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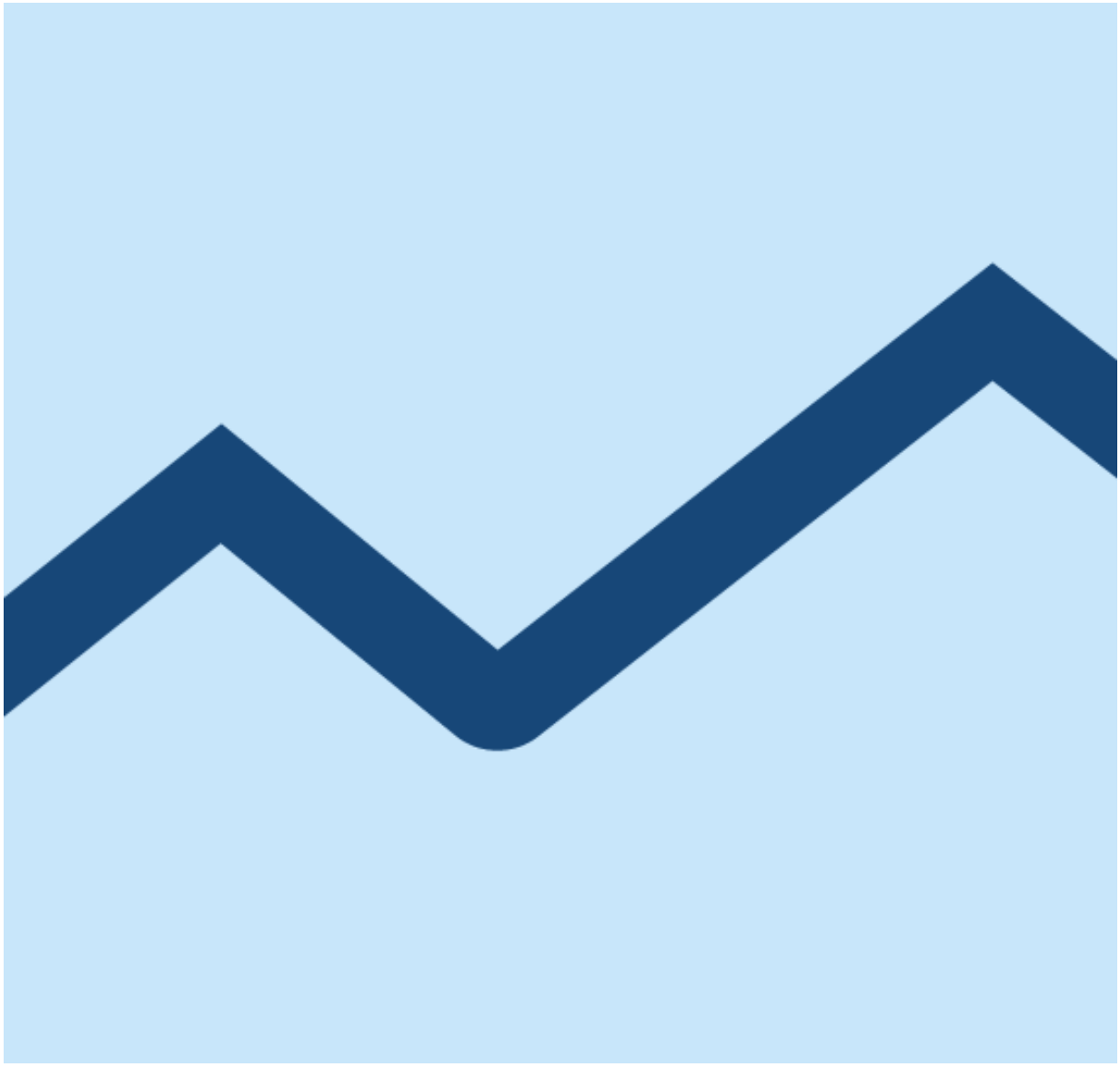
STOXX

DAX Strategy Index Guide

STOXX.com



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1. INTRODUCTION

1.1. INTRODUCTION TO THE DAX INDEX GUIDES

» The **DAX Equity Index Methodology Guide** contains the equity index specific rules regarding the construction and derivation of the portfolio based indices, the individual component selection process and weighting schemes
» The **DAX Equity Index Calculation Guide** describes the calculation and dissemination processes of the DAX equity indices, including index formulas and adjustments due to corporate actions
» The **DAX Strategy Index Guide** contains the formulas and description of all DAX strategy indices
» The **Guide to the iNAV Calculation** contains details on the calculation of indicative net asset values (iNAV)
» The **Guide to Industry Classifications used by STOXX Ltd.** contains general information pertaining to industry classifications used in DAX indices
» The **Guide to Reference Calculations used by STOXX Ltd.** provides a detailed view of definitions and formulas of the calculations as utilized in the reports, factsheets, indices and presentations produced by STOXX

1.1. GENERAL INFORMATION

With effect to August 2019 Deutsche Börse AG has transferred the administration of the DAX Equity Indices formerly known as the Equity Indices of Deutsche Börse AG to its affiliate STOXX Ltd.

STOXX Ltd. develops, creates and publishes Indices for certain uses, e.g., the issuance of Financial Instruments. In general, an Index is any figure published or made available to the public that is regularly determined by the application of a formula (or any other method of calculation, or by an assessment) on the basis of the value of one or more underlying assets or prices, including estimated prices, actual or estimated interest rates, quotes and committed quotes, or other values or survey.

All DAX Strategy Indices are governed by the respective index methodology applicable to the respective index or index family. Purpose of this DAX Strategy Index Guide ("Guide") is to provide for a comprehensible index methodology in continuity of the former Guide to the DAX Strategy Indices as last amended with effect from August 2023 (version 3.48).

In order to ensure the highest quality of each of its indices, STOXX Ltd. exercises the greatest care when compiling and calculating equity indices on the basis of the rules set out in this Guide.

However, STOXX Ltd. cannot guarantee that the various indices, or the various ratios that are required for index compilation and computation purposes, as set out in this Guide, are always calculated free of errors. STOXX Ltd. accepts no liability for any direct or indirect losses arising from any incorrect calculation of such indices or ratios.

1. INTRODUCTION

The DAX Strategy Indices in no way represent a recommendation for investment. In particular, the compilation and calculation of the various indices shall not be construed as a recommendation of STOXX Ltd. to buy or sell individual securities, or the basket of securities underlying a given index.

2. GENERAL PRINCIPLES

2.1. PRINCIPLES FOR INDEX CALCULATION

The DAX Strategy Indices are calculated based on the following principles whenever possible:

- Representative: The indices aim to best represent the performance of the target market
- Tradeable: Index components are tradeable in relation to the size of the companies and the target market
- Replicable: Performance of indices can be tracked by an actual portfolio
- Stable: High degree of index continuity
- Rules-based: Index calculation and changes to the index composition follow transparent rules
- Predictable: Changes to index rules are publicly announced with a reasonable notice period (generally at least 2 trading days), and 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 related to indices administered by STOXX and referenced in this guide. It acts as an advisory body based on the basic principles mentioned and the rules of these guidelines. The Advisory Board 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. The Advisory Board's meetings usually take place not later than the sixth trading day in March and September. Extraordinary meetings may also be convened.

2.3. INDEX TERMINATION POLICY

For termination of an index or an index family that underlie financial products available for trading on the market, to the knowledge of STOXX, a market consultation will be conducted by STOXX in advance of the index termination in line with STOXX Transition Policy and STOXX Consultation Policy (publicly available on STOXX website).The length of the consultation period will be defined in advance based on the specific issues of each proposed termination subject to STOXX Benchmark Transition Policy (Discretionary Rule, see section 2.3 Discretion in the DAX Equity Index Calculation Guide). During the consultation period, clients and third parties will have the chance to share their concerns regarding the termination of the index or index family. Based on the collected feedback, STOXX may review its decision to terminate an index or an index family (Discretionary Rule, see section 2.3 Discretion in the DAX Equity Index Calculation Guide). At the end of the consultation period, STOXX will publicly announce its final decision about the termination. A transition period will be granted in the event of termination (Discretionary Rule, see section 2.3 Discretion in the DAX Equity Index Calculation Guide).

For termination of an index or an index family that do not underlie financial products available for trading on the market, no market consultation will be conducted.

3. OPTIONS INDICES

3.1. DAXPLUS COVERED CALL

3.1.1.OVERVIEW

The DAXplus Covered Call index reflects the so-called "covered call" option strategy. This strategy – which is also referred to as "buy-write" – involves the purchase of an underlying instrument and the simultaneous sale of a call option on that instrument.
The index is based on the DAX index and a short position in a DAX call option traded at Eurex.

Base value and dates: 100 on December 31, 1992.

3.1.2.CALCULATION

DAXplus Covered Call index combines the DAX index and a DAX call option. The index composition is adjusted on a monthly basis. On each third Friday of the month, a new front-month call option is determined, which will be used to calculate the index until their last trading day, at 13:00 CET.

The calculation times and frequencies can be found in the Vendor Code Sheet which is available under https://www.stoxx.com/data-vendor-codes. On option rollover dates, the index is only calculated until 13:00 CET.

The calculation is based on the last available Xetra (stocks) and Eurex (options) price data (Section 3.2.4). DAXplus Covered Call index uses the values of the constituent elements (applying currency conversion, if necessary) in calculation its index value and is expressed in Index points, reflecting the index-specific currency. The intraday currency conversion is based on the spot rates provided by Refinitiv previously Financial and Risk business of Thomson Reuters. The WM/Refinitiv currency fixing rates from 17:00 CET are used to calculate the index's closing values. DAXplus Covered Call index is available in the currencies set forth in the Vendor Code Sheet which is available under https://www.stoxx.com/data-vendor-codes.

On Xetra trading days DAXplus Covered Call is calculated as follows:

$$\mathrm{CC}_t = \frac{DAX_t - C_t}{DAX_s - C_0} \cdot \mathrm{CC}_s$$

The rolling is carried out monthly on every third Friday.

$$\mathrm{CC}_s = \frac{DAX_s - C'_s}{DAX_{s-m} - C'_0} \cdot \mathrm{CC}_{s-m}$$

whereby:

CC_t	=	covered call index at time t
CC_s	=	settlement value of covered call index at last rolling day
CC_{s-m}	=	settlement value of covered call index at previous rolling day
DAX_t	=	last price of DAX at time t
DAX_s	=	settlement price of DAX at last rolling day
DAX_{s-m}	=	settlement price of DAX at previous rolling day
C_t	=	last price of call option at time t; End of day index values are calculated using

3. OPTIONS INDICES

option settlement price
C_0 = inclusion price of new call option at last rolling day
C'_s = settlement price of old call option at last rolling day
C'_0 = inclusion price of old call option at previous rolling day

DAXplus Covered Call index is published as figures rounded to two decimal places.

Rolling

DAXplus Covered Call requires a monthly rollover operation, whereby the old call option ceases trading at 13:00 CET on the pre-determined rollover date and is replaced by a new option whose last trading day falls on the next rollover date. The new call option must have a remaining lifetime of one month, and must be 5 percent out of the money (i.e. the highest strike price below or equal to the DAX settlement price plus 5 percent).

The prices at which the call options are included in the DAXplus Covered Call index are based on the weighted averages of all best bids for call options quoted on Eurex between 13:15 and 13:45 CET.

Trading Interruption/Suspension

If there is any interruption/suspension of the DAX index or the DAX call option which is included in DAXplus Covered Call at any time then the index will be calculated with the latest prices which will be available.

If suspension occurs on a rolling day during the averaging process, only bids before the interruption/suspension will be considered.

In case averaging does not start at all (i.e. interruption/suspension starts before 13:15 CET) then the averaging will be delayed until the end of the interruption/suspension on the same index business day. 30 minutes after the end of the interruption/suspension the averaging will start and will then take 30 minutes.

If the interruption/suspension will continue until the end of trading then the averaging will be delayed until the next index business day at 13:15 CET.

3.2. DAXPLUS PROTECTIVE PUT

3.2.1.OVERVIEW

The DAXplus Protective Put index reflects the Protective Put investment strategy, which is designed to provide protection from losses. This strategy combines an index investment with an options position. It involves buying a put option while simultaneously purchasing the option's underlying.
The index is based on the DAX-index and a long position in a DAX put option traded at Eurex.

Base value and dates: 100 on December 31, 1992.

3. OPTIONS INDICES

3.2.2.CALCULATION

The DAXplus Protective Put index combines the DAX index and a DAX put option.

The index composition is adjusted on a quarterly basis. On third Friday in March, June, September and December, a new put option is determined, which will be used to calculate the index until the last trading day, at 13:00 CET for the following three months.

The calculation times and frequencies can be found in the Vendor Code Sheet which is available under https://www.stoxx.com/data-vendor-codes. On option rollover dates, the index is only calculated until 13:00 CET.

The calculation is based on the last available Xetra (stocks) and Eurex (options) price data (Section 3.2.4). DAXplus Protective Put index uses the values of the constituent elements (applying currency conversion, if necessary) in calculation its index value and is expressed in Index points, reflecting the index-specific currency. The intraday currency conversion is based on the spot rates provided by Refinitiv previously Financial and Risk business of Thomson Reuters. The WM/Reuters currency fixing rates from 17:00 CET are used to calculate the indices' closing values. DAXplus Protective Put index is available in the currencies set forth in the Vendor Code Sheet which is available under https://www.stoxx.com/data-vendor-codes.

