

JULY 2024

DAX Equity Index Calculation Guide

STOXX.com



STOXX

25 years of index innovation

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GROUP

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1. INTRODUCTION TO THE DAX INDEX GUIDES

1.1. INTRODUCTION TO THE DAX INDEX GUIDES

- » The **DAX Equity Index Methodology Guide** contains information on the equity index-specific rules for constructing and deriving portfolio-based indices, the individual component selection process and weighting schemes
- » The **DAX Equity Index Calculation Guide** describes the processes for calculating and disseminating the DAX equity indices, including information on index formulas and adjustments to be made due to corporate actions
- » The **DAX Strategy Index Guide** contains the formulas for, and description of, all DAX strategy indices
- » The **Guide to iNAV Calculation** contains details on how to calculate indicative net asset values (iNAVs)
- » The **Guide to Industry Classifications used by STOXX Ltd.** contains general information on the industry classifications used in the DAX indices
- » The **Guide to Reference Calculations used by STOXX Ltd.** provides detailed information on the definitions of, and formulas for, the calculations used in STOXX's reports, fact sheets, indices and presentations

1.2. TRADEMARKS AND LOGOS

The names and designations of DAX and STOXX indices are trademarks of STOXX Ltd. and are subject unreservedly to the applicable trademark law in each case. They are not permitted to be used without the express permission of STOXX Ltd. or another registered owner.

All other names, trademarks, logos and protected rights are the property of their respective owners. The simple fact that this Guide mentions them does not imply that trademarks are not protected by the rights of third parties.

1.3. ABBREVIATION AND ACRONYMS

The following abbreviations and acronyms are used in this Guide:

CEF	Consolidated Exchange Feed
CET	Central European Time
ESG	environmental, social and governance
iNAV	indicative net asset value
OTC	over the counter
WpÜG	Wertpapiererwerbs- und Übernahmegesetz (German Securities Acquisition and Takeover Act)

2. GENERAL PRINCIPLES

2.1. INDEX CALCULATION PRINCIPLES

Whenever possible, the DAX equity indices are calculated using the following basic principles:

- » **Representative:** The indices aim to best represent the performance of the target market
- » **Tradable:** Index components are tradable in terms of the size of the companies and the target market(s) concerned
- » **Replicable:** Index performance can be tracked by an actual portfolio
- » **Stable:** There is a high degree of index continuity
- » **Rule-based:** Index calculation and any changes to the index composition follow transparent rules
- » **Predictable:** Changes to index rules are publicly announced and a reasonable notice period is given (generally at least two trading days); they are never implemented retroactively
- » **Transparent:** Decisions are based on public information

2.2. ADVISORY BODY

The **Advisory Board for Equity Indices** (“Arbeitskreis Aktienindizes”) provides advice on topics relating to indices that are administered by STOXX and referenced in this Guide. The board has an advisory function and bases its work on the principles mentioned above and the rules set out in this Guide. It does not take binding decisions on behalf of STOXX.

The Advisory Board for Equity Indices consists of employees appointed by STOXX, and representatives of leading national and international financial institutions. It usually meets bi-annually in March and September. Extraordinary meetings may also be convened.

2.3. DISCRETION

With the exception of the cases expressly described in this Guide, the index methodology is entirely rule-based and automatic. Discretion only applies where this is expressly stated, and must be exercised as provided for in this Guide.

2.3.1. EXERCISING DISCRETION

STOXX Committees (see later in this section for further information) may only exercise discretion so as to resolve issues that when maintaining the existing index methodology maintenance in response to events; the overarching aim is to accurately and reliably measure the market or economic realities as defined in this Guide.

Discretion must be exercised in line with the following principles:

- » The body or person(s) exercising discretion may not have any conflict of interests
 - » The body or person(s) exercising discretion must have the requisite skills, knowledge and experience to do so
 - » All facts and circumstances relevant for exercising discretion must have been established and properly documented prior to its exercise
-

2. GENERAL PRINCIPLES

- » Discretion must be exercised in compliance with all applicable laws and regulations
- » The body or person(s) exercising discretion must act solely on the basis of the relevant facts and circumstances, must give proper weight to all considerations and must ignore irrelevant facts and circumstances
- » The body or person(s) exercising discretion must act with a view to maintaining the integrity of the market or economic reality by aiming to ensure that indices remain representative and can be replicated. Among other things, this involves taking some or all of the following into account:
 - The relevance of the event that has occurred to the DAX indices
 - Trading accessibility to the affected market
 - The availability of alternative markets
 - The ability of market participants to replicate the index or, where applicable, the results of the index review
 - Public information relating to the events and their development in the foreseeable future
- » The body or person(s) exercising discretion must act honestly, reasonably, impartially and in good faith.

STOXX may consult with external stakeholders as part of the decision-making process.

Discretionary rules: *Any exercise of discretion must take into account the rationale of the index; the purpose of the rules with regard to which discretion is being exercised; the aim of preserving market integrity and reliable index calculations so as to avoid any undue market impact; technical feasibility and economic reasonability; and the interests of licensees and investors.*

The cases in which STOXX Ltd. may exercise discretion regarding the index methodology and its application are set out in the individual rules contained in this Guide.

The following bodies (in the following each separately also referred to as the “STOXX Committee”) are involved in the decision-making process that is relevant for the indices governed by this Guide:

- » Product Approval Committee (PAC)
- » Index Operations Committee (IOC)
- » Index Management Committee (IMC)
- » Index Governance Committee (IGC)
- » Oversight Committee (OC)
- » Management Board (MB)

The description of STOXX’s governance structure is available at www.stoxx.com (see the section entitled Index Data & Resources/Index Regulations).

2.4. INDEX TERMINATION POLICY

Where the termination of an index or an index family that, to STOXX’s knowledge, underlies financial products available for trading on the market is planned, STOXX will conduct a market consultation in advance of such termination in line with its Benchmark Transition Policy and its Consultation Policy (both

2. GENERAL PRINCIPLES

of which are available on the STOXX website). The length of the consultation period will be defined in advance, based on the specific issues involved in each proposed termination subject to STOXX's Benchmark Transition Policy (this is a discretionary rule, see section 2.3). The consultation period gives clients and third parties the opportunity to share any concerns about the termination of the index or index family. Based on the feedback received, STOXX may review its decision to terminate an index or an index family (this is a discretionary rule, see section 2.3). At the end of the consultation period, STOXX will publicly announce its final decision on termination. A transition period will be granted in the event of termination (this is a discretionary rule, see section 2.3).

No market consultation will be conducted in those cases in which an index or index family to be terminated does not underlie any financial products available for trading on the market.

3. DISSEMINATION

3.1. DISSEMINATION CALENDARS

The indices are disseminated on Monday through Friday between 00:00 and 22:15 CET, according to the following calendars:

Xetra calendar: Every weekday except January 1, Good Friday, Easter Monday, May 1, December 25 and December 26.

STOXX Global calendar: Every weekday except January 1.

