Guide to the DAX Strategy Indices

Formerly known as Guide to the Strategy Indices of Deutsche Börse AG

Version 3.50

15th November 2023

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 Equity Indices are governed by the respective index methodology applicable to the respective index or index family. Purpose of this Guide to the DAX Equity Indices (**"**Guide**")** is to provide for a comprehensible index methodology in continuity of the former Guide to the Equity Indices of Deutsche Börse AG as last amended with effect from 26 June 2019 (version 9.2.4).

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.

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.

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History of Amendments to the Rules and Regulations

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.

15th November 2023	Version 3.50	Launch of idDAX 30 ESG Decrement 4.0% Index
10th November 2023	Version 3.49	Launch of DAX 30 ESG Index
22nd August 2023	Version 3.48	Clarification of the currency used to calculate the Carbon Intensity for DAX ESG Target (chapter 3.18.1)
2nd June 2023	Version 3.47	Termination of idDAX Leveraged/Short NC indices
28th February 2023	Version 3.46	Clarification of the data source in section 2.5
19th December 2022	Version 3.45	Clarification of the extraordinary review rule for DivDAX/ DivMSDAX (section 2.1) and DAXplus Maximum Dividend (section 2.9)
21st November 2022	Version 3.44	Launch of the DAX Futures Switch and DAX Futures Leverage indices
11th November 2022	Version 3.43	Change to the DAX ESG Target Index methodology addition of Controversy Ratings
5th October 2022	Version 3.42	Renaming of DAX ESG+ Index to DAX 50 ESG+ Index
2nd September 2022	Version 3.41	Launch of DAX ESG+ Index Change to the selection rule for the DAXplus Maximum Dividend Index (section 2.9)
3rd August 2022	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 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.
30th May 2022	Version 3.30	Launch of MDAX ESG+ Index
20th May 2022	Version 3.29	Addition of Product Involvement Screening for Thermal Coal Power Generation to DAX/ MDAX ESG screened Indices in section 2.18

6th May 2022	Version 3.28 Change to DAXplus Maximum Dividend Index; Implementation of additional measure to the selection process of the Index
14 April 2022	Version 3.27 Launch of DAX Monthly Hedged JPY TTM Indices based on currency conversion DAX JPY TTM
1 April 2022	Version 3.26 Correction of Wording in sections 2.18, 3.19 for ESG screened Indices
28 February 2022	Version 3.25 Launch of DAX ESG Screened and MDAX ESG Screened indices
17 November 2021 Valid from 19 November 2021	Version 3.24 Launch of idDAX 50 ESG NR Decrement 4.00%
08 November 2021 Valid from 08 November 2021	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
15 September 2021	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
08 July 2021 Valid from 30 Aug. 2021	Version 3.2 Alignment of idDAX 50 Index Methodology with changes to the DAX Selection Indices Methodology along with the DAX Reform
16 July 2021	Version 3.12 Clarification that Decrement indices have a floor value of zero.
01 Apr. 2021	Version 3.11 Launch of DAX ESG Target Index
25 Feb. 2021	Version 3.10 Rule Change: removal of requirement of Prime Standard listing from idDAX 50 Equal Weight, section 1.16
18 Jan. 2021	Version 3.9 Changes to the index calculation times due to the introduction of Xetra Trade-at-Close trading phase
05 Nov. 2020	Version 3.8 Change to the fast exit rule of DivDAX and DivMSDAX
26 Jun. 2020	Version 3.7 Launch of DAX Daily Hedged CZK index
15 Jun. 2020	Version 3.6 Governance Update, Clarification of Section: 3.16.1, 3.17.2, 5.3, 5.4, 5.7.2, 5.9
02 Apr. 2020	Version 3.5 Clarification of wording in chapter 2.9