On Xetra trading days DAXplus Protective Put is calculated as follows:

$$\mathrm{PP}_t = \frac{DAX_t + P_t}{DAX_s + P_0} \cdot \mathrm{PP}_s$$

The rolling is carried out monthly on every third Friday.

$$\mathrm{PP}_s = \frac{DAX_s + P'_s}{DAX_{s-m} + P'_0} \cdot \mathrm{PP}_{s-m}$$

whereby:

$\mathrm{PP_t}$	=	protective put index at time t
$\mathrm{PP_s}$	=	settlement value of protective put index at last rolling day
$\mathrm{PP_{s-m}}$	=	settlement value of protective put index one rolling before
$\mathrm{DAX_t}$	=	last price of DAX at time t
$\mathrm{DAX_s}$	=	settlement price of DAX at last rolling day
$\mathrm{DAX_{s-m}}$	=	settlement price of DAX at previous rolling day
$\mathrm{P_t}$	=	last price of put option at time t; End of day index values are calculated using option settlement price
$\mathrm{P_0}$	=	inclusion price of new put option at last rolling day
$\mathrm{P'_s}$	=	settlement price of old put option at expiry day
$\mathrm{P'_0}$	=	inclusion price of old put option one rolling before

DAXplus Protective Put index is published as figures rounded to two decimal places.

3. OPTIONS INDICES

Rolling

The DAXplus Protective Put requires a quarterly rollover operation, whereby the old put option ceases trading at 13:00 CET on the pre-determined rollover date, and is replaced by a new put option whose last trading day falls on the next rollover date. The new option must have a remaining lifetime of three months, and must be 5 percent out of the money (i.e. the lowest strike price above or equal to the DAX settlement price minus 5 percent).

The prices at which the put options are included in the DAXplus Protective Put index are based on the weighted averages of all best asks for put options quoted on Eurex between 13:15 and 13:45 CET.

Trading Interruption/Suspension

If there is any interruption/suspension of the DAX index or the DAX put option which is included in the DAXplus Protective Put at any time then the index will be calculated with the latest prices which will be available.

If suspension occurs on a rolling day during the averaging process, only bids before the interruption/suspension will be considered.

In case averaging does not start at all (i.e. interruption/suspension starts before 13:15 CET) then the averaging will be delayed until the end of the interruption/suspension on the same index business day. 30 minutes after the end of the interruption/suspension the averaging will start and will then take 30 minutes.

If the interruption/suspension will continue until the end of trading then the averaging will be delayed until the next index business day at 13:15 CET.

3.3. DAX COVERED CALL ATM

3.3.1.OVERVIEW

The DAX Covered Call ATM Index reflects the so-called 'buy-write' option strategy. With this strategy, an investor buys the DAX index as an underlying instrument and simultaneously sells a DAX call option. The index is based on the DAX index and a short position in a DAX call option traded at Eurex.

Underlying Index Data:

Instrument	Name	ISIN
Underlying	DAX Index	DE0008469008
Option	DAX Option	DE0008469495

Index Types and Currencies: Total Return in EUR

3. OPTIONS INDICES

Dissemination Calendar: The index follows Xetra Calendar and is disseminated real-time between 09:00 - 19:15 CET Europe. On roll dates, the index will not be disseminated intraday after the old DAX call option ceases trading at 13:00 CET until 15:00 CET, after which, the calculation shall follow the respective non-roll day calculations based on the new DAX call option.

Base Values and Dates: 100 as of January 18, 2019

3.3.2.CALCULATION

DAX Covered Call ATM index combines the DAX index and a DAX call option. On regular trading days the index is calculated as follows:

$$\mathrm{Index_t} = \frac{\mathrm{DAX_t} - \mathrm{C_t}}{\mathrm{DAX_{EXP}} - \mathrm{C_0}} \mathrm{Index_{EXP}}$$

The rolling is carried out monthly on every third Friday, i.e., on the expiry date (EXP)

$$\mathrm{Index_{EXP}} = \frac{\mathrm{DAX_{EXP}} - \mathrm{C'_{EXP}}}{\mathrm{DAX_{EXP-1}} - \mathrm{C'_0}} \mathrm{Index_{EXP-1}}$$

Where:

$\mathrm{Index_t}$ = DAX Covered Call ATM index at time (t)

$\mathrm{Index_{EXP}}$ = Settlement value of DAX Covered Call ATM index at the previous expiry date (EXP)

$\mathrm{Index_{EXP-1}}$ = Settlement value of DAX Covered Call ATM index at the last expiry date before the previous expiry date (EXP-1)

$\mathrm{DAX_t}$ = Last price of DAX index at time t

$\mathrm{DAX_{EXP}}$ = Settlement price of DAX index at the previous expiry date (EXP)

$\mathrm{DAX_{EXP-1}}$ = Settlement price of DAX index at the last expiry date before the previous expiry date (EXP-1)

$\mathrm{C_t}$ = Last price of the DAX call option at time t during intraday calculation; when available, daily settlement price received is used in index level calculation

$\mathrm{C_0}$ = Inclusion price of the DAX call option, as calculated in the next section

$\mathrm{C'_{EXP}}$ = Settlement price of the old DAX call option at the last expiry date (EXP)

$\mathrm{C'_0}$ = Inclusion price of the old DAX call option at the last expiry date (EXP-1) before the previous expiry date (EXP)

The index is calculated with full precision and reported/disseminated rounded to 2 decimal places.

3. OPTIONS INDICES

ROLLING

The DAX Covered Call ATM Index requires a monthly rollover procedure, whereby the old DAX call option ceases trading at 13:00 CET on the pre-determined expiry date, i.e. the third Friday of a month, and is replaced by a new DAX call option whose last trading day falls on the next expiry date. The new call option must have a remaining lifetime of one month and must be at-the-money (determined as the highest strike price below or equal to the DAX index value at 13:00 CET).
On Roll Day t, the call option inclusion price is calculated as

$$\text{InclusionPrice}_t = \frac{\sum_{k=1}^{N}(\text{MidPrice}_{t,k} - \text{TransactionCost}_{t,k})}{N}$$

$$\text{TransactionCost}_{t,k} = \text{Vega}_{t,k} * \text{VolSpread}_{k,iv}$$

Where
k is the interval (every minute) during the intraday window 13:15-13:45 CET
$\text{VolSpread}_{k,iv}$ is based on the implied volatility level and according to the table below

Implied Volatility Level	Volatility Spread
IV ≤ 20%	0.50%
20% < IV ≤ 30%	0.70%
30% < IV ≤ 50%	0.90%
IV > 50%	1.4%

The calculation of the option $\text{Vega}_{t,k}$ is based on Black 76 model and follows:
For each k interval from the intraday window at roll day t, we find $\text{MidPrice}_{t,k}$ of Puts and Calls with the same time to expiry T as the selected call, the mid price is calculated as follows if both the bid and ask quotes are equal to or greater than 0.1 points:

$$\text{MidPrice}_{t,k} = \begin{cases} \frac{(\text{BidPrice}_{t,k} + \text{AskPrice}_{t,k})}{2} & \text{if BidPrice}_{t,k} \text{ and AskPrice}_{t,k} \text{ both exist} \\ \text{NA, otherwise} \end{cases}$$

For strike X where abs $(\text{Call}_{t,k,x} - \text{Put}_{t,k,x})$ is the smallest, we find implied at the money $\text{FowardPrice}_{t,k,x} = (\text{Call}_{t,k,x} - \text{Put}_{t,k,x})\, e^{rT} + X$, which shall then be $\text{ForwardPrice}_{t,k}$. If multiple pairs of calls and puts exist with identical price differences, a forward price will be calculated as the simple average of the corresponding implied forward prices.

$$\text{Vega}_{t,k} = \text{FowardPrice}_{t,k} e^{-rT}\, \text{PDF}(d_{1,k})\sqrt{T}$$

Where

$$d_{1,k} = \frac{\log(\frac{\text{ForwardPrice}_{t,k}}{X}) + \frac{\sigma_k{}^2}{2} T}{\sigma_k \sqrt{T}}$$

3. OPTIONS INDICES

and σ_k is the implied volatility for the underlying forward at interval k
and T is the time to maturity as fraction of days in years (ACT/365)
and r is the interest rate EURIBOR1M[1]
and X is the strike of the selected option

TRADING SUSPENSION

If there is a suspension of the DAX index or the DAX call option that is included in the DAX Covered Call ATM index, the index will be calculated using the latest prices that were available.

If a suspension partially covers the averaging time window (13:15-13:45 CET), only the available ticking values during the averaging time window (13:15-13:45 CET) will be considered.
In cases where the average procedure does not start (i.e., the suspension starts before 13:15 CET), if the suspension covers the whole initial averaging time window (13:15-13:45 CET), the averaging will be delayed until the end of the suspension on the same index business day. The average process will start 30 minutes after the end of the suspension and it will take 30 minutes.

The index will then resume ticking on the next day after the suspension.
If the suspension continues until 16:30 CET, then the averaging will be delayed until the next index business day at 13:15 CET.

[1] In case the value published on day t is not received before calculation starts, the last available value is used.

4. LEVERAGED AND SHORT INDICES

4.1. DAX, MDAX, TECDAX LEVERAGED AND SHORT INDICES

4.1.1.OVERVIEW

With leveraged indices STOXX Ltd. calculates indices linked proportionally to the movements of its underlying index. A positive change in its underlying index will result in the corresponding leveraged performance of leveraged indices and vice versa.
With short indices STOXX Ltd. calculates indices linked inversely to the movements of its underlying index. A positive change in its underlying index will result in a negative change in short indices and vice versa.

Leveraged indices are linked to the changes of blue-chip index DAX, applying a positive leverage factor to DAX movements. Therefore, investing in leveraged indices yields x-fold the performance of DAX, compared to the closing level from the last day of calculation. Short Indices are linked to the inverse movement of blue-chip index DAX (TecDAX) (Section 3.3.1).

Base value and dates: 1000 on December 30, 1987 (Leveraged); 6596.92 on December 29, 2006 (ShortDAX); 748.32 on December 29, 2006 (ShortTecDAX).

4.1.2.CALCULATION

The adjustment of leverage takes place daily or (in case of monthly adjustment) on each third Friday of a month.

The calculation times and frequencies can be found in the Vendor Code Sheet which is available under https://www.stoxx.com/data-vendor-codes.

STOXX sources €STR and EURIBOR rates from Refinitiv previously Financial and Risk business of Thomson Reuters.

Leveraged and short Indices are calculated as follows:

$$\mathrm{LevIDX}_t = \mathrm{LevIDX}_T \cdot \Big[\underbrace{1 + L \cdot \left(\cdot \frac{\mathrm{IDX}_t}{\mathrm{IDX}_T} - 1\right)}_{\text{LEVERAGE TERM}} + \underbrace{((1-L)\cdot \mathrm{IR}_T + L \cdot c_M) \cdot \frac{d}{360}}_{\text{FINANCE/INTEREST TERM}}\Big]$$

Where:

L	=	leverage factor
IDX	=	reference index
IR	=	interest rate: Daily Leverage Indices: €STR[2] + (EURIBOR (12M) - 1Y €STR Swap Rate) Daily Short Indices: €STR Monthly Leverage / Short Indices: EURIBOR (1M)
c_M	=	cost of borrowing (short indices)

[2] The index will be calculated using €STR that is published on day T in respect of day T-1.

4. LEVERAGED AND SHORT INDICES

t = time of calculation
T = time of last rebalancing (last trading day resp. third Friday)
d = number of calendar days between t and T

The leverage term describes the effect of index movements on leveraged and short Indices. The "finance term" indicates the costs caused by raising capital and reinvesting into the reference index portfolio. The "interest term" represents the additional interest generated by selling the reference index portfolio and the risk-free investment of the proceeds.

The euro short-term rate (€STR) reflects the wholesale euro unsecured overnight borrowing costs of banks located in the euro area, by European Central Bank. €STR is calculated as a volume-weighted trimmed mean on the basis of all eligible transactions that have passed quality and plausibility controls. On 2 October 2019 €STR was published for the first time. Before that, the EONIA (from 1 January 1999 until 30 September 2019) and daily interest provided by Deutsche Bundesbank (prior to 1 January 1999) was used for calculation.

The Euro Interbank Offered Rate (EURIBOR) is a daily reference rate based on the averaged interest rates at which banks offer to lend unsecured funds to other banks in the euro wholesale money market (or interbank market). Prior to its introduction on 1 January 1999 Frankfurt Interbank Offered Rate (FIBOR) has been used.

The liquidity Spread (EURIBOR (12M) – 1Y €STR Swap Rate) is updated on a monthly basis. It is determined using the average over the liquidity spreads of five index calculation days ranging from 5th last to the last calculation day prior to each monthly rebalancing date (3rd Friday). To calculate the liquidity spread, the closing values of the 1Y €STR (swap rates) are taken.

The cost of borrowing will be updated on a monthly basis as described below:

$$c_M = \sum_i w_{\mathrm{i,M}} \cdot c_{\mathrm{i,M}}$$

Where:

c_M = Cost of borrowing the Index at time M
$c_{i,M}$ = Cost of borrowing the share i at time M
$w_{i,M}$ = Index weight of share i at time M

The data is provided by Data Explorers, the aggregator of stock lending information.

