum_{i=1}^n d_{it} \cdot s_{it} \cdot ff_{it} \cdot cf_{it} \cdot X_{it-1}}{D_t}$$

DP	= Dividend points (applies to STOXX Dividend Point – DVP indices only)
t	= Time the value is computed
D_t	= Divisor of the price index at time t
t	= Time the amount is computed
n	= Number of companies in the index
i	= Individual company being a constituent of the index
d_{it}	= Includes ordinary un-adjusted gross cash dividends and withholding tax amounts applied to special cash dividends and capital returns (d) in respect of each share of company (i) which is a constituent of the index at day (t) being an ex-dividend date as appropriate, or zero if no amount is applicable
s_{it}	= Number of shares outstanding of company (i) at time (t)
ff_{it}	= Free float factor of company (i) at time (t)
cf_{it}	= Weighting cap factor of company (i) at time (t)
X_{it-1}	= Exchange rate from local currency into EUR for company (i) at time (t-1)

8. CORPORATE ACTIONS AND ADJUSTMENTS

8.1. CORPORATE ACTIONS

The list of corporate actions indicate the calculation of the adjusted prices and the impact on the index divisor. All corporate actions and dividends are implemented at the effective date (ex-date); i.e. with corporate actions where cash or other corporate assets are distributed to shareholders, the price of the stock will drop on the ex- day. Changes in weights due to corporate actions are distributed proportionally across all index components and equal an investment into the portfolio.

Withholding taxes are considered for all corporate actions and dividends where applicable and defined per country. If STOXX becomes aware of an exception on the taxation; e.g. in case a company confirms a deviating tax treatment the exception will be used for the index calculation.

For the latest update on withholding taxes, please refer to the following link:
<http://www.stoxx.com/indices/taxes.html>

For the corporate actions listed below, the following assumptions apply:

- » Shareholders will receive “B” new shares for every “A” share held (where applicable)
- » All adjusted prices consider withholding taxes based on the new shares being distributed:
 $B \times (1 - \text{withholding tax where applicable})$
- » If the new shares have a dividend disadvantage - i.e. the new shares have a different dividend from that paid on the old shares - the price for these new shares will be adjusted according to the gross dividend amount

1. Cash dividend (applies to return indices only)	Divisor
Definition: Cash distributions that are within the scope of the regular dividend policy or that the company defines as a regular distribution.	decreases
Adjusted price (net return) = closing price - dividend announced by the company $\times (1 - \text{withholding tax})$	
Adjusted price (gross return) = closing price - dividend announced by the company	
2. Special cash dividend (applies to price and return indices)	Divisor
Definition: Cash distributions that are outside the scope of the regular dividend policy or that the company defines as an extraordinary distribution.	decreases
Adjusted price = closing price - dividend announced by the company $\times (1 - \text{withholding tax if applicable})$	

8. CORPORATE ACTIONS AND ADJUSTMENTS

3. Split and reverse split

Divisor

Adjusted price = closing price \times A / B
 New number of shares = old number of shares \times B / A

unchanged

For price-weighted indices with weighting factors:
 new weighting factor = old weighting factor \times B/A

4. Rights offering

Divisor

Standard rights issue treatments

a) Free float market capitalization weighted indices

Adjusted price = (closing price \times A + subscription price \times B) / (A + B)

increases

New number of shares = old number of shares \times (A + B) / A

b) Price weighted indices with weighting factors

Adjusted price = (closing price \times A + subscription price \times B) / (A + B)

Unchanged

New weighting factor = old weighting factor \times closing price / adjusted price

Further distinctions are made applicable for both weighting schemas:

- » Extremely dilutive rights issue with a share ratio larger or equal to 2000% (B/A \geq 20)
- » Highly dilutive rights issue with a share ratio larger or equal to 200% (B/A \geq 2)

Extremely dilutive rights issues are treated as following:

- » STOXX will announce the deletion of the company from all indices following the standard rules for index replacements if sufficient notice period can be given
- » Sufficient notice period: STOXX is able to make an announcement about index changes two trading days before the ex-date
- » The company may enter the indices again at the next periodic index review, but only after the new shares have been listed