16 Mar. 2020	Version 3.4 Clarification of wording in chapter 2.9
10 Mar. 2020	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
02 Oct. 2019	Version 3.2 Clarifications relating to changes in the EONIA rate determination
16 Aug. 2019	Version 3.1 Clarification relating to EU Benchmark Regulation and changes relating to the transfer of index administration to STOXX Ltd.
30 Apr. 2019	Version 2.30 Change to the selection and capping rules of DAXplus Maximum Dividend
16 Nov. 2018	Version 2.29 Launch of DAX Equal Weight Index
16 May 2018	Version 2.28 Launch of DAXplus Maximum Dividend Net Return Index
11 Sep. 2017	Version 2.27 Launch of idDAX Leveraged/Short NC Indices
03 Aug. 2017	Version 2.26 Launch of idDAX 50 Equal Weight and idDAX 50 Equal Weight Decrement 4.00%
20 Mar. 2017	Version 2.25 Change of data provider for shareholder structures of DAXplus Family Indices
25 Apr. 2016	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
08 Sep. 2015	Version 2.23 Launch of DAXplus 30 Decrement 40
02. Jun. 2015	Version 2.21 Change of Trigger Level for Reverse Split for Leverage and Short Indices
08. May 2015	Version 2.21 Launch of monthly currency hedged indices
09. Apr. 2015	Version 2.20 Launch of LevDAX x9, LevDAX x10, ShortDAX x9 and ShortDAX x10
23. Mar. 2015	Version 2.19 Change of review frequency for DAXplus Family Indices
17. Feb. 2015	Version 2.18 Change to selection and capping rules of DAXplus Maximum Dividend
22. Dec. 2014	Version 2.17 Clarification of the rulebook according to IOSCO principles
28. Aug. 2014	Version 2.16 Launch of ShortMDAX
20 Aug. 2014	Version 2.15 Launch of HDAX Hedged
27 Jan. 2014	Version 2.14 Adjustment of 3.3.3– daily leverage and short indices

25 Oct. 2013	Version 2.13 Adjustment of extraordinary Replacement rule in DAXplus Maximum Dividend Index
16 Aug. 2013	Version 2.12 Update of contact details (appendix)
25 Jul. 2013	Version 2.11 Adjustments due to extreme market movements
25 Feb. 2013	Version 2.9 Rule adjustments Daily Leverage and Daily Short Indices Description of price-relevant capital changes in chapter 4
26 Nov. 2012	Version 2.9 Rule adjustments LevDAX x3 and ShortDAX x3 Indices
23 Jul. 2012	Version 2.7 Launch of additional LevDAX and ShortDAX Indices
Jul. 2011	Version 2.6 Launch of DAXplus Minimum Variance / Maximum Sharpe Ratio Net Return Indices
16 May 2011	Version 2.6 Launch of DivMSDAX
4 Apr. 2011	Version 2.5 Launch of DAX® Risk Control Indices
9 Mar. 2011	Version 2.4 Launch of LevDAX® Optimal
17 Jan. 2011	Version 2.3 Launch of ShortTecDAX
17 Dec. 2010	Version 2.2 Consideration of cost of borrow in Short Indices
27 Sep. 2010	Version 2.1 Launch of LevDAX® x2 Monthly, ShortDAX® x2 Monthly
4 Jan. 2010	Version 2.0 Introduction DAXplus® Familiy Index
28 Aug. 2009	Version 1.19 Changed chaining date of DAXplus® Maximum Dividend
4 May 2009	Version 1.18 Launch of DAX® Dividend Points, DivDAX® Dividend Points
27 Apr. 2009	Version 1.17 Launch of DAXplus® Risk Trigger Germany
30 Mar. 2009	Version 1.16 Launch of LevDAX® x4, ShortDAX® x2, ShortDAX® x4
9 Mar. 2009	Version 1.15 Launch of DAXplus® Maximum Dividend
5 Feb. 2009	Version 1.14 Concretion of exception handling in DivDAX®
16 Dec. 2008	Version 1.13 Launch of DAXplus® Directors Dealings Germany
31 Mar. 2008	Version 1.12 International indices moved to “Guide to the international Strategy Indices of Deutsche Börse”
3 Sep. 2007	Version 1.11 Launch of DAXplus® Maximum Sharpe Ratio Japan (JPY), DAXplus® Minimum Variance Japan (JPY)
9 Jul. 2007	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