The following leveraged and short Indices are calculated:

Index	Leverage factor L
LevDAX x2	2
LevDAX x2 Monthly	2
LevDAX x3	3
LevDAX x4	4
LevDAX x5	5
LevDAX x6	6

4. LEVERAGED AND SHORT INDICES

LevDAX x7	7
LevDAX x8	8
LevDAX x9	9
LevDAX x10	10
ShortDAX	-1
ShortDAX x2	-2
ShortDAX x2 Monthly	-2
ShortDAX x3	-3
ShortDAX x4	-4
ShortDAX x5	-5
ShortDAX x6	-6
ShortDAX x7	-7
ShortDAX x8	-8
ShortDAX x9	-9
ShortDAX x10	-10
ShortMDAX x1	-1
ShortTecDAX	-1
LevDAX Optimal	L*

Calculation of the optimal leverage factor

The optimal leverage factor L* is determined every month based on the risk-return profile of the underlying index. Relevant factors are the growth rate of the underlying index and the volatility reflected by the VDAX index.

$$L^* = L_T^* = min\left(4; max\left(\frac{1}{2}; \frac{1}{2} + \frac{\mu - r}{\sigma^2}\right)\right)$$

Where:

r = IR_T

μ = growth rate of the underlying index, $\mu = \left(\frac{IDX_T}{IDX_0}\right)^{\frac{365}{T-30.12.1987}} - 1$

σ = volatility of the underlying index, $\sigma = \frac{\text{VDAX}}{100}$

Adjustments due to extreme market movements

Daily Leverage and Short Indices: If daily leveraged or short indices drop by more than 50 percent at the time of calculation t in comparison to the closing prices on the last adjustment day T then the leverage will be adjusted. During the adjustment those prices are considered which are received at time t. No additional refinancing costs ("Financing Term") are calculated and no additional interests are credited ("Interest Term").

The rebalancing will be carried out by simulating a new day:

t := T (i.e. $IDX_T = IDX_t$ and $LevIDX_T = LevIDX_t$)

d := 0

4. LEVERAGED AND SHORT INDICES

Daily Leverage and Daily Short AR Indices: The rebalancing is based on the average overall index values that occur in a time window of 10 minutes. The time window to calculate the average starts 5 minutes after and ends 15 minutes after the trigger event occurs. The rebalancing is triggered when the underlying index loses more than x% (leverage indices) or appreciates by more than x% (short indices) compared to its previous day's close.

The respective trigger values (x) are given in the following table:

Leverage	Trigger value (x)
(L2)	x = -25,00%
(L3)	x = -16,66%
(L4)	x = -12,50%
(L5)	x = -10,00%
(L6)	x = -10,00%
(L7)	x = -10,00%
(L8)	x = -10.00%
(S1)	x = 50,00%
(S2)	x = 25,00%
(S3)	x = 16,66%
(S4)	x = 12,50%
(S5)	x = 10,00%
(S6)	x = 10,00%
(S7)	x = 10,00%
(S8)	x = 10.00%

Over the course of the 10 minute period in which the average is determined, the index is not disseminated. The index dissemination ends 5 minutes after the trigger event and is resumed with an index level equal to the determined average 15 minutes after the trigger event.

Should the intraday rebalancing be triggered less than 15 minutes prior to the end of the index calculation day, the regular overnight rebalancing is carried out.

If the leverage/short index reaches a value of 0, the index is set to a value of 0 and its calculation/dissemination is discontinued. The index suspension is announced immediately, and index is terminated after 20 trading days of suspension.

Monthly Leveraged Indices: If the reference index (closing value) rises or falls by more than 40% in the course of the month, the monthly leveraged and short indices will be subject to an extraordinary adjustment. The leverage factor will be adjusted based on the closing value of the reference index. Herewith the risk of a potential total loss is minimized. If the monthly leveraged and short indices reaches a floor value of zero its calculation/dissemination is discontinued.

4. LEVERAGED AND SHORT INDICES

Reverse Split
If the closing value of a daily leverage or short index drops below 100 index points, a reverse split is carried out. The leverage index is multiplied with a factor of 1000 whereas the Short index is multiplied with a factor of 1000.

The reverse split is carried out based on the index close ten trading days after the index initially dropped below a closing value of 100 points, notwithstanding whether the index rises above a level of 100 points in the meantime.

For optimal leverage indices as well as for monthly adjusted leverage and short indices, no reverse split is carried out.

Leverage Effect
The leverage effect causes an over proportional change of capital, employed during positive and negative market movements. This effect can be achieved by raising additional capital and reinvesting into the reference index and by investing capital from purchases and additional interests respectively. Therewith, investors can make use of this opportunity to employ a profitable investment strategy with low initial capital in order to multiply the chances of profit considerably. On the other hand this leverage effect inherits the risk of an over proportional capital loss ("downside risk").

Computational Accuracy
Leveraged and short Indices are published rounded to two decimal places.

All adjustment factors of the reference index are described in the "DAX Equity Calculation Guide".

4.2. DAX FUTURES LEVERAGE INDEX

4.2.1.OVERVIEW

The DAX Futures Leverage Long and Short Indices replicate a leveraged investment strategy based on the DAX Futures Switch ER Indices. Leveraged long indices apply a leverage factor to movements in the underlying index. Therefore, a positive change of the underlying index will result in the corresponding leveraged performance in this index. Short indices are linked inversely to the changes in the underlying index, applying a negative leverage factor to movements in the underlying index. Therefore, investing in short indices yields the reverse performance of the underlying index.

Base value and dates: Base dates and base values of the DAX Future Leverage indices can be found in the table below.

ISIN	Index Name	Leverage Factor	Base Value	Base Date
DE000A3DZD04	DAX Futures Leverage Long 7X Excess Return EUR	7	1000	02/11/2022

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DE000A3DZD20	DAX Futures Leverage Short 7X Excess Return EUR	7	1000	22/08/2022
DE000A3DZD38	DAX Futures Leverage Long 5X Excess Return EUR	5	1000	12/09/2022
DE000A3DZD46	DAX Futures Leverage Short 5X Excess Return EUR	5	1000	12/09/2022

4.2.2.CALCULATION

The index is calculated as follows:

$$LevIDX_t = LevIDX_T \cdot \left[1 + L \cdot \left(\frac{IDX_t}{IDX_T} - 1\right) + (IR + L \cdot c_M \cdot a) \cdot \frac{d}{360}\right]$$

Where:

LevIDX	=	Leverage Index (Rounded previous value used for calculation).
IDX	=	Underlying Index.
IR	=	Interest Rate (€STR(t-2) is used).
c_M	=	Cost of Borrow (Fixed at 0.6%).
t	=	Time of calculation.
T	=	Time of last rebalancing prior to t (Usually last trading day).
d	=	Number of calendar days between t and T.
L	=	Leverage Factor.
a	=	-1 for Long Indices, 1 for Short Indices.

The calculation times and frequencies can be found in the Vendor Code Sheet which is available under https://www.stoxx.com/data-vendor-codes.

Adjustments Due to Extreme Market Movements

The intraday rebalancing is based on the minimum/maximum overall index values that occur in a time window of 10 minutes [θ,θ+]. The time window to calculate the minimum/maximum starts immediately after the trigger event occurs [θ]. The intraday rebalancing is triggered when the underlying index decreases more than x% (long indices) or increases by more than x% (short indices) compared to its previous day's close.

The respective trigger values (x) are given in the following table:

Long		Short	
Leverage	Trigger Value	Leverage	Trigger Value
5	-14%	-5	14%
7	-11%	-7	11%

Within the intraday rebalancing process, the base value when the minimum/maximum occurs in time t* is calculated as:

If $L > 0$: $IDX_{t^*} = \min [\theta, \theta^+] \, IDX_t$

4. LEVERAGED AND SHORT INDICES

If $L < 0$: $IDX_{t^*} = \max[\theta, \theta^+]\ IDX_t$

On that day after the intraday rebalancing i at time t the indices are calculated by:

$$LevIDX_t = LevIDX_{t_i^*} \cdot \left[1 + L \cdot \left(\frac{IDX_t}{IDX_{t_i^*}} - 1\right)\right]$$

$$ShortIDX_t = ShortIDX_{t_i^*} \cdot \left[1 + L \cdot \left(\frac{IDX_t}{IDX_{t_i^*}} - 1\right)\right]$$

With:

$$LevIDX_{t_1^*} = LevIDX_{t-1} \cdot \left[1 + L \cdot \left(\frac{IDX_{t_1^*}}{IDX_{t-1}} - 1\right) + (IR + L \cdot c_M \cdot a) \cdot \frac{d}{360}\right]$$

$$ShortIDX_{t_1^*} = ShortIDX_{t-1} \cdot \left[1 + L \cdot \left(\frac{IDX_{t_1^*}}{IDX_{t-1}} - 1\right) + (IR + L \cdot c_M \cdot a) \cdot \frac{d}{360}\right]$$

And for $i>1$ we simulate a new day by setting $d=0$, thus giving:

$$LevIDX_{t_i^*} = LevIDX_{t_{i-1}^*} \cdot \left[1 + L \cdot \left(\frac{IDX_{t_i^*}}{IDX_{t_{i-1}^*}} - 1\right)\right]$$

$$ShortIDX_{t_i^*} = ShortIDX_{t_{i-1}^*} \cdot \left[1 + L \cdot \left(\frac{IDX_{t_i^*}}{IDX_{t_{i-1}^*}} - 1\right)\right]$$

Over the course of the 10 minute period in which the minimum/maximum is determined, the index is not disseminated. The index dissemination ends immediately after the trigger event and is resumed after the 10 minute period has passed. In the case where the intraday rebalancing is triggered after 17:18:45 CET the intraday rebalancing will not be carried out. Any index value that triggers the intraday rebalancing before or equal to 17:18:45 will lead to the intraday rebalancing described above. The regular overnight rebalancing is always carried out, given that the leveraged/short index is not suspended.

Index Floor
If the leverage/short index reaches a value of 0, the index is set to a value of 0 and its calculation/dissemination is discontinued. The index suspension is announced immediately, and index is terminated after 20 trading days of suspension.
When historically back-casting the indices, prior to rebasing, if the indices hit the floor of 0.010 they were reset to an index level of 1000 on that calculation date.

Computational Accuracy
The index is rounded to three decimal places and published accordingly.

4. LEVERAGED AND SHORT INDICES

4.3. DAXGLOBAL SHORT INDICES

4.3.1.OVERVIEW

With DAXglobal Short indices STOXX calculates strategy indices which are linked inversely to the movements of their underlying DAXglobal indices[3]. A positive change of underlying indices will result in a negative change of the same amplitude in DAXglobal Short indices.

4.3.2.BASIC DATA

The following DAXglobal Short indices are calculated:

Index name	Underlying index	Currency	Base	Base Date
DBIX Deutsche Börse India Index Short	DBIX Deutsche Börse India Index	€, US$, £	100	21 Sep. 2001
DAXglobal China Short	DAXglobal China	€, US$, £	100	21 Sep. 2001

4.3.3.CALCULATION

DAXglobal Short indices are calculated as follows:

$$ShortIDX_t = ShortIDX_T \left[1 - \underbrace{\left(\frac{Index_t}{Index_T} - 1\right)}_{\text{LEVERAGE TERM}} + \underbrace{2 * d * \frac{€\text{STR}_T}{360}}_{\text{INTEREST TERM}}\right]$$

Where:

Index	=	underlying index portfolio (cf. chapter 1.1)
€STR$_T$	=	Overnight interest rate published on day T in respect of day T-1
t	=	Time of calculation
d	=	Number of calendar days between t and T

The "Leverage Term" describes the inverse effect of the underlying DAXglobal index movements on the respective DAXglobal Short index.

The "Interest Term" represents the additional interest generated by selling the portfolio of the underlying index and the risk-free investment of the proceeds.

€STR reflects the wholesale euro unsecured overnight borrowing costs of banks located in the euro area, by European Central Bank. €STR is calculated as a volume-weighted trimmed mean on the basis of all eligible transactions that have passed quality and plausibility controls. On 2 October 2019 €STR was published for the first time. Before that, the EONIA (from 1 January 1999 until 30 September 2019) and daily interest provided by Deutsche Bundesbank (prior to 1 January 1999) has been used for calculation.

[3] For detailed Information concerning the index composition of the underlying DAXglobal indices cf. "DAX Equity Index Methodology Guide".

4. LEVERAGED AND SHORT INDICES

The calculation times and frequencies can be found in the Vendor Code Sheet which is available under https://www.stoxx.com/data-vendor-codes.

Adjustments due to extreme market movements

The rebalancing is based on the average over all index values that occur in a time window of 10 minutes. The time window to calculate the average starts 5 minutes after and ends 15 minutes after the trigger event occurs. The rebalancing is triggered when the underlying index appreciates by more than 50% compared to its previous day's close.

Over the course of the 10-minute period in which the average is determined, the index is not disseminated. The index dissemination ends 5 minutes after the trigger event and is resumed with an index level equal to the determined average 15 minutes after the trigger event.

Should the intraday rebalancing be triggered less than 15 minutes prior to the end of the index calculation day, the regular overnight rebalancing is carried out.