In exceptional cases, the STOXX Index Governance Committee can decide to make changes to the dissemination calendar.

3.2. DISSEMINATION PERIOD

Each index has a defined dissemination start and end time. Unless specified otherwise, the actual dissemination of each index is triggered when the first opening stock price for that index is received within these defined time frames.

The actual dissemination of DAX, DAX 10% Capped and DAX UCITS Capped is triggered once all 40 index components have received an opening price at Xetra, or at latest by 09:06 CET given that at least one opening price is available:

Index	Number of index components required to trigger index value dissemination
DAX	40
DAX 10% Capped	40
DAX UCITS Capped	40

The actual dissemination of the following DAX Blue-Chip and DAX ESG indices triggered once 75% of all index components have received an opening price at Xetra, or at latest by 09:06 CET given that at least one opening price is available:

Index	(Max.) Number of Index Components ¹	Number of index components required to trigger index value dissemination ²
MDAX	50	38
SDAX	70	53
TecDAX	30	23
MDAX 10% Capped	50	38

¹ For DAX Blue-Chip and DAX ESG indices with a variable number of index components, the theoretically maximum number of index components is used to determine the number of index components required to trigger index value dissemination. For HDAX, the theoretically maximum number of index components is 120, however, 100 is set as reference value to determine the number of required index components with an opening price at Xetra.

² Where necessary, the number of index components required to trigger index value dissemination is rounded up to the next whole number.

3. DISSEMINATION

SDAX 10% Capped	70	53
TecDAX 10% Capped	30	23
HDAX	100	75
HDAX UCITS Capped	100	75
DAX ex Financials	40	30
DAX ex Financials 30	30	23
DAX 50 ESG	50	38
DAX ESG Target	40	30
DAX ESG Screened	40	30
MDAX ESG Screened	50	38
DAX 50 ESG+	50	38
MDAX ESG+	40	30
DAX 30 ESG	30	23

Please see the following links for the latest updates:

Dissemination period: <https://www.stoxx.com/res-dissemination>

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

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

The frequency standards for calculating and disseminating the indices differ:

Real-time indices: These are generally disseminated every second, every 15 seconds or every 60 seconds, depending on the index concerned.

End-of-day indices: These are calculated and disseminated once a day at the end of the index dissemination period.

All indices, including their dissemination frequencies, are listed in the data vendor code file: <https://www.stoxx.com/data-vendor-codes>

The index values are disseminated via Deutsche Börse's Consolidated Exchange Feed (CEF) and can be procured directly from data vendors. For further information, please see: <https://www.stoxx.com/res-dissemination>

4. INPUT DATA

4.1. SOURCES

The input data sources for index calculation include real-time and end-of-day stock prices and currency exchange rates provided by LSEG Data & Analytics.

4.2. MONITORING

The real-time input data feeds used for index calculation are monitored continuously to ensure data quality and availability. Data monitoring controls include data filters for individual exchange specifications, outlier detection mechanisms, quality assurance tools and verification against secondary sources.

4.3. DATA ACCURACY

Where nothing to the contrary is stated in the individual index methodologies, data accuracy for the following index calculation factors is defined as shown:

- Input data (e.g., pricing and currency rates) and other underlying data: rounded to seven decimal places
- Index divisors: rounded to whole numbers
- Market capitalization: rounded to two decimal places
- Free-float factors: rounded to four decimal places
- Product of (number of shares x free-float factor x weighting cap factor): rounded to whole numbers
- Product of (weighting factor x weighting cap factor): rounded to whole numbers
- Index values: rounded to two decimal places for dissemination
- Weights: expressed as percentages with five decimal places

4.4. CURRENCY RATES

All **real-time indices** use the following currency rates:

- In the period from 09:00 to 17:30 CET, the middle value between the most recent real-time bid and ask prices is used as the currency rate for calculating indices for the Europe region.
- In the period from 00:00 to 22:00 CET, the middle value between the most recent real-time bid and ask prices is used as the currency rate for calculating international indices.

All **end-of-day indices**, and the closing procedure for the real-time indices, use the following currency rates:

- Fixed foreign exchange rates (WM closing spot rates as of 17:00 CET) are used to calculate indices for the Europe region from 17:30:15 CET onwards.

4. INPUT DATA

- Fixed foreign exchange rates are used to calculate international indices from 22:00:15 CET onwards.

The fixed foreign exchange rates are provided by WM/Refinitiv. For further information, please see the LSEG Data & Analytics “WMRSPOT01” page or the Bloomberg “WMCO” page.

4.5. STOCK PRICES

The data hierarchy used to process stock prices and calculate the DAX equity indices is described below. All data is provided by LSEG Data & Analytics. The individual index methodologies for all non-equity indices contain further details of the pricing sources and types.

Opening price: The first traded price during official trading hours for the stock’s trading system; the previous day’s closing/adjusted price is used until this is available.

Intraday price: The currently traded price during official trading hours for the stock’s trading system. If the stock is not being traded, the last available stock price is used. This can be either 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).

Closing price: The last traded price or auction price during official trading hours for the stock’s trading system is used. If the stock has not been traded all day, the previous day’s closing/adjusted price is used.

Adjusted price: The closing price for stocks is adjusted to reflect corporate actions that will take effect the next trading day.

Stock prices in local currency are converted into euros first before being converted into the relevant index currency.

5. AVAILABLE DATA

5.1. OPEN QUOTATIONS

The index open quotation value reflects the opening prices of all stocks in a real-time index. It 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, failing that, at 10:30 CET at the latest. If an opening stock price is unavailable at 10:30 CET, the previous day's closing/adjusted price for the stock is used.

Non-EUR stock prices are converted into euros using the currency rate that is valid at the time of the opening stock price (or the previous day's closing/adjusted price). In other words, opening stock prices are converted using real-time currency rates and the previous day's adjusted closing prices are converted using the WM fixed exchange rates for the previous day.

5.2. INDEX SETTLEMENT VALUES

A settlement price is calculated once a day for the DAX, MDAX, TecDAX, DivDAX and DAX 50 ESG using the prices determined during the Xetra intraday auction. If the intraday auction does not produce a price for a company, the last price available before the intraday auction is used as the basis for calculation.

5.3. DAILY REPORTS

The daily reports for the DAX indices are published after the index dissemination period for the relevant region in the STOXX index data distribution system has ended. Daily reports include the following datasets:

- Stock prices: Both the closing and the adjusted prices for all DAX index components
- Stock reference data and identifiers for all DAX index components
- Index-related values: The closing values, market capitalization and divisors for all indices
- Into-EUR currency conversion rates for all currencies used in any DAX indices
- Corporate actions and dividends that take effect the next trading day
- Other information such as weightings, other corporate actions and dividend forecasts

5.4. CORPORATE ACTION FORECASTS

Corporate action forecasts are updated daily and include information about future adjustments produced by confirmed corporate events. These include, but are not limited to mergers, takeovers, spin-offs, price and share adjustments, and IPOs.