9 Jul. 2007	Version 1.10 Launch of DAXplus® Minimum Variance France, DAXplus® Minimum Variance Japan, DAXplus® Minimum Variance Switzerland, DAXplus® Minimum Variance US
12 Jun. 2007	Version 1.9 Launch of DAXplus® Maximum Sharpe Ratio Germany
29 May 2007	Version 1.8 Launch of DAXplus® Minimum Variance Germany
27 Mar. 2007	Version 1.7 Launch of ShortDAX®
7 Aug. 2006	Version 1.6 Launch of DAXplus® Protective Put
28 Jun. 2006	Version 1.5 Launch of LevDAX®
6 Jun. 2006	Version 1.4 New Cap Limit for DAXplus® Seasonal Strategy
23 Jan. 2006	Version 1.3 Launch of DAXplus® Covered Call
24 Oct. 2005	Version 1.2 Launch of DAXplus® Export Strategy
13 Jun. 2005	Version 1.1 Launch of DAXplus® Seasonal Strategy

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1 General Index Information

1.1 DivDAX and DivMSDAX

The DivDAX® and DivMSDAX are constructed using dividend yield as a selection criterion. DivDAX® contains the 15 companies with the highest dividend yield within the German blue chip index DAX®, DivMSDAX is based on the companies included in MDAX and SDAX.

1.2 DAXplus Seasonal Strategy

The DAXplus® Seasonal Strategy index is a German equity index calculated by STOXX Ltd. This special index concept allows for seasonal investment strategies by locking in the index level achieved during August and September – traditionally, lower index levels prevail during these months. The index comprises the 40 component issues of the blue chip DAX® index, and is calculated accordingly.

1.3 DAXplus Export Strategy

The DAXplus® Export Strategy index consists of strong exporting companies, who thus benefit from strong growth outside the German economy. The index comprises the ten component issues from the DAX® and MDAX® indices with the highest proportion of exports in their revenues.

1.4 DAXplus Covered Call

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®.

1.5 Leveraged and Short Indices

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.

1.6 DAXplus Protective Put

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®.

1.7 DAXplus Minimum Variance Germany

The concept of DAXplus® Minimum Variance Germany is based on the modern portfolio theory. The weights are derived from an optimization that seeks to minimize variance of the portfolio of DAX constituents.

1.8 DAXplus Maximum Sharpe Ratio Germany

The concept of DAXplus® Maximum Sharpe Ratio Germany is based on the modern portfolio theory. The weights are derived from an optimization that seeks to maximize the Sharpe ratio of the portfolio of DAX constituents.

1.9 DAXplus Maximum Dividend

With DAXplus® Maximum Dividend STOXX Ltd. calculates a strategy index that aims to maximize the dividend yield of the index portfolio. The index comprises 25 shares from the HDAX index which have the highest expected dividend yield.

1.10 DAXplus Risk Trigger Germany

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.

1.11 Dividend Points Indices

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.

1.12 DAXplus Family

The DAXplus Family index measures the performance of founder-dominated companies ("family enterprises") that are listed at the Frankfurt Stock Exchange (FWB®). The DAXplus Family Index was developed in cooperation with the Centre for Entrepreneurial and Financial Studies (CEFS) at Technische Universität München (TUM). The review of the index composition is performed annually in March by STOXX Ltd. based on shareholder structure information provided by Marketline.

1.13 DAX Risk Control Indices

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).

1.14 Currency-Hedged Indices

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.

1.15 DAXplus 30 Decrement 40 Index

The DAXplus 30 Decrement 40 index replicates the returns of an investment into the underlying index with a constant markdown expressed in index points, accruing on a daily basis.

While the DAXplus 30 Decrement 40 has lower returns than the underlying DAX (TR) by construction, it may perform better than the DAX (PR) index, provided that the dividend points not reinvested in the DAX (PR) exceed, on an equivalent annual basis, the decrement amount.