If the leverage/short index reaches a value of 0, the index is set to a value of 0 and its calculation/dissemination is discontinued. The index suspension is announced immediately, and index is terminated after 20 trading days of suspension

Reverse Split

If the closing value of a daily leverage or short index drops below 10 index points, a reverse split is carried out. The leverage index is multiplied with a factor of 100 whereas the Short index is multiplied with a factor of 1000.

The reverse split is carried out based on the index close ten trading days after the index initially dropped below a closing value of 10 points, notwithstanding whether the index rises above a level of 10 points in the meantime.

Computational Accuracy

DAXglobal Short indices are published rounded to two decimal places.

All adjustment factors for underlying DAXglobal indices are described in the "DAX Equity Index Calculation Guide".

5. DAXPLUS RISK TRIGGER GERMANY

5.1. OVERVIEW

DAXplus Risk Trigger Germany measures the performance of the DAX index, but limits the losses in bear markets by shifting the equity investment into a money market investment in times of extreme volatilities. The investment is shifted back into equities once the volatility level is lower.

The index concept of DAXplus Risk Trigger Germany is based on the premise that share price increases generally happen slowly and steadily, i.e. with low volatility, whereas decreases mostly happen very quickly, displaying a much higher volatility. High volatility is equated to a high level of risk.

Base value and dates: 1000 on December 30, 1987.

5.2. CALCULATION

If the 10-day volatility of the equity indices underlying the DAXplus Risk Trigger Indices exceeds a certain threshold, the investment is reallocated in its entirety to the money market (eb.rexx Money Market Index). Reinvestment in the equity portfolio will not take place until the volatility level has fallen below a defined lower limit.

The index is calculated as follows:

$$\mathrm{RTI}_t = \mathrm{RTI}_{t-1} \cdot \frac{\mathrm{Index}_t}{\mathrm{Index}_{t-1}}$$

Whereby:

t	=	calculation time of the index
Index_t	=	DAX / eb.rexx Money Market, depending on the currently selected asset class

Calculational Accuracy
DAXplus Risk Trigger Germany is published rounded to two decimal places.

All adjustment factors are described in the "DAX Equity Index Calculation Guide".

6. DAX RISK CONTROL INDICES

6.1. DAX RISK CONTROL INDICES

6.1.1.OVERVIEW

A target volatility concept is applied to the DAX (TR) Index. Whereas the risk profile of the DAX Index is the uncontrolled outcome of the existing market-cap weighted index concept, the Risk Control Indices control for risk by aiming at target volatilities of 5%, 10%, 15%, 20%. In order to control for risk, the index shifts between a risk-free money market investment (measured via €STR) and an Equity investment (represented by the DAX Index).

Base value and dates: 100 on May 18, 1999.

6.1.2.CALCULATION

In order to control for risk, the index shifts between a risk free money market investment (measured via €STR and provided to STOXX Ltd. by Refinitiv (previously Financial and Risk business of Thomson Reuters.)) and a risky part (measured by the DAX Index, cf. regarding the DAX Index "Guide to the DAX Equity Indices"). The asset allocation is reviewed on a daily basis.

If on a daily basis the risk of the current DAX Risk Control Index composition is below the targeted risk of 5% (10%, 15%, 20%), the allocation will be adjusted towards the risky asset, in case the current risk profile is above the targeted 5% (10%, 15%, 20%), the allocation will be adjusted towards the risk free component (€STR).

To avoid extreme leveraged positions, a maximum exposure of 150% towards the risky asset is introduced. Furthermore, a tolerance level of 5% around the target weight is implemented to avoid high allocation turnover due to minimal deviations from the targeted risk.

The indices are calculated as follows:

$$IndexTR_t = IndexTR_{t-1} \times \left[1 + w_{t-1} \times \left(\frac{DAX_t}{DAX_{t-1}} - 1\right) + (1 - w_{t-1}) \times \left((€STR_{t-1})\frac{Diff(t-1,t)}{360}\right)\right]$$

$$IndexER_t = IndexER_{t-1} \times \left(1 - €STR_{t-1}\frac{Diff(t-1,t)}{360}\right) \times \left[1 + w_{t-1}\left(\frac{DAX_t}{DAX_{t-1}} - 1\right) + (1 - w_{t-1})\left((€STR_{t-1})\frac{Diff(t-1,t)}{360}\right)\right]$$

Where

$IndexER_t$	=	Excess Return Index Level on Index Level Determination Date t
$IndexER_{t-1}$	=	Excess Return on Index Level Determination Date t -1
$IndexTR_t$	=	Total Return on Index Level Determination Date t
$IndexTR_{t-1}$	=	Total Return on Index Level Determination Date t -1
w_{t-1}	=	Equity Weight on Index Level Determination Date t - 1
DAX_t	=	Level of the DAX (TR) Index on Index Level Determination Date t
DAX_{t-1}	=	Level of the DAX (TR) on Index Level Determination Date t -1

6. DAX RISK CONTROL INDICES

$€STR_{t-1}$ = The €STR rate on the Index Level Determination Date t-1 in respect of day t-2.

$Diff(t-1,t)$ = Difference between t-1 and t measured in calendar days

Determination of the Target Weight (Tgtw)

On any Index Level Determination Date t, the Target Weight shall be determined as follows:

$$Tgtw_t = \frac{TgtVol}{Max\ Re\ a\ lizedVol_{t,(20,60)}}$$

Where:

$TgtVol$ = 5% (10%, 15%, 20%)

$Max\ Re\ a\ lizedVol_{t,(20,60)}$ = maximum of the realized volatilities measured over 20 days and 60 days

$$Re\ a\ lizedVol_{t,n} = \sqrt{\frac{252}{n} * \sum_{s}\left[log\left(\frac{DAX_s}{DAX_{s-1}}\right)\right]^2}$$

Where:

n = 19 (59)

s = ranging from t-18 to t (t-58 to t)

Determination of the Equity Weight and Index Rebalancing Days

The Equity Weight on the Index Start Date shall be equal to the Target Weight at the Index Start Date:

$$w_0 = Min(Cap, Tgtw_0)$$

On any Index Level Determination Date t subsequent to the Index Start Date, the Equity Weight shall be determined as follows:

(i) If $abs\left\{1 - \frac{w_{t-1}}{Tgtw_{t-1}}\right\} > Tolerance$

then the Index Level Determination Date t will be an Index Rebalancing Day and

$$w_t = Min(Cap, Tgtw_{t-1})$$

(ii) Otherwise, Index Level Determination Date t will not be an Index Rebalancing Day and

$$w_t = w_{t-1}$$

Where:

6. DAX RISK CONTROL INDICES

$Tolerance$	=	5%
$w_{t/t-1}$	=	Equity Weight on Index Level Determination Date t / t - 1
$Tgtw_{t-1}$	=	Target Weight on Index Level Determination Date t-1
Cap	=	150%

6. DAX RISK CONTROL INDICES

6.2. AKTIENINDEX DEUTSCHLAND RC-10%

6.2.1.OVERVIEW

A target volatility concept is applied to the DAX (TR) Index. Whereas the risk profile of the DAX Index is the uncontrolled outcome of the existing market-cap weighted index concept, the Risk Control Index controls for risk by aiming for a target volatility of 10%. In order to control for risk, the index shifts between a risk-free money market investment (measured via €STR) and a risky part (measured by the DAX Index).

Base value and dates: 100 on May 18, 1999.

6.2.2.CALCULATION

The Calculation of Aktienindex Deutschland RC-10% is based on the latest available index level and on the €STR rate available at the beginning of the calculation day. For further information regarding the DAX Index cf. the "Guide to the Equity Indices".

The indices are calculated as follows:

$$AID10\%_t = AID10\%_{t-1} \times \left(1 - €STR_{t-1}\frac{Diff(t-1,t)}{360}\right) \times \left[1 + w_{t-1}\left(\frac{DAX_t}{DAX_{t-1}} - 1\right) + (1 - w_{t-1})\left((€STR_{t-1})\frac{Diff(t-1,t)}{360}\right)\right]$$

Where:

$AID10\%_t$	=	Level of Aktienindex Deutschland RC-10% on Index Level Determination Date t
$AID10\%_{t-1}$	=	Level of Aktienindex Deutschland RC-10% on Index Level Determination Date t-1
w_{t-1}	=	Equity Weight on Index Level Determination Date t - 1
DAX_t	=	Level of the DAX (TR) Index on Index Level Determination Date t
DAX_{t-1}	=	Level of the DAX (TR) on Index Level Determination Date t -1
$€STR_{t-1}$	=	The €STR rate on the Index Level Determination Date t-1 in respect of day t-2.
$Diff(t-1,t)$	=	Difference between t-1 and t measured in calendar days

Determination of the Target Weight (Tgtw)

On any Index Level Determination Date t, the Target Weight shall be determined as follows:

$$Tgtw_t = \frac{TgtVol}{Max\ Re\ a\ lizedVol_{t,(20,60)}}$$

Where:

$TgtVol$	=	10%

6. DAX RISK CONTROL INDICES

$Max\ Re\ a\ lizedVol_{t,(20,60)}$ = maximum of the realized volatilities measured over 20 days and 60 days

$$Re\ a\ lizedVol_{t,n} = \sqrt{\frac{252}{n} * \sum_{s}\left[log\left(\frac{DAX_s}{DAX_{s-1}}\right)\right]^2}$$

Where:

n = 19 (59)
s = ranging from t-18 to t (t-58 to t)

Determination of the Equity Weight and Index Rebalancing Days

The Equity Weight on the Index Start Date shall be equal to the Target Weight at the Index Start Date:

$$w_0 = Min(Cap, Tgtw_0)$$

On any Index Level Determination Date t subsequent to the Index Start Date, the Equity Weight shall be determined as follows:

(i) If $abs\left\{1 - \frac{w_{t-1}}{Tgtw_{t-1}}\right\} > Tolerance$

then the Index Level Determination Date t will be an Index Rebalancing Day and

$$w_t = Min(Cap, Tgtw_{t-1})$$

(ii) Otherwise, Index Level Determination Date t will not be an Index Rebalancing Day and

$$w_t = w_{t-1}$$

Where:

$Tolerance$ = 2%
$w_{t/t-1}$ = Equity Weight on Index Level Determination Date t / t - 1
$Tgtw_{t-1}$ = Target Weight on Index Level Determination Date t-1
Cap = 150%

7. CURRENCY-HEDGED INDICES

7.1. OVERVIEW

The Hedged Indices are an innovative investment tool that measures the performance of the underlying index while at the same time eliminating foreign currency fluctuations. The currency-hedged indices eliminate the risk of the currency fluctuations at the cost of potential currency gains. STOXX Ltd. offers two versions of currency-hedged indices: one that resets the hedge notional and the currency exposure on a daily basis and one that resets both on a monthly basis.

Base value and dates: For the base values and dates of the specific indices, refer to the DAX Vendor Codes Sheet.

7.2. CALCULATION

The Currency-Hedged Indices combine an investment in the underlying, unhedged index with a short position in currency forwards: profits (losses) deriving from the appreciation (depreciation) of the foreign denomination currency of the constituents are offset by losses (profits) from the currency forward hedge.

The spot and forwards rates are taken from WM Fixings. The intraday currency conversion is based on the spot and forward rates provided by Refinitiv previously Financial and Risk business of Thomson Reuters. The WM/Refinitiv spot and forward currency fixing rates from 17:00 CET are used to calculate the indices' closing values. The Currency Hedged Indices are available in the currencies set forth in the Vendor Code Sheet which is available under https://www.stoxx.com/data-vendor-codes.

The DAX Monthly Hedged JPY TTM Index uses the TTM (Telegraphic Transfer Middle rate) spot and forward rates from Refinitiv. The TTM JPY currency fixing used to calculate the index' close value is published end of day Japan time, hence it is available in the morning CET time.
For monthly hedged indices, the total hedge amount and the allocation to the individual underlying currencies (where applicable) is reset at the end of the month; for daily hedged indices, the adjustments occur every day.

The following definitions will be used throughout the chapter:

H_IDX_t	=	hedged index for day t
UH_IDX_t	=	unhedged reference index (in hedged currency) for day t
$t=0$	=	last calculation day of preceding month (reset date)
t	=	day of index calculation / number of calendar days since $t=0$
T	=	number of calendar days in current month
AF_t	=	notional adjustment factor for day t
$HR_{c,t}$	=	hedge ratio of currency c for day t
FXc,t	=	Spot currency rate for day t
FFc,t	=	1-month forward currency rate for day t
$IFF_{c,t}$	=	interpolated forward currency rate for day t
R_t	=	return from hedging for day t

7. CURRENCY-HEDGED INDICES

All currency rates are expressed as units of foreign currency c per one unit of domestic (hedged) currency.

The adjustment factor AF_t reflects the changes in the notional value to be hedged between the $t=0$ and t:

$$AF_t = \frac{UH\_IDX_t}{UH\_IDX_0}$$

The hedge ratio $HR_{c,t}$ can be varied to arrive at index portfolios that are over- or under-hedged to varying degrees. Furthermore it can be used to hedge multi-currency portfolios.