5. AVAILABLE DATA

All corporate action forecasts are subject to change. It is recommended that customers regularly download the forecasts from the STOXX website under www.stoxx.com/corporate-actions and that they subscribe to corporate action alerts so as to receive notifications of the latest changes.

5.5. MONTHLY REPORTS

Monthly reports include the following data for selected indices:

- » Index performance
- » Index fundamentals
- » Index correlation
- » Fact sheets for selected indices providing information on fundamental ratios, performance data and other statistics

5.6. SELECTION LISTS

Selection lists are produced for indices with a fixed number of constituents, with the aim being to:

- » Indicate changes in the composition of the index that may potentially be made during the next quarterly/semi-annual/annual review, and
- » Determine replacements for any components deleted extraordinarily from the indices

The STOXX Index Governance Committee(s) may decide to update selection lists in between the regular publication dates to reflect extraordinary market movements and/or underlying data changes (this is a discretionary rule, see section 2.3).

5.7. INDEX REVIEW LISTS

All indices have defined dates on which new constituents and the underlying data (shares, free float, weighting cap factors) are announced and implemented. The component dates and the underlying data announcement dates differ by index and are therefore given in the DAX Equity Index Methodology Guide. The default quarterly implementation day for all indices is the third Friday in March, June, September and December, where nothing to the contrary is specified in the DAX Equity Index Methodology Guide.

5.8. STOXX NEWS AND INDEX DATA NOTIFICATIONS

Customers can set preferences to receive e-mail notifications under www.stoxx.com/my-profile. Notifications are issued for short-term corporate actions and dividend changes; unscheduled changes in index composition due to mergers, spin-offs and delistings; periodic review announcements; index calculation errors; real-time input feed availability; the publication of daily reports; new index launches and general information provided by STOXX.

6. INDEX PARAMETERS

6.1. PRICE AND RETURN INDICES

All indices are calculated as both price and return indices. Dividend payments are invested in return indices only, and are not taken into account in price indices. Return indices are available as gross return versions, which are calculated on the basis of full dividend reinvestment, and as net return versions, in which the dividends minus withholding taxes are reinvested.

6.2. INDICES IN EUR, USD AND OTHER CURRENCIES

All stock prices for these indices are converted into EUR and USD as follows:

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

In addition, some indices are available in other currencies. The following rule applies in these cases:

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

7. INDEX VALUE CALCULATION

7.1. INDEX FORMULAS

Indices are calculated using 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

Market capitalization-weighted indices are calculated as follows:

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

Where:

- t = time at which 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 for company (i) at time (t)
- cf_{it} = weighting cap factor for 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 for the index at time (t)
- D_t = divisor for the index at time (t)

7.1.2. PRICE-WEIGHTED WITH WEIGHTING FACTORS

Indices are weighted based on their 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 at which the index is computed
 - n = number of companies in the index
 - p_{it} = price of company (i) at time (t)
 - wf_{it} = weighting factor for company (i) at time (t)
 - cf_{it} = weighting cap factor for company (i) at time (t)
 - x_{it} = exchange rate from local currency into index currency for company (i) at time (t)
 - M_t = total index "units" at time (t)
 - D_t = divisor for 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, which is adjusted to maintain the continuity of the index's values across changes due to corporate actions and index reviews. Changes in weights due to corporate actions are distributed proportionally across all index components. 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 for company (i) at time (t)
cf_{it}	= weighting cap factor for company (i) at time (t) (only applicable if the 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: In the case of companies with corporate actions effective at time (t+1), free-float market capitalization is calculated using 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 using closing prices, the number of shares at time (t) and the free-float factor at time (t)

7.2.2. PRICE-WEIGHTED WITH WEIGHTING FACTORS

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 and index reviews. Changes in weights due to corporate actions are distributed proportionally across all index components. 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 for company (i) at time (t)
cf_{it}	= weighting cap factor for company (i) at time (t) (only applicable if the 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:
In the case of companies with corporate actions effective at time (t+1), the units in the index are calculated using 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 using closing prices, weighting factors at time (t) and weighting cap factors at time (t)

8. CORPORATE ACTIONS AND ADJUSTMENTS

8.1. CORPORATE ACTIONS

The list of corporate actions shows how the adjusted prices are calculated and the impact on the index divisor. All corporate actions and dividends are implemented at the effective date (ex-date). In other words, in the case of corporate actions in which cash or other corporate assets are distributed to shareholders, the price of the stock will drop on the ex-date. Changes in weights due to corporate actions are distributed proportionally across all index components and are treated as an investment in the portfolio.

All corporate actions and dividends take any applicable withholding taxes into account, and are defined for each individual country. If STOXX is made aware of an exception to this taxation procedure — for example, if a company confirms that a non-standard tax treatment applies — the exception is used for index calculation.

Please see the following link for the latest update on withholding taxes:

<https://www.stoxx.com/withholding-taxes>

The following assumptions apply to the corporate actions listed in the sections below: Shareholders will receive “B” new shares for every “A” share held (where applicable).

τ	= withholding tax
Div_t	= dividend amount announced by the company
p_{t-1}	= closing price on the day before the ex-date
p_{adj}	= new adjusted price
wf_{t-1}	= weighting factor on the day before the ex-date
wf_{adj}	= new adjusted weighting factor
s_{t-1}	= number of shares on the day before the ex-date
s_{adj}	= new adjusted number of shares
SP	= subscription price

All adjusted prices take any applicable withholding taxes into account, based on the new shares being distributed: $B \times (1 - \tau)$, where applicable).

If the new shares have a dividend disadvantage — i.e., if they have a different dividend to that paid on the old shares — the price for the new shares will be adjusted on the basis of the gross dividend amount.

8.1.1. CASH DIVIDENDS

Divisor
decreases

Cash distributions that are within the scope of the regular dividend policy or that the company defines as regular distributions.

Gross return indices:

$$p_{adj} = p_{t-1} - Div_t$$

Net return indices:

8. CORPORATE ACTIONS AND ADJUSTMENTS

$$p_{adj} = p_{t-1} - Div_t \times (1 - \tau^*)$$

* If a withholding tax (τ) applies, then $\tau > 0$, else $\tau = 0$.

Price indices are not affected.

8.1.2. SPECIAL CASH DIVIDENDS

Cash distributions that are **outside** the scope of the regular dividend policy or that the company defines as extraordinary distributions.

Divisor
decreases

Gross return indices:

$$p_{adj} = p_{t-1} - Div_t$$

Net return indices and price indices:

$$p_{adj} = p_{t-1} - Div_t \times (1 - \tau^*)$$

* If a withholding tax (τ) applies, then $\tau > 0$, else $\tau = 0$.