Extremely dilutive rights issues without sufficient notice period and all highly dilutive rights issues are treated as following:

- » Inclusion of the rights into the indices with a theoretical price on the ex-date
- » The rights must be listed on an eligible stock exchange and tradable starting on the ex-date otherwise only a price adjustment is made
- » The rights will have the same parameters as the parent company
- » The rights will be removed at the close of the day they start to trade with traded price being available
- » The number of shares and weighting factors will be increased after the new shares have been listed

8. CORPORATE ACTIONS AND ADJUSTMENTS

If the subscription price is not available or equal to or greater than the closing price on the day before the effective date, then no adjustment is made.

5. Stock dividend

Adjusted price = closing price \times A / (A + B)
 New number of shares = old number of shares \times (A + B) / A

For price-weighted indices with weighting factors:
 New weighting factor = old weighting factor \times (A + B) / A

Divisor

unchanged

unchanged

6. Stock dividend (from treasury stock)

Stock dividends from treasury stocks will be adjusted as cash dividends.

a1) If treated as regular cash dividend, only the return indices are adjusted.

Adjusted close = close - close \times B / (A + B)

a2) If treated as extraordinary dividend, the price and the return indices are adjusted.

Adjusted close = close - close \times B / (A + B)

Divisor

decreases

7. Stock dividend of another company

Adjusted price = (closing price \times A - price of the other company \times B) / A

Divisor

decreases

8. Return of capital and share consolidation

Adjusted price = [closing price - capital return announced by company \times (1 - withholding tax)] \times A / B
 New number of shares = old number of shares \times B / A

For price-weighted indices with weighting factors:
 new weighting factor = old weighting factor \times B / A

Divisor

decreases

9. Repurchase of shares/self-tender

a) Free float market capitalization weighted indices:
 Adjusted price = [(price before tender \times old number of shares) -

Divisor

decreases

8. CORPORATE ACTIONS AND ADJUSTMENTS

$(\text{tender price} \times \text{number of tendered shares}) /$
 $(\text{old number of shares} - \text{number of tendered shares})$

New number of shares = old number of shares - number of tendered shares

b) Price-weighted indices with weighting factors:

Adjusted price = $[(\text{price before tender} \times \text{old number of shares}) -$
 $(\text{tender price} \times \text{number of tendered shares})] /$
 $(\text{old number of shares} - \text{number of tendered shares})$

unchanged

New weighting factor = old weighting factor \times closing price / adjusted price

10. Spin-off

Divisor

a) Free float market capitalization weighted indices:

Adjusted price = $(\text{closing price} \times A - \text{price of spun-off shares} \times B) / A$

decreases

b) Price-weighted indices with weighting factors:

Adjusted price = $(\text{closing price} \times A - \text{price of spun-off shares} \times B) / A$

decreases

New weighting factor for the spin-off = weighting factor of the parent company $\times B/A$

Please refer to 8.4 for further details.

8. CORPORATE ACTIONS AND ADJUSTMENTS

11. Combination stock distribution (dividend or split) and rights offering	Divisor
For the above corporate actions the following additional assumptions apply:	
» Shareholders receive 'B' new shares from the distribution and 'C' new shares from the rights offering for every 'A' share held.	
» If 'A' is not equal to one, all the following 'new number of shares' formulas need to be divided by 'A':	
a1) If rights are applicable after stock distribution (one action applicable to another)	increases
Adjusted price = $[\text{closing price} \times A + \text{subscription price} \times C \times (1 + B / A)] / [(A+B) \times (1+C / A)]$ New number of shares = $\text{old number of shares} \times [(A + B) \times (1 + C / A)] / A$	
a2) If stock distribution is applicable after rights(one action applicable to another)	increases
Adjusted price = $[\text{closing price} \times A + \text{subscription price} \times C] / [(A + C) \times (1 + B / A)]$ New number of shares = $\text{old number of shares} \times [(A + C) \times (1 + B / A)]$	
a3) Stock distribution and rights (neither action is applicable to the other)	increases
Adjusted price = $[\text{closing price} \times A + \text{subscription price} \times C] / [A + B + C]$ New number of shares = $\text{old number of shares} \times [A + B + C] / A$	
b) Price-weighted indices with weighting factors: Adjusted prices = see above [combination stock distribution (dividend split) and rights offering] New weighting factor = $\text{old weighting factor} \times \text{closing price} / \text{adjusted price}$	unchanged
12. Addition / deletion of a company	Divisor
No price adjustments are made. The net change in market capitalization (for price weighted indices: the change in units) determines the divisor adjustment.	