To fully hedge a multi-currency portfolio, the hedge ratio of each currency is calculated as the sum of weights of the securities quoted in that currency:

$$HR_{c,t} = \sum_{i:ccy_i=c} w_{i,t}$$

The interpolated forward currency rate $IFF_{c,t}$ corrects the 1-month forward rate – traded with a fixed 1-month maturity – to reflect the progressively closer expiry $(t=T)$ of the hedge. In other words, the interpolated 1-month forward rate linearly converges to the spot rate as $t=T$ approaches:

$$IFF_{c,t} = FX_{c,t} + \left(1 - \frac{t}{T}\right) \cdot \left(FF_{c,t} - FX_{c,t}\right)$$

From the above definition, it follows that $IFF_{c,0} = FF_{c,0}$ and $IFF_{c,T} = FX_{c,T}$.
For each currency c, the contribution of hedging to the index return is defined as the product of the relevant hedge ratio by the return on the forward currency trade.

For instance, an investor knows in $t=0$ that she will receive a payment of 1 unit of foreign currency in $t=T$. She could wait and convert it at the then prevailing spot rate $FX_{c,t}$ and obtain $1/FX_{c,t}$ units of domestic currency. Alternatively, she could enter a forward trade in $t=0$ to sell the foreign currency in $t=T$ at $FF_{c,0}$, thus obtaining $1/FF_{c,0}$ units of domestic currency.

The P&L from the forward trade, as compared to a spot conversion, is thus $P\&L_{c,[0,T]} = \frac{1}{FF_{c,0}} - \frac{1}{FX_{c,T}}$.

By expressing the forward trade P&L as percentage of the payment value in domestic currency in t=0 and rearranging the terms, the returns on the forward trade can be expressed as $\frac{FX_{c,0}}{FF_{c,0}} - \frac{FX_{c,0}}{FX_{c,T}}$.

The expression for forward trade returns can then be generalized as:

$$R_t = \sum_{c=1}^{C} HR_{c,t-1} \cdot \left(\frac{FX_{c,0}}{IFF_{c,t-1}} - \frac{FX_{c,0}}{IFF_{c,t}}\right)$$

7. CURRENCY-HEDGED INDICES

Daily Hedged Indices
With daily hedged indices, the hedging trade is entered at the end of each calendar month. From that day onwards, the returns of the underlying, unhedged index are integrated by the returns from hedging. Moreover, the notional amount being hedged and the weight of the individual underlying currencies are adjusted on a daily basis.

At the cost of an increased trading activity, the daily hedging aims to timely and precisely offset the currency exposures of the index and is thus particularly suited to volatile markets.

The daily currency hedged indices are thus calculated as:

$$\mathrm{H\_IDX}_t = \mathrm{H\_IDX}_0 \cdot \left(\underbrace{\frac{\mathrm{UH\_IDX}_t}{\mathrm{UH\_IDX}_0}}_{\substack{\text{Performance of} \\ \text{unhedged index}}} + \sum_{d=1}^{c} AF_{d-1} \cdot R_d \right)$$

Monthly Hedged Indices
In the monthly hedged version, the forward hedge is set up once a month and remains unchanged until the next reset: the currency weights are fixed at each reset, as well as the notional hedge amount.

The monthly currency hedged indices are thus calculated as:

$$\mathrm{H\_IDX}_t = \mathrm{H\_IDX}_0 \cdot \left(\underbrace{\frac{\mathrm{UH\_IDX}_t}{\mathrm{UH\_IDX}_0}}_{\substack{\text{Performance of} \\ \text{unhedged index}}} + \sum_{c=1}^{c} HR_{c,0} \cdot \left(\underbrace{\frac{\mathrm{FX}_{c,0}}{\mathrm{FF}_{c,0}}}_{\substack{\text{Cost to hedge on the} \\ \text{forward contract}}} - \underbrace{\frac{\mathrm{FX}_{c,0}}{\mathrm{IFF}_{c,t}}}_{\text{Estimated gain or loss}} \right) \right)$$

The expression can be directly derived from the formula for daily currency hedged indices, by setting $\mathrm{AF_t} = \mathrm{AF_0}$ and $\mathrm{HR_{c,t}} = \mathrm{HR_{c,0}}$ $\forall$ t.

8. DAX DECREMENT INDICES

8.1. IDDAX 50 ESG NR DECREMENT 4.0%

8.1.1.OVERVIEW

The idDAX 50 ESG NR Decrement 4.0% index replicates the performance of the DAX 50 ESG index assuming a constant 4.0% performance deduction per annum. The performance deduction accrues constantly on a daily basis.

Consequently, due to the percentage of performance being subtracted, the decrement index is underperforming the standard net return index. The decrement index may perform better than the standard price index that does not consider dividend investments as long as the overall net dividend yield of the base index is greater than the value being subtracted.

The base index is the DAX 50 ESG Net Return Index.

Base value and dates: 1000 on September 24, 2012.

8.1.2.CALCULATION

The index is calculated as follows:

$$IV_t = IV_{t-1} \times \left(\frac{U_t}{U_{t-1}} - D \frac{ACT(t-1,t)}{365} \right)$$

Whereby:

IV_t	=	index value on day t
IV_0	=	1000 on 24 September 2012
U_t	=	index value of underlying DAX 50 ESG (Net Return) index on day t
D	=	constant number of percentage subtracted (4%)
$ACT(t\text{-}1,t)$	=	number of actual calendar days between t-1 and t

8.2. IDDAX 30 ESG DECREMENT 4.0%

8.2.1.OVERVIEW

The idDAX 30 ESG Decrement 4.0% Index replicates the performance of the net return version of the DAX 30 ESG index assuming a constant 4.0% performance deduction per annum. The performance deduction accrues constantly on a daily basis.

Consequently, due to the percentage of performance being subtracted, the decrement index is underperforming the standard net return index. The decrement index may perform better than the standard price index that does not consider dividend investments as long as the overall net dividend yield of the base index is greater than the value being subtracted.

The base index is the DAX 30 ESG Net Return EUR Index.

Base value and dates: 1000 on March 20, 2017.

8. DAX DECREMENT INDICES

8.2.2.CALCULATION

The index is calculated as follows:

$$IV_t = IV_{t-1} \times \left(\frac{U_t}{U_{t-1}} - D \frac{ACT(t-1,t)}{360} \right)$$

Whereby:

IV_t	=	index value on day t
IV_0	=	1000 on 20 March 2017
U_t	=	index value of underlying DAX 30 ESG (Net Return) index on day t
D	=	constant number of percentage subtracted (4%)
ACT(t-1,t)	=	number of actual calendar days between t-1 and t

The calculation is based on the latest available index level. The Index has a floor value of zero.

9. DAX FUTURES SWITCH INDEX

9.1. OVERVIEW

The DAX Futures Switch index replicates a hypothetical portfolio of a series of long position DAX futures contracts traded on Eurex. The portfolio is invested into the first nearby futures contract and then switched to the next nearby contract on the 4th day preceding the expiry date of the futures contract series the 3rd Friday in March, June, September and December.

The Dax Futures Switch Index is calculated as a total return and an excess return index. The excess return index replicates the financial outcome of a portfolio switching the 1st nearby DAX index futures contract into the 2nd nearby contract; the total return index, in addition, replicates the remuneration of the cash component at risk-free rate. The futures contracts series is not amended between switch dates.

The index is disseminated following the STOXX Eurex Calendar.

9.2. CALCULATION

The excess return index is calculated as follows:

$$I_t^{\mathrm{ER}} = I_{t-1}^{\mathrm{ER}} \cdot \frac{F_{\mathrm{k,t}}}{F_{\mathrm{k,t-1}}}$$

The total return index is calculated as follows:

$$I_t^{\mathrm{TR}} = I_{t-1}^{\mathrm{TR}} \cdot \left(\frac{F_{\mathrm{k,t}}}{F_{\mathrm{k,t-1}}} + \frac{d}{360} \cdot R_{\mathrm{f,\,t-1}} \right)$$

Where:

I_t^{ER}	= Excess return index value on day (t) - Unrounded t-1 value used for calculation.
I_t^{TR}	= Total return index value on day (t) - Unrounded t-1 value used for calculation.
$F_{\mathrm{k,t}}$	= Settlement value of futures contract k on day (t).
d	= Number of actual days between day (t) and day (t-1).
$R_{\mathrm{f,\,t-1}}$	= Fixing of risk-free rate on day (t) (€STR (t-1) used).

Computational Accuracy
The index is rounded to three decimal places and published accordingly.

10. X-INDICES

10.1. OVERVIEW

The calculation of the X-DAX Index is based on the daily comparison of the DAX index values with the respective future. The calculation of the X-TecDAX is based on "cost of carry"-adjusted TecDAX futures prices. The X-indices act as indicators for market development outside Xetra trading hours. The X-indices are calculated and disseminated from 08:00 – 09:00:00 CET and 17:30 – 22:15 CET. The calculation frequencies can be found in the Vendor Code Sheet which is available under https://www.stoxx.com/data-vendor-codes.

The longer computation time of X-indices covers the entire trading time of US stock exchanges.

XDAXDAX is calculated and distributed as a combination of X-DAX and DAX. This serves the need of market participants to monitor the price change of DAX during the trading day including pre and post DAX indicators in one time series. With XDAXDAX DAX and X-DAX are merged and distributed using one ISIN.

Base value and dates: 1000 on December 30, 1987.

10.2. CALCULATION

Calculation of X-DAX
The factor applied to discount the DAX future (FDAX) will be deducted from the daily deviation of the index future from its underlying index (DAX).

The X-DAX is calculated as follows:

$$\mathrm{Index_t} = \frac{1}{\mathrm{D_t}}\,\mathrm{FDAX_t}$$

Where:

$$\mathrm{D_t} = \frac{\sum_{i=1}^{N} \frac{\mathrm{FDAX_i}}{\mathrm{DAX_i}}}{N}$$

Here, $\sum_{i=1}^{N} \frac{\mathrm{FDAX_i}}{\mathrm{DAX_i}}$ is the sum of all ratios $i{=}1$ to N of the future and index values measured on a given index calculation date t between the start of the DAX and 17:15 CET.

To prevent distortions due to outliers, the lower and upper deciles of the ratios $\frac{\mathrm{FDAX_i}}{\mathrm{DAX_i}}$ are not considered in the following calculations and N is reduced accordingly.

D_t is then used to calculate the X-DAX between 17:30 and 22:15 CET on date t.

10. X-INDICES

To calculate the X-DAX between 08:00 CET and the start of the DAX on the next calculation date (t+1), the discount factor (D_t) is adjusted downwards to take account of the decrease in the time to maturity.

With T_t being the time to maturity on date t and r_t an implicit interest rate, the X-DAX calculation between 08:00 CET and 09:00:00 CET before the start of the DAX on date t+1 is carried out as follows:

$$D_{t+1} = 1 + r_t \frac{T_{t+1}}{360}, \text{ with } r_t = (D_t - 1)\frac{360}{T_t}$$

$$\text{Index}_t = \frac{1}{D_{t+1}} \text{FDAX}_t$$

Calculation X-TecDAX
X-TecDAX is calculated based on FTDX future prices as follows:

$$Index_t = \frac{1}{1 + r_t \cdot \frac{T_t}{360}} \cdot FTDX_t$$

Where:

$FTDX_t$	=	Last price of FTDX with the shortest time to maturity
T_t	=	Number of days to maturity of FTDX at time t
r_t	=	Risk-free interest rate at time t
t	=	Time of calculation

The risk-free interest rate is derived by interpolation from the rates for unsecured money market transactions (€STR[4], Euribor) as described below:

$$r_t = r_k \frac{T_{k+1} - T_{F,t}}{T_{k+1} - T_k} + r_{k+1} \frac{T_{F,t} - T_k}{T_{k+1} - T_k}, \text{ where } T_k \leq T_{F,t} \leq T_{k+1}$$

Where:

T_k, T_{k+1}	=	Number of days in the respective class
T_t	=	Number of days to maturity of FTDX at time t
k	=	Classes (€STR, 1-, 3-, 6-months Euribor)
t	=	Time of calculation

The number of days to the maturity of FTDX (T_t) is determined daily after close of calculation of X-TecDAX. It is calculated as the difference between the maturity date and the current date. It is constant for the entire trading day.

[4] Interpolation uses the latest available €STR value as provided by Refinitiv

11. DAX DIVIDEND POINTS AND DIVDAX DIVIDEND POINTS

11.1. OVERVIEW

The indices DAX Dividend Points and DivDAX Dividend Points measure the dividend component of the underlying indices DAX and DivDAX. The Dividend Points indices reflect the absolute income of the portfolio and not the performance of the portfolio itself as indices usually do. With these indices, it is possible to separate the dividend component and the inherited risk, such that the dividend effect can be hedged with short equity positions in DAX or DivDAX.

The following factors are included in the index calculation:

» the ordinary un-adjusted gross cash dividends (as determined by DAX methodology) of the individual constituents of the respective DAX index and;
» withholding taxes of special cash dividends and capital returns as applied to the individual constituents of the respective DAX index.

11.2. CALCULATION

The Dividend Amount is calculated as follows:

$$\mathrm{DA}_t = \sum_{i=1}^{n} d_{it} \cdot s_{it} \cdot ff_{it} \cdot cf_{it}$$

Where:

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 eligible for dividends in 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)

The Dividend Points indices are calculated as follows:

$$\mathrm{DP}_t = \frac{DA_t}{D_t}$$

Where:

t	= Time the value is computed
DA_t	= Dividend amount at time t
D_t	= Divisor of the price Index at time t

11. DAX DIVIDEND POINTS AND DIVDAX DIVIDEND POINTS

Calculation on an Ongoing Basis
The Dividend Points indices are reset to zero on the review effective date of the underlying indices in December.