8.1.3. SPLITS AND REVERSE SPLITS

$$p_{adj} = p_{t-1} \times A / B$$

Divisor

a) For free-float market capitalization-weighted indices:

unchanged

$$s_{adj} = s_{t-1} \times B / A$$

b) For price-weighted indices with weighting factors:

unchanged

$$wf_{adj} = wf_{t-1} \times B / A$$

8.1.4. RIGHTS OFFERINGS

If the subscription price (SP) is not available, or if it is equal to or greater than the closing price on the day before the ex-date ("out of the money"), no adjustment is made.

If the subscription price (SP) is available as a price range and not as a fixed price, the price and share adjustment is performed only if both the lower and the upper range are in the money. The average of the lower and upper range is used as the subscription price.

8.1.4.1. STANDARD RIGHTS ISSUES

$$p_{adj} = (p_{t-1} \times A + SP \times B) / (A + B)$$

Divisor

a) For free-float market capitalization-weighted indices:

increases

8. CORPORATE ACTIONS AND ADJUSTMENTS

$$s_{adj} = s_{t-1} \times (A + B) / A$$

b) For price-weighted indices with weighting factors:

unchanged

$$wf_{adj} = wf_{t-1} \times p_{t-1} / p_{adj}$$

8.1.4.2. HIGHLY DILUTIVE RIGHTS ISSUES

Divisor

A rights offering is considered to be a highly dilutive rights issue (HDRI) if the share ratio is larger than or equal to 200% ($B/A \geq 2$).

Scenario 1) — if the rights are tradable on the ex-date on the same eligible stock exchange as the parent company:

- The rights will be included in the indices at a theoretical price on the ex-date; the parameters used are the same as for the parent company. unchanged on ex-date
- The rights will be deleted at the close of the day on which they start trading, based on their closing price. decreases after the rights are deleted
- In the case of free-float market capitalization-weighted (ffmcap) indices only: If the rights issue results in new shares being listed and the criteria set out in section 8.2 are met, the number of shares will be increased after the new shares have been listed. For ffmcap indices only: increases on the day of the share increase

Scenario 2) — if the rights are not tradable on the ex-date or are not tradable on the same eligible stock exchange as the parent company on the ex-date:

- Only a price adjustment will be applied. decreases on ex-date
- In the case of market capitalization-weighted indices only: If the rights issue results in new shares being listed and the criteria set out in section 8.2 are met, the number of shares will be increased after the new shares have been listed. For ffmcap indices only: increases on the day of the share increase

8.1.5. STOCK DIVIDENDS

8.1.5.1. ORDINARY STOCK DIVIDENDS

Divisor

$$p_{adj} = p_{t-1} \times A / (A + B)$$

a) For free-float market capitalization-weighted indices:

unchanged

$$s_{adj} = s_{t-1} \times (A + B) / A$$

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- b) For price-weighted indices with weighting factors: unchanged

$$wf_{adj} = wf_{t-1} \times (A + B) / A$$

8.1.5.2. STOCK DIVIDENDS FROM TREASURY STOCK

Divisor

Stock dividends from treasury stocks are adjusted in the same way as cash dividends.

$$p_{adj} = p_{t-1} - p_{t-1} \times B / (A + B)$$

- a) If a dividend is considered to be a **regular** cash dividend, only the gross return and net return indices are adjusted. decreases
- b) If it is considered to be a **special** cash dividend, the gross return, net return and price indices are all adjusted. decreases

8.1.5.3. STOCK DIVIDENDS FROM REDEEMABLE SHARES

Divisor

Stock dividends from redeemable shares are adjusted as for cash dividends. In such cases, redeemable shares are considered to be:

- A separate share line with a fixed price
- Ordinary shares that are self-tendered on the same ex-date

$$p_{adj} = p_{t-1} - p_{t-1} \times B / (A + B)$$

- a) If a dividend is considered to be a **regular** cash dividend, only the gross return and net return indices are adjusted. decreases
- b) If it is considered to be a **special** cash dividend, the gross return, net return and price indices are all adjusted. decreases

8.1.5.4. STOCK DIVIDENDS FROM ANOTHER COMPANY

Divisor

$$p_{adj} = [(p_{t-1} \times A) - [(1 - \tau^*) \times \text{price of the other company} \times B]] / A$$

* If a withholding tax (τ) applies, then $\tau > 0$, else $\tau = 0$.

8.1.6. RETURNS OF CAPITAL AND SHARE CONSOLIDATIONS

Divisor

These events are treated as a combination of a cash/special dividend and a reverse split.

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- a) If a return of capital is considered to be a **regular** cash dividend, the treatment for gross and net returns given in sections 8.1.1 and 8.1.3 applies, while price indices are treated as given in section 8.1.3. decreases
- b) If a return of capital is considered to be a **special** cash dividend, the treatment for gross return, net return and price indices given in section 8.1.2 and 8.1.3 applies. decreases

$$p_{adj} = [p_{t-1} - \text{capital return announced by the company} \times (1 - \tau^*)] \times A/B$$

* If a withholding tax (τ) applies, then $\tau > 0$, else $\tau = 0$.

- a) For free-float market capitalization-weighted indices:

$$s_{adj} = s_{t-1} \times B / A$$

- b) For price-weighted indices with weighting factors:

$$wf_{adj} = wf_{t-1} \times B / A$$

8.1.7. REPURCHASES OF SHARES/SELF-TENDERS

Divisor

$$p_{adj} = [(p_{t-1} \times s_{t-1}) - (\text{tender price} \times \text{number of tendered shares})] / s_{adj}$$

- a) For free-float market capitalization-weighted indices: decreases

$$s_{adj} = s_{t-1} - \text{number of tendered shares}$$

- b) For price-weighted indices with weighting factors: unchanged

$$wf_{adj} = wf_{t-1} \times p_{t-1} / p_{adj}$$

8.1.8. SPIN-OFFS

Divisor

The adjusted price (p_{adj}), the number of shares before the ex-date (s_{t-1}) and the weighting factor on the day before the ex-date (wf_{t-1}) refer to the parent company. please see section 8.4 for further details on spin-offs.

$$p_{adj} = (p_{t-1} \times A - \text{price of spun_off shares} \times B) / A$$

- a) For free-float market capitalization-weighted indices: unchanged
New number of shares for the spun-off company = $s_{t-1} \times B$ on ex-date
- b) For price-weighted indices with weighting factors: unchanged
New weighting factor for the spun-off company = $wf_{t-1} \times B / A$ on ex-date
-

8. CORPORATE ACTIONS AND ADJUSTMENTS

8.1.9. COMBINATION OF STOCK DISTRIBUTIONS (DIVIDENDS OR SPLITS) AND RIGHTS OFFERINGS

Divisor

The following additional assumptions apply to the corporate actions below:

Shareholders will 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”:

- a) If rights are applicable after the stock distribution (one action is applicable to another) increases

$$p_{adj} = [p_{t-1} \times A + SP \times C(1 + B/A)] / [(A + B) \times (1 + C/A)]$$

$$s_{adj} = s_{t-1} \times [(A + B) \times (1 + C/A)] / A$$

- b) If the stock distribution is applicable after rights (one action is applicable to another) increases

$$p_{adj} = (p_{t-1} \times A + SP \times C) / [(A + C) \times (1 + B/A)]$$

$$s_{adj} = s_{t-1} \times (A + C) \times (1 + B/A)$$

- c) Both stock distribution and rights (neither action is applicable to the other) increases

$$p_{adj} = (p_{t-1} \times A + SP \times C) / (A + B + C)$$

$$s_{adj} = s_{t-1} \times (A + B + C) / A$$

- d) For price-weighted indices with weighting factors: Adjusted prices are calculated as given in a) to c) above unchanged

$$wf_{adj} = wf_{t-1} \times p_{t-1} / p_{adj}$$

8.1.10. ADDITIONS/DELETIONS OF COMPANIES

No price adjustments are made. The change in market capitalization (in the case of price weighted indices: the change in units) determines the divisor adjustment.