8. CORPORATE ACTIONS AND ADJUSTMENTS

13. Free Float and shares changes

Divisor

No price adjustments are made. The net change in market capitalization (for price weighted indices: the change in units) determines the divisor adjustment. Please refer to 8.2 for further details.

8. CORPORATE ACTIONS AND ADJUSTMENTS

8.2. FREE FLOAT FACTORS AND SHARE ADJUSTMENTS

Ordinary adjustments:

The free float factors and outstanding number of shares are reviewed on a quarterly basis based on the most recent available data. The final data are published on the quarterly underlying data announcement dates and implemented on the quarterly implementation dates. The review cut-off date for free float data is the fourth Friday of the month preceding the review month, i.e. of February, May, August and November. Data arriving after the cut-off dates are implemented in the following quarterly review.

Extraordinary adjustments:

The indices are updated with changes to the number of shares and/or free float factors due to corporate actions. The timing depends on the magnitude of the change:

- » Changes to the number of shares due to stock dividends, splits, rights issues etc. are implemented immediately and effective the next trading day.
- » Changes greater than ± 10 percent to the number of shares from one trading day to the next are announced immediately, implemented two trading days later and effective the next trading day after implementation.
- » Free float factor changes greater than \pm five percent from one trading day to the next are announced immediately, implemented two trading days later and effective the next trading day after implementation.
- » Changes to the combined free float adjusted number of shares greater than ± 10 percent from one trading day to the next are announced immediately, implemented two trading days later and effective the next trading day after implementation.
- » All other applicable changes are announced on the next quarterly underlying data announcement date, implemented on the quarterly implementation date and effective the next trading day after implementation.

8.3. MERGERS AND TAKEOVERS

A merger or takeover is deemed successful, if it has been declared wholly unconditional and has received the approval of all the regulatory agencies with jurisdiction over the transaction.

Changes are announced immediately, implemented two trading days later and become effective on the next trading day after implementation.

For events that involve the takeover of US or Canadian companies, the changes are announced based on the expected completion date before being declared wholly unconditional.

The result of a merger or a takeover is one surviving stock and one or more non-surviving stocks that may not necessarily be de-listed from the respective trading system(s). The rules below are only applied if at least one company in this transaction is a component of the STOXX Benchmark indices. Any surviving stock that does not qualify and the non-surviving stock(s) are deleted immediately.

A surviving stock that qualifies for the STOXX Benchmark indices is added to the indices as follows:

8. CORPORATE ACTIONS AND ADJUSTMENTS

- » STOXX Benchmark indices: The surviving stock replaces the largest of the original stocks.
- » STOXX Size indices: The surviving stock replaces the original stock that belonged to the largest affected Size index.
- » STOXX Blue-Chip and other indices: If one of the original stocks was a component, it is replaced by the surviving stock. Separate buffer rules and additional requirements for individual indices may apply according to specific index methodology.
- » STOXX Select Dividend indices: If one of the original stocks was a Select Dividend component, then it is replaced by the surviving stock, if it was ranked at or above the lower buffer limit on the currently valid Select Dividend selection list. A surviving stock that falls below the lower buffer limit, is replaced by the highest-ranked non-component on the selection list.

8.4. SPIN-OFFS

Each spin-off stock is temporarily added to all affected indices, including the fixed component indices, based on an estimated price. As a precondition a listing on one of the eligible exchanges, pricing and instrument reference data must be available. If the spin-off company does not qualify based on the rules set out below, it will be deleted at the close of the day it starts to trade with traded price being available. Separate buffer rules and additional requirements for individual indices may be applied according to specific index methodology, as outlined in the STOXX methodology guide.