Accordingly, for the calculation of the Dividend Points indices the ongoing value is the sum of the Dividend Points at time (t), (DP_t) excluding the third Friday in December and including the third Friday in December of the settlement year, i.e.: $DVP_t = DVP_{t-1} + DP_t$

Computational Accuracy
Figures of the published Dividend Points indices are rounded to two decimal places. All relevant parameters for the calculation of the DAX indices are described in the "DAX Equity Calculation Guide".

Dissemination Days and Time
The index value is disseminated via the data feed at least twice a day considering the corporate events that went ex on that day:

» At 9:00 CET with an open flag
» At 18:00 CET with an end of day flag

The historical index values are made available in reports on stoxx.com during the regular end of day process.

12. VDAX

12.1. OVERVIEW

Volatility is a measure of the level of uncertainty prevailing in certain markets, or with respect to individual underlying instruments. In principle, there are two different approaches for the estimation of volatility: on the one hand, it is possible to determine historical volatility by measuring the standard deviation of prices for any particular security over a given period of time. On the other hand, volatility can be derived implicitly from option prices ('implied volatility'); this kind of volatility represents the expectations of market participants involved in a trade, on the basis of a given option price.

STOXX Ltd. calculates volatility indices that measure implied volatility using a model that has been jointly developed by Goldman Sachs and Deutsche Börse AG. The VDAX indices are expressed in volatility percentage points.

The VDAX computes the square root of implied variance across at- & out-of-the-money DAX options of a given time to expiration. The main index (which is not linked to a specific maturity) has a fixed remaining time to expiration of 30 days. The VDAX and its various sub-indices are updated every minute.

12.2. BASIC DATA

The VDAX indices measure the volatility implied by the options on the DAX index traded on Eurex. The twelve VDAX main indices are calculated for rolling 30, 60, 90, 120, 150, 180, 210, 240, 270, 300, 330 and 360 days to expiry via linear interpolation of the suiting sub-indices. The VSTOXX main indices are therefore independent of a specific time to expiry, i.e. they do not expire.

Apart from the VDAX main indices, 8 sub-indices are calculated and distributed, covering the DAX option expiries ranging from one month to two years. For options with longer time to expiry, no such sub-indices are currently available.
The VDAX sub-indices are calculated on the basis of all options available in the Eurex system.

12. VDAX

	Index	Code	ISIN
Main Indices	VDAX	V1X	DE000A0DMX99
	VDAX 60	WDOY	DE000A1A4LH7
	VDAX 90	WDOZ	DE000A1A4LJ3
	VDAX 120	WDQ0	DE000A1A4LK1
	VDAX 150	WDQ1	DE000A1A4LL9
	VDAX 180	WDQ2	DE000A1A4LM7
	VDAX 210	WDQ3	DE000A1A4LN5
	VDAX 240	WDQ4	DE000A1A4LP0
	VDAX 270	WDQ5	DE000A1A4LQ8
	VDAX 300	WDQ6	DE000A1A4LR6
	VDAX 330	WDQ7	DE000A1A4LS4
	VDAX 360	WDQ8	DE000A1A4LT2
Sub-indices	VDAX 1M EUR	V4F1	DE000A0G83V9
	VDAX 2M EUR	V4F2	DE000A0G83W7
	VDAX 3M EUR	V4F3	DE000A0G83X5
	VDAX 6M EUR	V4F4	DE000A0G83Y3
	VDAX 9M EUR	V4F5	DE000A0G83Z0
	VDAX 12M EUR	V4F6	DE000A0G8300
	VDAX 18M EUR	V4F7	DE000A0G8318
	VDAX 24M EUR	V4F8	DE000A0G8326

12.3. CALCULATION

The calculation times and frequencies can be found in the Vendor Code Sheet which is available under https://www.stoxx.com/data-vendor-codes.

The calculation of a sub-index only commence when all required input data are available. The data required for the index calculation is described in the chapter for calculation (VDAX, cf. section 2).

The dissemination of the main indices begins as soon as two sub-indices are available for an interpolation.

The VDAX utilize data from the previous trading day (settlement prices) as long as no data from the current day is available.

Input Data

During the calculation hours for the VDAX and the sub-indices, the following data is recorded every minute:

12. VDAX

- **DAX:** DAX Index, calculated on the basis of Xetra prices. For information regarding DAX please refer to the "DAX Equity Index Methodology Guide".

- **ODAX:** Best bid, best ask, last trade and settlement price of all DAX options as traded on EUREX. STOXX Ltd. will exclude from their indices all options as soon as their delisting becomes known (e.g. direct notification from the market, or unavailability of a settlement price).

- **€STR:** The euro short-term rate (€STR) reflects the wholesale euro unsecured overnight borrowing costs of banks located in the euro area (calculated once a day, 08:00 CET, by the European Central Bank) as provided by Refinitiv.

- **EURIBOR:** Euro Interbank Offered Rates – money market reference rates (calculated once a day, 11:00 CET, by the European Banking Federation) as provided by Refinitiv.

- **REX:** Yield of the 2-year REX (calculated from exchange-traded prices) as the longer-term interest rate. For information regarding REX cf. the "Guide to the REX Bond Indices".

The model for VDAX aims at making pure volatility tradable - i.e. it should be possible to replicate the indices with an options portfolio which does not react to price fluctuations, but to changes in volatility only. This is not achieved through direct replication of volatility, but rather of variance. A portfolio of DAX options with different strike levels and weighting meets this goal: the implied volatilities of all eligible options with a given time to expiry are considered.

Preparation of option inclusion prices

First, the trade price, the mid quote and settlement prices of each option and corresponding timestamps are identified. A price filter is applied in that any trade price, mid quote or settlement price below 0.5 points is ignored.

The mid quote is only calculated if the following requirements are fulfilled:

1) both the bid and ask quotes are available and
2) both the bid and ask quotes are equal to or greater than 0.1 points and
3) the bid-ask spread does not exceed the following thresholds:
    a. normal market: 8% of bid quote, with a minimum of 2 points and a maximum of 24 points and
    b. stressed market: 16%, with a minimum value of 4 points and a maximum of 48 points.

If there are two or more options with different strikes and mid quotes that exactly equal the minimum value of 0.5, only the one closer to the at-the-money point is taken into consideration.

For each option used in the calculation of a sub-index, the Inclusion Price is then defined as the most recent among:

1) trade price, or
2) mid quote, or
3) settlement price.

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If both a trade price and a mid quote exist with identical timestamp, preference is given to the trade price.

Underlying	Settlement	Bid (time)	Ask (time)	Mid (time)	Last-traded (time)	Price
4,000	383.30	--	--	--	383.5	**383.30**
4,050	333.40	--	--	239.70	383.5 (09:05)	**383.50**
4,100	283.50	287.1 (09:04)	290.0 (09:05)	288.55 (09:05)	--	**288.55**
4,150	233.70	237.2 (09:03)	240.2 (09:05)	239.70 (09:05)	237.2 (09:01)	**239.70**

Discount Rates

Discount rate	Period	ISIN
€STR	1 day	EU000A2X2A25
EURIBOR 1 month	1 month	EU0009659937
EURIBOR 3 months	3 months	EU0009652783
EURIBOR 6 months	6 months	EU0009652791
EURIBOR 12 months	12 months	EU0009652809
REX 2-YEAR (PRICE INDEX)	2 years	DE0008469149

Calculation of VDAX Main Indices

Twelve VDAX main indices are calculated with fixed time to expiry.

The main indices are calculated by linear interpolation of the sub-indices whose times to maturity better represent the targeted fixed time to expiry.

If two sub-indices exist whose time to maturity bracket the time to maturity targeted by the main index, then the main index is calculated as interpolation of the two sub-indices.

When the maturity of two sub-indices used in the calculation of a main index approaches, the respective time to maturities may not bracket the fixed time to maturity of the main index: in this case, the algorithm extrapolates between the two sub-indices.

However, as time passes by, as soon as an interpolation between two other sub-indices becomes possible, the algorithm switches to the new sub-index pair.

Each VDAX main index is calculated as a time-weighted average of two VDAX sub-indices, as shown in the following formula:

$$\mathrm{MainIndex}_{tm} = 100 \cdot \sqrt{\left[\frac{T_{st}}{T_{365}} \cdot \left(\frac{\mathrm{SubIndex}_{st}}{100}\right)^2 \cdot \frac{T_{lt}-T_{tm}}{T_{lt}-T_{st}} + \frac{T_{lt}}{T_{365}} \cdot \left(\frac{\mathrm{SubIndex}_{lt}}{100}\right)^2 \cdot \frac{T_{tm}-T_{st}}{T_{lt}-T_{st}}\right] \cdot \frac{T_{365}}{T_{tm}}}$$

Where:

tm = Fixed time to maturity, expressed as number of days, targeted by the main index.

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MainIndex_{tm} = VDAX main index with fixed time to maturity of tm days.
SubIndex_{st} = VDAX sub-index with shorter maturity used in the inter(extra)polation.
SubIndex_{lt} = VDAX sub-index with longer maturity used in the inter(extra)polation.
T_{st} = Seconds to expiry of SubIndexst.
T_{lt} = Seconds to expiry of SubIndexlt.
T_{tm} = Seconds in tm (1 day = 86,400 sec.).
T_{365} = Seconds in a standard year of 365 days (31,536,000 sec.).

If one of or both the sub-indices required for the calculation of a main index are not available, the main index is not calculated.

Calculation of VDAX sub-indices

Each of the eight VDAX sub-indices is calculated according to the formula shown below:

$$\text{SubIndex} = 100 \cdot \sqrt{\sigma_i^2}$$

Where:

i = i^{th} sub-index $(i = 1, ..., 8)$.

σ_i^2 = Implied variance for the i^{th} ODAX expiry date:

$$\sigma_i^2 = \frac{2}{T_i/T_{365}} \cdot \sum_j \frac{\Delta K_{i,j}}{K_{i,j}^2} \cdot R_i \cdot M_{K_{i,j}} - \frac{1}{T_i/T_{365}} \cdot \left(\frac{F_i}{K_{i,0}} - 1\right)^2$$

T_i = Seconds to the i^{th} ODAX expiry date.

F_i = Forward at-the-money price for the ith ODAX expiry date, derived from exercise price for which the absolute difference between call and put prices is smallest. If multiple pairs of calls and puts exist with identical price differences, a forward price will be calculated as the simple average of the corresponding implied forward prices:

$$F_i = K_{\min|C-P|} + R_i \cdot (C-P)$$

$K_{i,0}$ = Highest exercise price not exceeding F_i.

$K_{i,j}$ = Exercise price of the jth out-of-the-money option, after sorting the options by their exercise prices in ascending order (i.e. call options for exercise prices above $K_{i,0}$, put options otherwise).

$\Delta K_{i,j}$ = Average distance between the exercise prices of the two options struck respectively immediately above and immediately below $K_{i,j}$. On the boundaries, the simple distance between the highest (lowest) and second-highest (lowest) exercise price for call (put) options is used:

$$\Delta K_{i,j} = \frac{1}{2} \cdot (K_{i,j+1} - K_{i,j-1})$$

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$M_{K_{i,j}}$ = Inclusion price of the out-of-the-money option with exercise price $K_{i,j}$.

$M_{K_{i,0}}$ = Simple arithmetic average of put and call prices of the option with exercise price $K_{i,0}$.

R_i = Refinancing factor for the ith ODAX expiry date:

$$R_i = e^{r_i \cdot T_i / T_{365}}$$

r_i = Interpolated risk-free interest rate valid for the i^{th} ODAX expiry date:

$$r_i = \frac{T_{lt} - T_{tm}}{T_{lt} - T_{st}} \cdot r_{st} + \frac{T_{tm} - T_{st}}{T_{lt} - T_{st}} \cdot r_{lt}$$

If less than five options can be used for the calculation of a sub-index, that sub-index is not calculated.

The sub-indices are calculated up to two days prior to expiry. Each new sub-index, i.e. an index calculated with newly issued options, is disseminated for the first time on the second trading day of the relevant DAX options.