- a) For free-float market capitalization-weighted indices:

If the total market capitalization resulting from the addition and deletion of companies in an index increases (decreases), the divisor increases (decreases). If there is no change, the divisor remains unchanged.

- b) For price-weighted indices with weighting factors:

If the total number of units resulting from the addition and deletion of companies in an index

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increases (decreases), the divisor increases (decreases) in line with this. If there is no change, the divisor remains unchanged.

8.1.11. FREE-FLOAT AND SHARE CHANGES

No price adjustments are made. The change in market capitalization (in the case of price weighted indices: the change in units) determines the divisor adjustment. Please see section 8.2 for further details.

a) For free-float market capitalization-weighted indices:

If the total market capitalization of an index increases (decreases), the divisor increases (decreases) in line with this. If there is no change, the divisor remains unchanged.

b) For price-weighted indices with weighting factors:

If the total number of units in an index increases (decreases), the divisor increases (decreases) in line with this. If there is no change, the divisor remains unchanged.

8.2. FREE-FLOAT FACTORS AND SHARE ADJUSTMENTS

Ordinary adjustments:

The free-float factors and the outstanding number of shares are reviewed quarterly on the basis of the most recent available data. The final data is published on the quarterly underlying data announcement dates and implemented on the quarterly implementation dates. The review cutoff date for the free-float data and number of shares data is as follows:

- » For International indices: The fourth Friday of the month preceding the review month, i.e., February, May, August and November
- » For all other indices: The trading day prior to the quarterly underlying data announcement date, i.e., usually the Thursday before the second Friday of the review month.

Data arriving after the cutoff dates is implemented in the next quarterly review.

Extraordinary adjustments:

The indices are updated to reflect 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 take effect on the next trading day.
- » Changes of more than ± 10 percent in the total number of shares from one trading day to the next are announced immediately, are implemented two trading days later and take effect on the next trading day after implementation.

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- » Free-float factor changes in excess of ± 5 percentage points from one trading day to the next are announced immediately, are implemented two trading days later and take effect on the next trading day after implementation.
- » Changes to the combined free-float-adjusted number of shares in excess of ± 10 percent from one trading day to the next are announced immediately, are implemented two trading days later and take effect on the next trading day after implementation.
- » All other applicable changes are announced on the next quarterly underlying data announcement date, are implemented on the quarterly implementation date and take effect on the next trading day after implementation.

8.2.1. FREE-FLOAT FACTORS AND SHARE ADJUSTMENTS DURING REVIEW IMPLEMENTATION WEEK

An extraordinary free-float factor and share adjustment that would normally take effect during the quarterly review implementation week will become effective on the review effective date, provided that a minimum of two trading days' notice can be given. The standard notice period of two trading days will be extended to align the effective date with the review effective date.

8.3. MERGERS AND TAKEOVERS

8.3.1. TARGET COMPANY — FREE-FLOAT ADJUSTMENTS

Mergers or takeovers result in an extraordinary free-float adjustment being performed for the target company in the DAX indices concerned following publication of the definitive results for each tender offer period, or of the result in those cases in which the tender offer period is extended and the interest acquired implies a change in the free-float factor of greater than or equal to 5%. This does not apply in those cases in which a conversion into tendered shares as described in section 8.3.3 is performed.

For International indices, the free float is only adjusted if the following criteria are fulfilled in addition:

- » All conditions of the event are currently fulfilled (i.e. shareholder & authorities' approval, minimum acceptances, other customary conditions)
- » Less than 90% of the shares have been acquired through the tender offer

An extraordinary free-float adjustment may need to be performed for the target company following the cancellation of a tender offer if the shares returned imply a change in the free-float factor of greater than or equal to 5%.

Additionally, an extraordinary adjustment may need to be performed for the acquiring company under the rule set out in section 8.2 "Free-float Factors and Share Adjustments."

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

8.3.1.1. FREE-FLOAT ADJUSTMENTS TAKING EFFECT DURING REVIEW IMPLEMENTATION WEEK

8. CORPORATE ACTIONS AND ADJUSTMENTS

An extraordinary free-float adjustment that would normally take effect during the quarterly review implementation week will become effective on the review effective date, provided that a minimum of two trading days' notice can be given. The standard notice period of two trading days will be extended to align the effective date with the review effective date.

8.3.2. TARGET COMPANY — DELETION

A merger or takeover will result in the deletion of the target company from the blue-chip and international indices if all of the following conditions are met:

- » All conditions for the event have currently been met (i.e., shareholder and regulatory approval, minimum acceptances, other customary conditions)
- » At least 90% of the shares have been acquired as a result of the tender offer, or the target's remaining free-float factor is less than 10% (international indices: 5%), based on current publicly available information

This does not apply in those cases in which a conversion into tendered shares as described in section 8.3.3 is performed.

Where an event involves the takeover of a US or Canadian company, the changes are announced on the basis of the expected completion before the merger is declared wholly unconditional.

Where an event involves the takeover of a company from the United Kingdom, Australia, New Zealand or Hong Kong and the only condition left is the court hearing approving the scheme, the changes are announced on the basis of the expected completion date before the merger is declared wholly unconditional.

Additionally, an extraordinary adjustment may need to be performed for the acquiring company under the rule set out in section 8.2 "Free-float Factors and Share Adjustments."

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

This results in one surviving stock and one or more non-surviving stocks that may or may not be delisted from the trading system(s) concerned. The rules below are only applied if at least one company in the transaction is a component of the blue-chip or international indices. Any surviving stock that does not qualify and the non-surviving stock(s) are deleted immediately.

Generally, the non-surviving stock(s) are deleted at the last traded price for the security. If any non-surviving stock is not trading anymore (i.e., if it was delisted or suspended before deletion), a new artificial price based on the acquisition/merger terms is calculated and the company is retained in/deleted from the index on this basis rather than on the basis of the last traded price. The artificial price is calculated solely on the basis of ordinary cash and stock terms. Other instruments such as contingent value rights are not taken into account.