Changes are announced immediately, implemented two trading days later and become effective on the next trading day after implementation.

STOXX Benchmark, Bluechip and derived indices:

- » Each spin-off stock qualifies for addition, if it lies within the upper (higher) buffer on the latest selection list for the specific index. The spin-off replaces the lowest ranked stock in that index, as determined by the latest selection list

Qualifying spin-off stocks are added in sequence:

- » The largest qualifying spin-off stock replaces the original stock in the index
- » The next qualifying spin-off stock replaces the lowest ranked stock in the index
- » Likewise for the other qualifying spin-off stocks

STOXX Total Market and derived indices:

- » The spin-off stock is added, if it qualifies for the STOXX TMI indices as of the latest quarterly review list

8.5. SECTOR CHANGES

The indices are updated with the sector changes; the timing depends on the cause of the change:

- » Changes due to corporate actions: Announced immediately, implemented two trading days later and effective the next trading day after implementation.

8. CORPORATE ACTIONS AND ADJUSTMENTS

- » Changes in the primary revenue source: Announced on the quarterly component announcement dates, implemented on the quarterly implementation dates and effective the next trading day after implementation.

8. CORPORATE ACTIONS AND ADJUSTMENTS

8.6. ILLIQUIDITY, BANKRUPTCY AND DELISTING

Stocks are deleted if their illiquidity is due to:

- » not being traded for 10 consecutive days;
- » being suspended from trading;

Moreover, stocks are deleted in case of:

- » official delisting
- » ongoing bankruptcy proceedings: a company that has filed for bankruptcy will be deleted from the index based on either the traded stock price on its primary market, if available, or else the OTC stock price; if neither price is available, the company will be deleted at close in local currency of 0.0000001.

Changes are announced immediately, implemented two trading days later and become effective the next trading day after implementation.

8.7. EXTREME MARKET AND COMPANY EVENTS

In case the investability and tradability of the indices and index based products is affected by an upcoming market or company event or disruptions of incoming data and considered significant by the STOXX Management Board the following or a combination of actions are taken. For all such changes a minimum notification period of two full trading days will be observed. The application scope may include but not be limited to:

- » application of expert judgment for index component pricing data
- » adjustment of operational procedures
- » postponement of index adjustments
- » adjustment of selection lists
- » change of weights of index constituents by adjusting the number of shares, free-float factors or weighting cap-factors
- » adjustment of index compositions

9. CORRECTION POLICY

9.1. INPUT AND REAL-TIME DATA

The correction procedures for incorrect or missing input data are as follows:

- » Input data are corrected immediately.
- » Real-time index values are not retroactively corrected, because the index is calculated in real-time.

9.2. INDEX DIVISOR CORRECTION

The correction procedures for incorrect index divisors are:

- » If discovered on the effective date, incorrect index divisors are corrected intraday.
- » If discovered after, the incorrect index divisors are corrected intraday, provided that correction is feasible and considered significant by the STOXX Management Board.

9.3. PAYMENT DEFAULTS AND DIVIDEND DATA CHANGES

A correction is applied, when a dividend is declared unpaid (payment default) or the dividend amount is changed by the company after the effective date. This may result in a negative reinvestment. Past index values (history) are not corrected. The following rules apply:

- » The correction is feasible and considered significant by the STOXX Management Board.
- » A correction will be accepted only, if the payment default is discovered within 12 months after the original ex date.
- » The index parameters (number of shares, free float factors, weighting cap factors and currency rates) effective on the day prior to the correction date are used.

10. CONTACT AND CUSTOMER SUPPORT

10.1. STOXX CUSTOMER SUPPORT

For questions regarding our indices, please contact our Customer Support team:

- » Available from 07:30 to 22:00 CET on STOXX trading days
- » Phone: +41 43 430 72 72
- » Fax: +41 43 430 72 72
- » E-Mail: customersupport@stox.com