For information regarding the underlying DAX index cf. “Guide to the DAX Equity Indices”.

1.16 idDAX 50 Equal Weight Index

The idDAX® 50 Equal Weight Index tracks the performance of the 50 largest and most liquid companies from the German stock market. It includes all stocks from the DAX® index (40) completed with the 10 most liquid companies from the Regulated Market at FWB – Frankfurt® Stock Exchange.

1.17 idDAX 50 Equal Weight Decrement 4.00% Index

The idDAX 50 Equal Weight Decrement 4.00% index replicates the performance of the idDAX 50 Equal Weight EUR index assuming a constant 4.00% 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 idDAX 50 Equal Weight Net Return EUR Index (Sections 1.16 and 2.15).

1.18 idDAX 50 ESG NR Decrement 4.00%

The idDAX 50 ESG NR Decrement 4.00% index replicates the performance of the DAX 50 ESG index assuming a constant 4.00% 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.

1.19 DAX Equal Weight Index

The DAX® Equal Weight Index includes the same companies as the DAX® Index, with each company assigned the same weight.

1.20 DAX ESG Target Index

The objective of the DAX® ESG Target Index is to reflect the DAX® Index while maximizing its ESG score and at the same time reducing its carbon intensity by at least 30%. The predicted tracking error is constraint with respect to its parent index. The index includes ESG exclusion filters for Global Standards Screening, ESG Controversies, Controversial Weapons, Thermal Coal, Tobacco, Nuclear Power, Military Contracting, Small Arms and Oil Sands.

1.21 DAX ESG Screened and MDAX ESG Screened Indices

The objective of the DAX ESG Screened Index and MDAX ESG Screened Index is to reflect the performance of their respective parent index (DAX® Index and MDAX® Index) while using ESG exclusion filters to remove companies that fail to meet Norms Based Screening, Controversial Weapons Screening, Minimum ESG Ratings and a series of Product Involvement Screenings.

1.22 MDAX ESG+ Index

The objective of the MDAX ESG+ Index is to reflect the performance of the MDAX® Index while using ESG exclusion filters to remove companies that fail to meet Norms Based Screening, Controversial Weapons Screening, Minimum ESG Ratings and a series of Business Activity Screenings. If less than 20% of the companies of the parent index are excluded an additional filter based on ESG Score is applied to exclude the lowest ranked companies in terms of ESG score.

1.23 DAX 50 ESG+ Index

The objective of the DAX 50 ESG+ Index is to reflect the performance of the 50 highest ESG ranking companies selected from the 75 largest companies in terms of free float Market Cap of the HDAX® Index after using ESG exclusion filters to remove companies that fail to meet Norms Based Screening, Controversial Weapons Screening, Minimum ESG Ratings and a series of Business Activity Screenings.

1.24 DAX Futures Switch Index

The objective of the DAX Futures Switch Index is to replicate a hypothetical portfolio of a series of long position DAX futures contracts traded on Eurex.

1.25 DAX Futures Leverage Index

The objective of the DAX Futures Leverage Index is to replicate a leveraged investment strategy based on the DAX Futures Switch Excess Return Indices.

1.26 DAX 30 ESG Index

The objective of the DAX 30 ESG Index is to reflect the performance of the 30 highest ESG ranking companies selected from the 60 largest companies in terms of Free Float Market Capitalisation of the HDAX® Index after using ESG exclusion filters to remove companies that fail to meet Norms Based Screening, Controversial Weapons Screening, and a series of Business Activity Screenings.

1.27 idDAX 30 ESG Decrement 4.0% Index

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.

2 Index Composition

The composition of strategy indices is based on the respective underlying trading strategy. Special characteristics are presented below.

2.1 DivDAX and DivMSDAX

DivDAX comprises those 15 companies with the highest dividend yield within the DAX® index, DivMSDAX those within the combined universe of MDAX and SDAX index. Moreover, the shares are required to show an average daily traded volume of 250,000€ over the past three months. Historical dividend yields are calculated by dividing distributed dividends by the closing price of the respective share on the day preceding the ex-date.