Payment type	Artificial price
Cash	Deletion price = cash term

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Stock	Deletion price = close price acquirer * stock term
Cash and stock	Deletion price = cash term + close price acquirer * stock term
Cash or stock	Deletion price = cash term

If the surviving stock meets the criteria for inclusion in a blue-chip or international index, it replaces the non-surviving stock in the index as of the date on which the non-surviving stock is deleted from it. If the surviving stock is already included in the index or does not meet the basic criteria, the non-surviving stock is replaced by a new stock, in line with the applicable index-specific replacement rule.

In the case of All Share indices, the non-surviving stocks are deleted if they are no longer listed on the stock exchange. New companies that are not created by continuing the listing of an existing company are included in the index as a completely new company.

8.3.3. CONVERSION INTO TENDERED SHARES

Target company shares tendered for exchange shall be treated as follows during a takeover bid or mandatory offer:

Where the target company is a component of a blue-chip index and the acceptance rate after the end of the first tender offer period as shown in the notification pursuant to section 23I of the German Securities Acquisition and Takeover Act (Wertpapiererwerbs- und Übernahmegesetz — WpÜG) is more than 50% of the number of shares not held by the acquirer prior to the offer being made (“acceptance threshold”), the shares in the target company included in the index will be replaced by the shares tendered for conversion. The replacement will take effect one trading day after the last day of the additional offer period, provided that the following requirements are met:

- » It can be assumed, based on the information publicly available at the end of the first tender offer period, that the shares into which the target company shares tendered for exchange are to be converted in the event of a successful takeover satisfy the ranking criteria described in the DAX Equity Index Methodology Guide. In this context, it is irrelevant when making the required predictive decision whether the bidder's shares (into which the target company shares tendered for exchange would be converted in the event of a successful takeover) already exist before the takeover offer ends, whether they still need to be created or whether they are already traded on Xetra. As regards compliance with the recommendations of the German Corporate Governance Code (“the Code”) and the accounting obligations set out in the DAX Equity Index Methodology Guide, it is assumed that the parent company's terms and conditions will be adopted by the company to which the tender offer will lead, and that this will happen by the end of the financial year following the successful completion of the merger.
- » The bidder, or the company resulting from the takeover, as appropriate, is not already included in a selection index

The shares tendered for exchange and the shares that are not tendered for exchange form separate share classes. If the requirements above are met, the number of shares and the free-float factor of the class to be replaced are adopted, and are only modified at the next regular review.

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If the takeover bid or mandatory offer fails, the shares tendered for exchange are removed from the index and replaced by the shares that were previously included in the index.

8.4. SPIN-OFFS

Each spin-off stock is temporarily added to all affected indices, including fixed-component indices, based on an estimated price. As a precondition, a listing on one of the eligible exchanges, price data and instrument reference data must be available. If the spin-off stock is not permanently added, it is deleted at the close of the day on which it starts trading and for which a traded price is available.

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

8.5. SUSPENSION, INSOLVENCY AND DELISTING

8.5.1. SUSPENSION

Generally speaking, if stocks are suspended during trading hours, the last price determined before such a suspension is used for all subsequent computations. If such a suspension occurs before the start of trading, the closing price on the previous day is used instead. The closing index level is calculated using the relevant closing prices (or last prices) established on Xetra or the Frankfurt Stock Exchange, as provided by LSEG Data & Analytics.

In a departure from the rule above, the following applies to international indices:

- » Stocks are deleted if they are suspended from trading for 10 consecutive days or more and no date for resuming trading has been announced
- » Stocks that are suspended from trading for 10 consecutive days or more but that have announced a date for resuming trading will remain in all indices until they resume trading
- » Stocks that are suspended from trading for 10 consecutive days or more due to a corporate event will remain in all indices until they resume trading

In the week prior to the quarterly review effective date, stocks that are suspended (including for less than 10 consecutive days) on the Tuesday (cutoff date) before the third Friday will:

- » Be deleted at review if no date for resuming trading has been announced
- » Remain in the index until they resume trading if the date for resuming trading takes effect on or before the Wednesday following the review effective date
- » Be deleted at review if the effective date for resuming trading is after the Wednesday following the review effective date

The STOXX Committee may exercise discretion (as set out in section 2.3) in relation to any of the cases listed above.

8. CORPORATE ACTIONS AND ADJUSTMENTS

Companies will be deleted from the index based on the traded stock price, if available, or on the OTC stock price if not. If neither price is available, the company will be deleted when the market closes using a price of 0.0000001 in local currency.

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

8.5.2. CORPORATE INSOLVENCIES

The term “insolvency proceedings” refers to any applicable insolvency, bankruptcy, dissolution, liquidation or winding-up proceedings, or similar proceedings in relation to the assets of an index constituent. An “insolvency event” relating to a company that is a constituent of an equity index (“constituent”) shall be deemed to have occurred if STOXX has been informed by the constituent, a national competent authority or a court in writing or via a public announcement (other than by entry in a register) that

- (i) Insolvency proceedings have been filed or will be filed against the constituent’s assets, or
- (ii) Insolvency proceedings have been opened in relation to the constituent, or
- (iii) The constituent is seeking or has become subject to the appointment of an administrator, receiver, trustee, custodian or other similar official for it or for all or substantially all of its assets, or
- (iv) Insolvency proceedings have been rejected due to insufficient assets, or
- (v) The constituent is in liquidation as a result of insolvency proceedings, a shareholders’ resolution or otherwise.

For the avoidance of doubt, any resolution and/or restructuring measures under the European Bank Recovery and Resolution Directive (or comparable third-country legislation stipulating that banks shall be subject to extraordinary restructuring proceedings) shall not be considered to be insolvency events.

If an insolvency event has occurred in relation to a constituent of a blue-chip or international index, the constituent’s securities will be deleted from the index on the basis of the last traded stock price on its primary market, if available. If the last price is not available, the constituent will be deleted when the market closes using a price of 0.0000001 in local currency.

The constituent will be replaced using the extraordinary replacement mechanism in the blue-chip or international index concerned. Any such replacement will be announced at 22:00 CET on the day on which STOXX became aware of the insolvency event, based on publicly available information. The change will be implemented two trading days after the calendar date of the announcement by STOXX, and will take effect on the next trading day after implementation. If the security concerned has already been announced as a new index constituent or a replacement for a current index constituent, the announcement will be revoked and a new constituent will be implemented giving two trading days’ notice. This may lead to an index with fewer constituents than is required by the index methodology until the replacement takes effect.

The securities of an issuer for which an insolvency event has occurred are not eligible as an index constituent or replacement index constituent in any future selection for blue-chip and

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international indices. This rule takes immediate effect as of the date of STOXX's announcement. The securities concerned will be kept on the monthly index ranking list, but will not be ranked. They may be readmitted to ranking once the proceedings relating to the insolvency event have been concluded and have resulted in the continuance of the business operated by the issuer of the securities. However, this may not take place less than one (1) calendar year after the exclusion took effect.

8.5.3. DELISTINGS

Stocks are deleted following official delisting. Companies are deleted from the index on the basis of the traded stock price on their primary market, if available, or on the OTC stock price if not. If neither price is available, the company will be deleted when the market closes using a price of 0.0000001 in local currency.