Example:

Index calculation: 25 November 2004 at 11:00 CET

Expiration (i = 1): 17 December 2004 at 13:00 CET

$$T_1 = \frac{1{,}908{,}000}{365 \cdot 60 \cdot 60 \cdot 24} = 0.0605022831$$

$r(T_k) = 2.05\%$ (EONIA)

$r(T_{k+1}) = 2.18\%$ (EURIBOR, 1 month)

$r(T_i) = 2{,}14\%$

$R_1 = e^{r \cdot t} = 1.001298$

$K_{min|C-P|} = 4{,}150$

$F_1 = 4{,}151.401817$

Exercise Price $K_{i,j}$	$\Delta K_{i,j}$	Call	Put	|Call – Put|	$M(K_{i,j})$	$\frac{\Delta K_{i,j}}{K_{i,j}^2} R_i M(K_{i,j})$
~~3,350~~	~~50~~	~~793.90~~	~~0.30~~	~~**793.60**~~	~~0.30~~	
3,400	50	734.70	0.60	**734.10**	0.60	0.0000025985
3,450	50	684.80	0.80	**684.00**	0.80	0.0000033649

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3,500	50	635.00	0.90	**634.10**	0.90	0.0000036782
3,550	50	585.30	1.10	**584.20**	1.10	0.0000043698
3,600	50	535.60	1.20	**534.40**	1.20	0.0000046355
3,650	50	486.00	1.70	**484.30**	1.70	0.0000063883
3,700	50	436.60	1.80	**434.80**	1.80	0.0000065825
3,750	50	387.40	2.90	**384.50**	2.90	0.0000103242
3,800	50	355.00	2.90	**352.10**	2.90	0.0000100543
3,850	50	290.10	5.50	**284.60**	5.50	0.0000185765
3,900	50	249.00	6.40	**242.60**	6.40	0.0000210656
3,950	50	202.90	10.50	**192.40**	10.50	0,0000336913
4,000	50	165.70	15.20	**150.50**	15.20	0.0000475605
4,050	50	120.50	24.80	**95.70**	24.80	0.0000756946
4,100	50	90.00	38.70	**51.30**	38.70	0.0001152567
4,150	50	59.00	57.60	**1.40**	58.30	0.0001694710
4,200	50	36.20	85.00	**48.80**	36.20	0.0001027385
4,250	50	20.30	130.00	**109.70**	20.30	0.0000562654
4,300	50	11.10	174.80	**163.70**	11.10	0.0000300545
4,350	50	6.00	212.75	**206.75**	6.00	0.0000158743
4,400	75	3.00	267.50	**264.50**	3.00	0.0000116367
4,500	100	1.20	365.60	**364.40**	1.20	0.0000059335
~~4,600~~	~~100~~	~~0.40~~	~~497.70~~	**~~497.30~~**	~~0.40~~	
					Σ	**0.0007558154**

$\sigma_i^2 = 0.024984689 - 0.000001886 = 0.024986576$

$VDAX_1 = 100 \cdot \sqrt{0.024986576} = 15.8071$

Calculation of Index Settlement Index

A Settlement Day is defined, for each main index, as the 30th calendar day preceding the expiry of the DAX options.

The Settlement Level of each main index is calculated on the Settlement Day as the average of all valid ticks that index produced during an expanding time window starting at 12:30:00 CET up to the current calculation time and not later than 13:00:00 CET:

$$\text{Settle}_{\text{index}} = \frac{1}{n_t} \sum_{i=1}^{n_t} \text{tick}_{\text{index,i}}$$

where $\text{tick}_{\text{index,i}}$ indicates the i^{th} tick for the relevant main index up to calculation time t.

Interim settlement values, i.e. values calculated on the expanding window before 13:00:00 CET, are disseminated with an "V" flag. The final settlement value is marked as "F".

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Verification of index ticks

With reference to both sub- and main indices, each index tick is verified before being published. The process will result in the addition of a flag to the individual index tick, showing its status.

Status flags are updated at every index tick, i.e. they reflect the status of the tick they are associated to.

A tick can be flagged as either "A" (for "Approved" tick) or "U" (for "Unapproved" tick).

Any tick exceeding a certain deviation tolerance limit from the previous tick is flagged as "U".

The maximum deviation allowed is set respectively to ±20% for sub- and ±8% for main indices.

A sub-index tick flagged as "U" will still be used in the calculation of any derived main index. Any main index derived from an "Unapproved" sub-index will inherit the "U" status flag.

Index ticks flagged as "U" are displayed for information purpose only and are not meant to be considered as valid values.

However, main index ticks marked as "U" are used in the calculation of the respective index settlement level.

13. METHODOLOGY REVIEW

The purpose of the methodology review is to maintain integrity of the index, i.e., that the index methodology remains executable and results in an accurate and reliable representation of the market / economic realities the index seeks to measure.

13.1. FREQUENCY OF REVIEW

In order to ensure the index integrity is maintained, the methodology is reviewed annually and ad hoc if a Limitation has occurred. If a Limitation cannot be addressed with by a methodology review, this may give rise to an index cessation or index transition. STOXX Ltd. shall not be liable for any losses arising from any decisions taken as part of a methodology review.

13.2. REVIEW PROCEDURE

13.2.1. INITIATION OF METHODOLOGY REVIEW

The IMC proposes an annual methodology review schedule for approval by the IGC (Discretionary Rule, see section 2.3 Discretion in the DAX Equity Index Calculation Guide).

The IMC is in charge of initiating ad hoc methodology reviews in case of a Limitation or based on recommendations to initiate a Methodology Review by other STOXX. Committee (Discretionary Rule, see section 2.3 Discretion in the DAX Equity Index Calculation Guide).

13.2.2. DECISION AND ESCALATION

The following STOXX. Committees are responsible for making the decisions on amendments to an index methodology:

The IMC decides on changes to the index methodology, 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 Insufficient Rule (as part of a Limitation, Section 9), or
c) it relates to a request for a market consultation
d) financial products relating to the index have a notional value/notional amount of more than EUR 100 mn.

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

13.3. MATERIAL CHANGES WITH CONSULTATION

As described in the STOXX Changes to Methodology Policy and in STOXX Consultation Policy (publicly available on STOXX website), prior to proposed material changes to the index methodology, a consultation will be performed.

A change to an index methodology shall be considered material in the event of:

a) a substantial change in the index objective or market/economic reality the index aims to represent (e.g. market leader components vs. mid cap companies), or

13. METHODOLOGY REVIEW

b) a substantial change of the index methodology in aspects such as, but not limited to, the ones listed below and that would result in altering the overall concept or the nature of the index:
   i. calculation methods or formulas with a substantial impact on the index performance, or
   ii. rules regarding the determination of index constituents by application of the index methodology, or
   iii. rules regarding the determination of the weights of index constituents by application of the index methodology,
   iv. rules regarding the treatment of corporate actions.

On the contrary, index methodology updates resulting from the application of existing methodology principles or minor clarifications of existing rules or corrections without altering the overall concept or the nature of the index are generally considered non-material.

The IMC determines whether an amendment is material as defined above. In case such determination is not possible, the proposed amendment shall be treated as material. (Discretionary Rule, see section 2.3 Discretion in the DAX Equity Index Calculation Guide).

In case of Changes to Methodology as described in STOXX Changes to Methodology Policy a STOXX consults with reasonably affected stakeholders ("Stakeholders") prior to take decision.

Stakeholders mean (a) persons or entities who have an index license with STOXX regarding a benchmark administered by STOXX (Subscriber) and/or as far as STOXX is reasonable aware (b) persons or entities and/or third parties who own contracts or financial instruments that reference a benchmark administered by STOXX (Investors).

Considering the Principle of Proportionality, STOXX informs affected Stakeholders as follows:

- either via public consultation open to the entire market and performed via STOXX website;
- or, when the relevant Stakeholders are known, on a restricted basis directly on the Stakeholders e-mail address.

STOXX shall inform in writing the Stakeholders on:

- the key elements of the proposed relevant changes
- the rationale for any proposed relevant changes
- the specific questions to be answered
- the deadline for receiving feedback
- the timeline of implementation of the Relevant Changes
- contact details where to provide feedback
- relevant definitions

The consultation shall enable Stakeholders to submit comments.

The standard consultation period shall be 1 month with the option to shorten or extend this period.

The IGC may decide to shorten the 1-month period in the following cases:

- in extreme or exceptional market conditions or analogous extraordinary situations
- in urgent cases, such as a situation in which the Index cannot be replicated anymore;

13. METHODOLOGY REVIEW

- » in situations where there is no known Stakeholders impact or only a limited number of Stakeholders;
- » in order to align the Effective date of a proposed changed with Index Maintenance; e.g. an Equity/Bond Index Rebalancing, Index Review, and Corporate Action Adjustment, or
- » any other similar cases applying the principle of proportionality.

The IGC will consider the feedback received and decide whether the relevant changes shall become Effective.

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

If the IGC decides that relevant changes shall become Effective, STOXX will communicate a timeline on the implementation of the relevant changes, if not already communicated in the consultation material.

STOXX will after the consultation make available the Stakeholders feedback received in the consultation and STOXX's summary response to those comments, except where confidentiality has been requested by the respective Stakeholders.

The decision will be communicated as soon as possible in the form of an Announcement or Press Release.

STOXX Ltd. will refrain from issuance of a notification if it reaches the view that the issuance of a notification is not in line with applicable laws and may decide to issue such notification at a later point in time when such reasons have lapsed.

By reason of force majeure or other events beyond the control of STOXX Ltd. it might become impossible for STOXX Ltd. to issue a notification in due time or by the means set out herein. In such cases STOXX Ltd. may exceptionally issue the notification either subsequently immediately following such event or in any case by other means.

At the end of each consultation STOXX Ltd. will make available the feedback received from Stakeholders in the consultation together with a summary of its response to that feedback, except where confidentiality has been requested by the respective Stakeholders (Discretionary Rule, see section 2.3 Discretion in the DAX Equity Index Calculation Guide).

13.4. NON-MATERIAL CHANGES WITHOUT CONSULTATION

Non-material changes of the index methodology, including a description of the impact and the rationale, will be announced via Announcement or Press Release, Effective immediately following publication, unless otherwise specified in the notification (Discretionary Rule, see section 2.3 Discretion in the DAX Equity Index Calculation Guide) STOXX Ltd. will refrain from the issuance of a notification if it reaches the view that the issuance of a notification is not in line with applicable laws and may decide to issue such notification at a later point in time when such reasons have lapsed (Discretionary Rule, see section 2.3 Discretion in the DAX Equity Index Calculation Guide). By reason of force majeure or other events beyond the control of STOXX Ltd. it might become impossible for STOXX Ltd. to issue a notification in due time or by the means set out herein. In such cases STOXX Ltd. may exceptionally issue the notification either subsequently immediately following such event or in any case by other means.

13. METHODOLOGY REVIEW

13.5. PUBLICATION OF THE METHODOLOGY CHANGE

The Effective date for benchmark methodology changes is aligned, where feasible, with the periodic benchmark reviews dates when the benchmark composition is changed, and a rebalancing is triggered to avoid extra ordinary impact for clients. Material methodology changes should generally be publicly announced 3 months prior to implementation. IGC may decide to shorten the notice period:

a) In exceptional or urgent cases such as extreme or exceptional market conditions or analogous extraordinary situations
b) in situations where there is no Stakeholder impact and where it has been agreed that the notice period has to be shortened but immediate communication is not possible. A case that requires urgent action is for example a situation in which the investor's ability to replicate the index benchmark performance with his or her portfolio is no longer ensured. In such cases, changes or amendments to the published index methodology must be made on the same day the new rule or change is implemented.
c) to align with the period benchmark review dates and the rebalancing of the benchmarks.
d) In case of any proposed material change in its methodology, STOXX shall share its view on the key elements of the methodology that will be impacted by a proposed material change. Furthermore, STOXX Ltd. shall include an assessment as to whether the representativeness of the benchmark and its appropriateness for its intended use are put at risk in case the proposed material change is not put in place. In case of any changes or amendments to the present Index Guide, Operations and Product will work together to ensure both the public and subscribers are provided with detailed information about the nature and rationale of the change as well as the implications and terms for the new methodology to enter into force.

13. METHODOLOGY REVIEW

Published 22/08/2025 Effective 22//08/2025	Creation of Version 4.8 - Addition of DAX Covered Call ATM Index
Published 24/03/2025 Effective 24//03/2025	Creation of Version 4.7 - Enhancement in the index formula of DAXplus Option Indices
Published 28/02/2025 Effective 28/02/2025	Creation of Version 4.6 - Deletion of idDAX 50 Equal Weight Decrement 4% Index
Published 17/02/2025 Effective 17/02/2025	Creation of Version 4.5 - Deletion of DAXplus 30 Decrement 40 Index
Published 11/12/2024 Effective 11/12/2024	Creation of Version 4.4 - Update of the document design
Published 06/09/2024 Effective 30/09/2024	Creation of Version 4.3 - VDAX-NEW index name change to VDAX
Published 10/06/2024 Effective 10/06/2024	Creation of Version 4.2.1 - Change of the dissemination times for X-indices
Published 14/03/2024 Effective 18/03/2024	Creation of Version 4.2 - Rule clarification in the sub section 'Adjustments due to extreme market movements' of DAX, MDAX, TecDAX Leveraged and Short Indices and DAXglobal Short Indices; and 'Index Floor' of DAX Futures Leverage Index
Published 31/01/2024 Effective 18/03/2024	Creation of Version 4.1 - Addition of the idDAX 30 ESG Decrement 4.0%
Published 29/09/2023	Creation of Version 4.0 - Initial creation of the document.

14. HISTORY OF CHANGE

Effective 18/03/2024	

All amendments listed with effect prior to August 2019 are amendments to the Rules and Regulations of the former Strategy Indices of Deutsche Börse AG.

Amendments listed as of August 2019 are amendments to the Rules and Regulations of DAX Strategy Indices in continuation of the Rules and Regulations of the former Strategy Indices of Deutsche Börse AG.