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

8.6. 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 ex-date.³ The following rules apply:

» In the case of indices that contained the company concerned on the ex-date, a reinvestment is applied by adjusting the divisor so as to correct the index points that were previously added. A positive (negative) reinvestment is applied if the difference between the new amount and the old amount is larger (smaller) than 0. The divisor decreases (increases) if a positive (negative) reinvestment is applied. STOXX may decide not to apply the correction if the company concerned is no longer included in the index.

» A correction will be accepted only if the payment default is discovered within three months of the original ex-date

» Past index values (historical values) are not corrected.

» The index parameters (number of shares, free-float factors, weighting cap factors, currency rates, divisors) in effect on the day prior to the correction date are used

³ The index is not corrected if the ex-date falls before the launch date.

9. LIMITATIONS

9.1. LIMITATIONS

This section applies in the event of limitations that occur due to:

- » Insufficient rules, i.e., the absence of a methodology rule, provision or procedure that leads to a failure when determining the index value concerned, or to an index value that does not properly reflect the concept/nature of the index, e.g.,:
 - The performance of the index can no longer be physically replicated
 - Insufficient index constituents are available to meet the index methodology requirements
- » Unclear rules, i.e., the rules offer multiple possible interpretations of how a certain rule must be applied to a specific situation
- » Insufficient data, i.e., an index can no longer be calculated due to insufficient quantities of data or inadequate data quality
- » Failure to produce the index values as intended
- » Market disruption which results in the performance of the index being unable to be tracked
- » Events with a market impact that by their nature could not reasonably be foreseen, or events whose impact on an index or the economic reality that this index aims to represent cannot be determined in advance. Such events include, but are not limited to, natural, social, political or economic events that could negatively impact regional or global societies or economies. Examples may include, but are not limited to, the following: (i) changes to currency convertibility or restrictions on capital flows that are announced by a country; (ii) market disruption, e.g., an event that materially negatively influences the aggregate liquidity, capitalization or tradability of an entire market; (iii) exchange closures; (iv) government intervention; (v) pandemics and (vi) natural catastrophes.

Where a limitation has occurred, the IGC shall decide if and how it will be rectified (this is a discretionary rule, see section 2.3). Any such rectification may comprise departures from the index methodology that may apply for as long as the limitation persists (this is a discretionary rule, see section 2.3).

In this context, STOXX may also decide to cancel an index review.

If a limitation that could justify the cancellation of an index review occurs two or fewer dissemination days before the scheduled review implementation date, the review will be performed as planned, if reasonably possible. This aims to avoid last-minute changes and not to undermine any trading that may have already been performed.

If a review is canceled, STOXX aims to perform it during the next scheduled review of the index or on the next quarterly review date (the third Friday of March, June, September and December), whichever comes first, subject to the then prevailing market conditions.

Any decision taken to depart from the index methodology will be communicated as soon as possible via an announcement or press release. STOXX Ltd. will not issue a notification if it comes to the conclusion that doing so is not permitted under the applicable laws, and may also decide to issue such a notification at a later point in time when the reasons for not issuing it no longer apply (this is a discretionary rule; see section 2.3). Force majeure or other events beyond the control of STOXX Ltd. may make it impossible for

9. LIMITATIONS

STOXX Ltd. to issue a notification within the requisite time or by the means set out herein. In such cases, STOXX Ltd. may exceptionally issue the notification either immediately following such an event or in any case by other means.

Any measures will be implemented two dissemination days later and will take effect on the next dissemination day after implementation unless a different effective date is specified in the notification.

10. METHODOLOGY REVIEWS

The purpose of methodology reviews is to maintain the integrity of the index concerned. In other words, the index methodology must remain applicable and must result in an accurate and reliable representation of the market/the economic realities that the index seeks to measure.

10.1. FREQUENCY OF REVIEW

Index methodologies are reviewed annually, and ad hoc if a limitation has occurred, in order to ensure that index integrity is maintained. A limitation that cannot be addressed by a methodology review may result in index cessation or transition. STOXX Ltd. shall not be liable for any losses arising from any decisions taken during methodology reviews.

10.2. REVIEW PROCEDURE

10.2.1. INITIATING METHODOLOGY REVIEWS

The Index Management Committee (IMC) proposes an annual methodology review schedule for approval by the Index Governance Committee (IGC) (this is a discretionary rule, see section 2.3).

The IMC is responsible for initiating ad hoc methodology reviews in the case of limitations or where another STOXX Committee recommends initiating a methodology review (this is a discretionary rule, see section 2.3).

10.2.2. DECISION AND ESCALATION

The following STOXX Committees are responsible for deciding on amendments to index methodologies:

The IMC decides on changes to index methodologies, unless

- a) A material change to the index methodology is proposed (see section 10.3 below)
- b) The change is triggered by an Unclear rule or an Insufficient rule (forming part of a limitation, see section 9)
- c) It relates to a request for a market consultation or
- d) Financial products relating to the index have a notional value/notional amount in excess of EUR 100mn.

If any of conditions a) to d) above apply, the decision is taken by the IGC.

10.3. MATERIAL CHANGES WITH CONSULTATION

As described in the STOXX Changes to Methodology Policy and the STOXX Consultation Policy (publicly available on the STOXX website), a consultation is performed before any material changes to index methodologies are proposed.

Changes to an index methodology are considered material in the event of:

10. METHODOLOGY REVIEWS

- a) A substantial change in the index objective or market/economic reality that the index aims to represent (e.g., market leader components vs. mid-cap companies), or
- b) A substantial change in index methodology regarding aspects such as, but not limited to, those listed below that would result in a change to the overall concept behind or nature of the index:
 - i. Calculation methods or formulas with a substantial impact on index performance
 - ii. Rules on how to determine index constituents using the index methodology
 - iii. Rules on how to determine the weights of index constituents using the index methodology
 - iv. Rules on the treatment of corporate actions

By contrast, index methodology updates resulting from the application of existing methodological principles, minor clarifications of existing rules, and corrections that do not change the overall concept behind, or nature of, the index are generally considered non-material.

The IMC determines whether an amendment is material as defined above. If such a determination cannot be made, the proposed amendment shall be treated as material (this is a discretionary rule, see section 2.3).

In the case of changes to methodologies as described in the STOXX Changes to Methodology Policy, STOXX consults with stakeholders that can reasonably be expected to be affected (“stakeholders”) before taking a decision.

“Stakeholders” mean (a) persons or entities who have an index license with STOXX regarding a benchmark administered by STOXX (“subscribers”) and/or, as far as STOXX is reasonably aware, (b) persons or entities and/or third parties who own contracts or financial instruments that reference a benchmark administered by STOXX (“investors”).

STOXX shall inform affected stakeholders as follows, while observing the principle of proportionality:

- » Either via public consultation open to the entire market and performed via the STOXX website or
- » Where the relevant stakeholders are known, directly on a restricted basis via the stakeholders’ e-mail addresses

STOXX shall inform stakeholders in writing about:

- » The key elements of any proposed relevant changes
- » The rationale for any proposed relevant changes
- » The specific questions to be answered
- » The deadline for receiving feedback
- » The time line for implementing the relevant changes
- » The contact details to be used to provide feedback
- » Relevant definitions

The consultation shall enable stakeholders to submit comments.

The standard consultation period shall be one month, with an option to shorten or extend this period.

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The IGC may decide to shorten the one-month period in the following cases:

- » In extreme or exceptional market conditions or similar extraordinary situations
- » In urgent cases, such as in situations in which the index can no longer be replicated
- » In situations where there is no known stakeholder impact or only a limited number of stakeholders
- » In order to align the effective date of a proposed change with index maintenance (e.g., equity/bond index rebalancing, an index review or a corporate action adjustment)
or
- » Any other similar cases, while applying the principle of proportionality

The IGC will consider the feedback received and decide whether the changes concerned shall take effect.

The IGC is not bound by any feedback received. Moreover, if the feedback received is ambiguous, or if no stakeholders participated, the IGC may decide to conduct another consultation, which once again shall not be binding.

If the IGC decides that relevant changes shall take effect, STOXX will communicate a time line for implementing them, where this has not already been communicated in the consultation materials.

Following the consultation, STOXX will make available the stakeholder feedback received together with a summary of its response to that feedback, except in those cases in which the stakeholders concerned have requested confidentiality (this is a discretionary rule, see section 2.3).

The decision will be communicated as soon as possible via an announcement or press release.

STOXX Ltd. will not issue a notification if it comes to the conclusion that doing so is not permitted under the applicable laws, and may also decide to issue such a notification at a later point in time when the reasons for not issuing it no longer apply.

Force majeure or other events beyond the control of STOXX Ltd. may make it impossible for STOXX Ltd. to issue a notification within the requisite time or by the means set out herein. In such cases, STOXX Ltd. may exceptionally issue the notification either immediately following such an event or in any case by other means.

10.4. NON-MATERIAL CHANGES WITHOUT CONSULTATION

Non-material changes to the index methodology, including a description of their impact and rationale, will be published via an announcement or press release. They take effect immediately following publication unless otherwise specified in the notification (this is a discretionary rule; see section 2.3). STOXX Ltd. will not issue a notification if it comes to the conclusion that doing so is not permitted under the applicable laws, and may also decide to issue such a notification at a later point in time when the reasons for not issuing it no longer apply (this is a discretionary rule; see section 2.3). Force majeure or other events beyond the control of STOXX Ltd. may make it impossible for STOXX Ltd. to issue a notification within the requisite time or by the means set out herein. In such cases, STOXX Ltd. may

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exceptionally issue the notification either immediately following such an event or in any case by other means.

10.5. PUBLICATION OF METHODOLOGY CHANGES

The effective date for benchmark methodology changes is aligned where feasible with the periodic benchmark review dates on which the benchmark composition is changed, and a rebalancing is triggered to avoid any extraordinary impact on clients. In general, material methodology changes should be publicly announced three months prior to their implementation. The IGC may decide to shorten the notice period:

- a) In exceptional or urgent cases such as extreme or exceptional market conditions or similar extraordinary situations
- b) In situations in which there is no stakeholder impact and it has been agreed that the notice period has to be shortened, but immediate communication is not possible. An example of a situation requiring urgent action is where the investor's ability to replicate the index benchmark performance with their portfolio is no longer guaranteed. In such cases, changes or amendments to the published index methodology must be made on the day on which the new rule or change is implemented.
- c) To align with the period benchmark review dates and rebalancing of the benchmarks

Where a material change in its methodology is proposed, STOXX shall share its evaluation of the key elements of the methodology that will be impacted by the change. In addition, STOXX Ltd. shall include an assessment of whether the representativeness of the benchmark and its appropriateness for its intended use will be put at risk if the proposed material change is not put in place. In the case of any changes or amendments to this DAX Equity Index Calculation Guide, STOXX ensures that both the public and subscribers are provided with detailed information on the nature and rationale of the changes, as well as the implications of, and terms for, the new methodology that will enter into force.

11. CORRECTIONS TO CALCULATIONS

This section outlines the rules and procedures applicable if there is a calculation error. This is defined as the provision of index values, the use of index constituents or other elements, or the application of weightings, caps, or other aspects of the index methodology in a manner that is not in line with this index methodology, due e.g., to a mistake, incorrect input data or the like.

11.1. RULE-BASED CORRECTIONS

STOXX will correct calculation errors without delay on the dissemination days on which they occur, provided that it becomes aware of such errors before 15:30 CET on the day in question, and that this is technically and operationally feasible. STOXX will not change an index's intraday composition.

If STOXX becomes aware of a calculation error at or after 15:30 CET, it will aim to correct it as of the end of the next dissemination day; this also includes corrections to index constituents.

STOXX will amend previously incorrect index values or input data only if these are required for subsequent index value calculations; such amendments will be made without undue delay. Incorrect real-time index values that are disseminated before the effective time of the correction will not be restated.

11.2. NON-RULE-BASED CORRECTIONS

If the rule-based error corrections outline above cannot be applied, the relevant STOXX Committee assesses without undue delay:

- If and how the calculation error should be corrected, including whether the index should be restated, and/or
- If the dissemination of index values should be suspended (this is a discretionary rule, see section 2.3)

Indices should be restated if their performance can no longer be replicated. Suspensions of index dissemination are triggered if the STOXX Committee decides that the correction will take significant time and that misleading index values could lead to financial, legal and reputational risks during this period (this is a discretionary rule, see section 2.3).

STOXX will suspend index dissemination at the latest at the end of the dissemination day after it becomes aware of a calculation error, if the latter has not been corrected by then.

STOXX will resume dissemination of the index as soon as correct index calculation is feasible and the correct historical values are available.

12. DOCUMENT CHANGE HISTORY

Published July 22, 2024 Effective July 22, 2024	<ul style="list-style-type: none"> - Publication of Version 1.3 - Update of actual dissemination start time for DAX Blue-Chip and DAX ESG indices in section 3.2
Published May 29, 2024 Effective May 29, 2024	<ul style="list-style-type: none"> - Publication of Version 1.2 - Clarification of the cut-off date for free float determination and conditions for extraordinary free float adjustments due to M&A for International indices
Published May 7, 2024 Effective May 7, 2024	<ul style="list-style-type: none"> - Publication of Version 1.1 - Wording improvements and minor corrections throughout the document. - Clarification on the timing of evaluating the eligibility for tendered shares in section 8.3.3 - Clarification on the applicability of target company deletion in case of a conversion into tendered shares in section 8.3.2
Published Sept. 29, 2023 Effective Mar. 18, 2024	<ul style="list-style-type: none"> - Development of Version 1.0 - Initial development of the document.