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14.1. HISTORY OF CHANGES AS PER THE FORMER GUIDE TO THE DAX STRATEGY INDICES

Effective 22/08/2023	Creation of Version 3.48 – Clarification of the currency used to calculate the Carbon Intensity for DAX ESG Target (chapter 3.18.1)
Effective 02/06/2023	Creation of Version 3.47 – Termination of idDAX Leveraged/Short NC indices
Effective 28/02/2023	Creation of Version 3.46 – Clarification of the data source in section 2.5
Effective 19/12/2022	Creation of Version 3.45 – Clarification of the extraordinary review rule for DivDAX/ DivMSDAX (section 2.1) and DAXplus Maximum Dividend (section 2.9)
Effective 21/11/2022	Creation of Version 3.44 – Launch of the DAX Futures Switch and DAX Futures Leverage indices
Effective 11/11/2022	Creation of Version 3.43 – Change to the DAX ESG Target Index methodology addition of Controversy Ratings
Effective 05/10/2022	Creation of Version 3.42 – Renaming of DAX ESG+ Index to DAX 50 ESG+ Index
Effective 02/09/2022	Creation of Version 3.41 – Launch of DAX ESG+ Index – Change to the selection rule for the DAXplus Maximum Dividend Index (section 2.9)
Effective 03/08/2022	Creation of Version 3.4 – Methodology Change of quarterly Review Process by introduction of the quarterly underlying data announcement and preponement of review schedule to 2nd Friday (t-5) for DivDAX, DivMSDAX, DAXplus Seasonal Strategy, DAXplus Export Strategy, DAXplus

14. HISTORY OF CHANGE

	Family, DAXplus Minimum Variance, DAXplus Maximum Sharpe Ratio, idDAX 50 Equal Weight, DAX Equal Weight, DAX ESG Target, DAX ESG Screened, MDAX ESG Screened and MDAX ESG+. Changes are reflected in section 3 for each Index individually.
Effective 30/05/2022	Creation of Version 3.30 – Launch of MDAX ESG+ Index
Effective 20/05/2022	Creation of Version 3.29 – Addition of Product Involvement Screening for Thermal Coal Power Generation to DAX/ MDAX ESG screened Indices in section 2.18
Effective 06/05/2022	Creation of Version 3.28 – Change to DAXplus Maximum Dividend Index; Implementation of additional measure to the selection process of the Index
Effective 14/04/2022	Creation of Version 3.27 – Launch of DAX Monthly Hedged JPY TTM Indices based on currency conversion DAX JPY TTM
Effective 01/04/2022	Creation of Version 3.26 – Correction of Wording in sections 2.18, 3.19 for ESG screened Indices
Effective 28/02/2022	Creation of Version 3.25 – Launch of DAX ESG Screened and MDAX ESG Screened indices
Published 17/11/2021 Effective 19/11/2021	Creation of Version 3.24 – Launch of idDAX 50 ESG NR Decrement 4.00%
Published 08/11/2021 Effective 08/11/2021	Creation of Version 3.23 – Transition from EONIA to the euro short-term rate (€STR) in the methodology of – DAX Risk Control Indices as the risk-free money market investment – Sections 1.13, 2.13, 3.9 – Leverage and Short Indices as the interest term in the calculation formula – Sections 2.16, 3.3 – idDAX Leveraged/Short NC Indices as the interest term in the calculation formula – Section 3.14
Effective 15/09/2021	Creation of Version 3.22 – Reflection of changes to the no. of constituents in DAX in calculation formulas of DAXplus Minimum Variance Germany and DAXplus Maximum Sharpe Ratio Germany, in section 3.4
Published 08/07/2021 Effective 30/08/2021	Creation of Version 3.2 – Alignment of idDAX 50 Index Methodology with changes to the DAX Selection Indices Methodology along with the DAX Reform
Effective 16/07/2021	Creation of Version 3.12 – Clarification that Decrement indices have a floor value of zero.
Effective 01/04/2021	Creation of Version 3.11 – Launch of DAX ESG Target Index
Effective 25/02/2021	Creation Version 3.10 – Rule Change: removal of requirement of Prime Standard listing from idDAX 50 Equal Weight, section 1.16
Effective 18/01/2021	Creation Version 3.9 – Changes to the index calculation times due to the introduction of Xetra Trade-at-Close trading phase

14. HISTORY OF CHANGE

Effective 05/11/2020	Creation of Version 3.8 – Change to the fast exit rule of DivDAX and DivMSDAX
Effective 26/06/2020	Creation of Version 3.7 – Launch of DAX Daily Hedged CZK index
Effective 15/06/2020	Creation of Version 3.6 – Governance Update, Clarification of Section: 3.16.1, 3.17.2, 5.3, 5.4, 5.7.2, 5.9
Effective 02/04/2020	Creation of Version 3.5 – Clarification of wording in chapter 2.9
Effective 16/03/2020	Creation of Version 3.4 – Clarification of wording in chapter 2.9
Effective 10/03/2020	Creation of Version 3.3 – Deletion of the idDAX 12x Leveraged NC (TR) (EUR), idDAX 14x Leveraged NC (TR) (EUR) and idDAX 15x Leveraged NC (TR) (EUR) indices
Effective 02/10/2019	Creation of Version 3.2 Clarifications relating to changes in the EONIA rate determination
Effective 16/10/2019	Creation of Version 3.1 – Clarification relating to EU Benchmark Regulation and changes relating to the transfer of index administration to STOXX Ltd.
Effective 30/04/2019	Creation of Version 2.30 Change to the selection and capping rules of DAXplus Maximum Dividend
Effective 16/11/2018	Creation of Version 2.29 Launch of DAX Equal Weight Index
Effective 16/05/2018	Creation of Version 2.28 – Launch of DAXplus Maximum Dividend Net Return Index
Effective 11/09/2017	Creation of Version 2.27 – Launch of idDAX Leveraged/Short NC Indices
Effective 03/08/2017	Creation of Version 2.26 Launch of idDAX 50 Equal Weight and idDAX 50 Equal Weight Decrement 4.00%
Effective 20/03/2017	Creation of Version 2.25 Change of data provider for shareholder structures of DAXplus Family Indices
Effective 25/04/2016	Creation of Version 2.24 – Edit of wording for the index-specific deviation threshold from one index tick to another – Correction of date when calculation of DAX was starting to use Xetra prices
Effective 08/09/2015	Creation of Version 2.23 – Launch of DAXplus 30 Decrement 40
Effective 02/06/2015	Creation of Version 2.21 – Change of Trigger Level for Reverse Split for Leverage and Short Indices
Effective 08/05/2015	Creation of Version 2.21 – Launch of monthly currency hedged indices
Effective 09/04/2015	Creation of Version 2.20 – Launch of LevDAX x9, LevDAX x10, ShortDAX x9 and ShortDAX x10
Effective 23/03/2015	Creation of Version 2.19 – Change of review frequency for DAXplus Family Indices
Effective 17/02/2015	Creation of Version 2.18 – Change to selection and capping rules of DAXplus Maximum Dividend
Effective 22/12/2014	Creation of Version 2.17 – Clarification of the rulebook according to IOSCO principles

14. HISTORY OF CHANGE

Effective 28/08/2014	Creation of Version 2.16 – Launch of ShortMDAX
Effective 20/08/2014	Creation of Version 2.15 – Launch of HDAX Hedged
Effective 27/01/2014	Creation of Version 2.14 – Adjustment of 3.3.3– daily leverage and short indices
Effective 25/10/2013	Creation of Version 2.13 – Adjustment of extraordinary Replacement rule in DAXplus Maximum Dividend Index
Effective 16/08/2013	Creation of Version 2.12 – Update of contact details (appendix)
Effective 25/07/2013	Creation of Version 2.11 – Adjustments due to extreme market movements
Effective 25/02/2013	Creation of Version 2.9 – Rule adjustments Daily Leverage and Daily Short Indices – Description of price-relevant capital changes in chapter 4
Effective 26/11/2012	Creation of Version 2.9 – Rule adjustments LevDAX x3 and ShortDAX x3 Indices
Effective 23/07/2012	Creation of Version 2.7 – Launch of additional LevDAX and ShortDAX Indices
Effective 07//2012	Creation of Version 2.6 – Launch of DAXplus Minimum Variance / Maximum Sharpe Ratio Net Return Indices
Effective 16/05/2011	Creation of Version 2.6 – Launch of DivMSDAX
Effective 04/04/2011	Creation of Version 2.5 – Launch of DAX Risk Control Indices
Effective 09/03/2011	Creation of Version 2.4 – Launch of LevDAX Optimal
Effective 17/01/2011	Creation of Version 2.3 – Launch of ShortTecDAX
Effective 17/12/2010	Creation of Version 2.2 – Consideration of cost of borrow in Short Indices
Effective 27/09/2010	Creation of Version 2.1 – Launch of LevDAX x2 Monthly, ShortDAX x2 Monthly
Effective 04/01/2010	Creation of Version 2.0 – Introduction DAXplus Familiy Index
Effective 28/08/2009	Creation of Version 1.19 – Changed chaining date of DAXplus Maximum Dividend
Effective 04/05/2009	Creation of Version 1.18 – Launch of DAX Dividend Points, DivDAX Dividend Points
Effective 27/04/2009	Creation of Version 1.17 – Launch of DAXplus Risk Trigger Germany
Effective 30/03/2009	Creation of Version 1.16 – Launch of LevDAX x4, ShortDAX x2, ShortDAX x4
Effective 09/03/2009	Creation of Version 1.15 – Launch of DAXplus Maximum Dividend

14. HISTORY OF CHANGE

Effective 05/02/2009	Creation of Version 1.14 – Concretion of exception handling in DivDAX
Effective 16/12/2008	Creation of Version 1.13 – Launch of DAXplus Directors Dealings Germany
Effective 31/03/2008	Creation of Version 1.12 – International indices moved to "Guide to the international Strategy Indices of Deutsche Börse"
Effective 03/09/2007	Creation of Version 1.11 – Launch of DAXplus Maximum Sharpe Ratio Japan (JPY), DAXplus Minimum Variance Japan (JPY)
Effective 09/07/2007	Creation of Version 1.10 – Launch of DAXplus Maximum Sharpe Ratio France, DAXplus Maximum Sharpe Ratio Japan, DAXplus Maximum Sharpe Ratio Switzerland, DAXplus Maximum Sharpe Ratio US
Effective 09/07/2007	Creation of Version 1.10 – Launch of DAXplus Minimum Variance France, DAXplus Minimum Variance Japan, DAXplus Minimum Variance Switzerland, DAXplus Minimum Variance US
Effective 12/06/2007	Creation of Version 1.9 – Launch of DAXplus Maximum Sharpe Ratio Germany
Effective 29/05/2007	Creation of Version 1.8 – Launch of DAXplus Minimum Variance Germany
Effective 27/03/2007	Creation of Version 1.7 – Launch of ShortDAX
Effective 07/08/2006	Creation of Version 1.6 – Launch of DAXplus Protective Put
Effective 28/06/2006	Creation of Version 1.5 – aunch of LevDAX
Effective 06/06/2006	Creation of Version 1.4 – New Cap Limit for DAXplus Seasonal Strategy
Effective 23/01/2006	Creation of Version 1.3 – Launch of DAXplus Covered Call
Effective 24/10/2005	Creation of Version 1.2 – Launch of DAXplus Export Strategy
Effective 13/05/2005	Creation of Version 1.1 – Launch of DAXplus Seasonal Strategy

14.2. HISTORY OF CHANGES AS PER THE FORMER DAX INTERNATIONAL STRATEGY INDICES

Effective 11/2021	Creation of Version 3.1 – Transition from EONIA to the euro short-term rate (€STR) for DAXglobal Short Indices in Section: 3.1.1 Index Formula
Effective 08/2021	Creation of Version 3.0 – Discontinuation of the DAXplus Maximum Sharpe Ratio Family, DAXplus Minimum Variance Family, DAXplus Risk Trigger Family and select DAXGlobal Short indices.
Effective 06/2020	Creation of Version 2.3 – Governance Update/ Clarification of Sections: 4.2, 6.3, 6.4, 6.5.3, 6.6.1
Effective 10/2019	Creation of Version 2.2 – Clarifications relating to changes in the EONIA rate determination

14. HISTORY OF CHANGE

Effective 08/2019	Creation of Version 2.1 – Clarifications relating to EU Benchmark Regulation – Changes relating to the transfer of index administration to STOXX Ltd
Effective 04/2016	Creation of Version 1.7 – Edit of wording for the index-specific deviation threshold from one index tick to another
Effective 12/2014	Creation of Version 1.6 – Clarification of the rulebook according to IOSCO principles
Effective 02/2013	Creation of Version 1.4 – Description of price-relevant capital changes in chapter 4 – Adjustments – DAXglobal Short Indices
Effective 07/2011	Creation of Version 1.3 – Launch of DAXplus Mininum Variance / DAXplus Maximum Sharpe Ratio Net-Return Indices
Effective 09/2010	Creation of Version 1.4 – Decommissioning of DAXplus Directors Dealings
Effective 04/2009	Creation of Version 1.2 – Launch of DAXplus Risk Trigger Indices
Effective 12/2008	Creation of Version 1.1 – Launch of DAXplus Directors Dealings
Effective 03/2008	Creation of Version 1.0 – Launch of DAXglobal Short Indices

14.3. HISTORY OF CHANGES AS PER THE FORMER GUIDE AKTIENINDEX DEUTSCHLAND RC-10%

Effective 11/2021	Creation of Version 1.2: – Transition from EONIA to the euro short-term rate (€STR)
Effective 10/2019	Creation of Version 1.1: – Clarification relating to EU Benchmark Regulation and changes relating to the transfer of index administration to STOXX Ltd. – Clarifications relating to changes in the EONIA rate determination
Effective 01/2011	Creation of Version 1.0: – Introduction of Aktienindex Deutschland RC-10%