The 15 DivDAX® and DivMSDAX component issues are re-determined each September. Hence, the index composition will generally change once a year. If an index member publicly announces that it will not pay dividends at the upcoming dividend date, it will be removed from the index at the next rebalancing date. It will be replaced by the next company on the ranking list, that has not ceased dividend payments itself. If no replacement exists, no action is taken. If there is no rebalancing date between the announcement and the previously planned payout date the change will be executed with two full trading days' notice following the announcement.

Companies that are excluded from the parent index (DAX for DivDAX, MDAX and SDAX for DivMSDAX) because of an extraordinary index review (as described in section 5 of the Guide to the DAX Equity Indices) that are constituents of the DivDAX or DivMSDAX index are removed from the respective index as well with the same notice period (usually 2 trading days) in case the extraordinary review was triggered by an insolvency of the company or a breach of the following basic criteria:

- minimum free float
- listing on Regulated Market of FWB
- continuous trading

It will be replaced by the next company on the ranking list that has not ceased dividend payments. If no replacement exists, the company is removed without replacement.

The index weighting is based on the free float market capitalization[1], whereby the maximum weighting per share is capped at 10 percent. This cap is designed to prevent individual shares from dominating the index.

All index members are also included in a blue-chip index, thus ensuring high liquidity.

Rebalancing takes place on a quarterly basis, in line with the methodology applied to DAX.[2]

The base is 17 September 1999, with a base value of 100.

1) Cf. free float definition in "Guide to the DAX Equity Indices".

2 Cf. „Guide to the DAX Equity Indices ".

The indices are calculated both as a price and as a performance index. They are calculated every 15 seconds, using the last available Xetra® price data for companies quoted in the Prime Standard segment. DivDAX and DivMSDAX use 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 5:00 pm CET are used to calculate the indices' closing values. DivDAX and DivMSDAX are available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen.

2.2 DAXplus Seasonal Strategy

The index comprises the 40 component issues of the German blue-chip DAX® index.

Similar to DivDAX®, the index weighting is based on the free float market capitalization, but with the maximum weighting per share capped at 10 percent[3].

The base date of DAXplus® Seasonal Strategy is 30 December 1987, with a base level of 1000.

Chaining takes place on a quarterly basis, in line with the methodology applied to the DAX.

The special feature of DAXplus Seasonal Strategy index is that the index value is frozen on the last trading day in July, and is not changed until the last trading day in September. The period between is referred to as the 'de-investment phase'. Starting with the first trading day in October, the index will again be calculated on the basis of the then current DAX composition.

Outside the de-investment phase during August and September, the index is calculated every 15 seconds, using the last available Xetra® price data for companies quoted in the Prime Standard segment. DAXplus Seasonal Strategy 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 5:00 pm CET are used to calculate the index's closing values. DAXplus Seasonal Strategy index is available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen. DAXplus Seasonal Strategy is calculated both as a price and as a performance index.

2.3 DAXplus Export Strategy

The index composition is updated once a year, on the chaining date in September. Ten component issues of the DAX® and MDAX® indices are chosen, selecting those companies that, within each index, have derived the highest proportion of their revenues outside Germany (based on figures disclosed in their annual reports for the preceding business year). The Banks and Financial Services sectors are not considered for this index.

The index is weighted according to free float market capitalization, where the maximum weight assigned per component is capped at 10% at rebalancing. Since the index has a fixed number of components of 10, the outcome of this is the equal weighting of all index constituents.

3) As of the chaining day in September 2006 the cap limit of DAXplus Seasonal Strategy was lowered to 10 percent.

The base date of DAXplus® Export Strategy is 18 March 2002, with a base level of 100.

DAXplus Export Strategy is calculated both as a price and as a performance index. The price index is calculated every 15 seconds and the performance index end of day, using the last available Xetra® price data for companies quoted in the Prime Standard segment. DAXplus Export Strategy 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 5:00 pm CET are used to calculate the indices' closing values. DAXplus Export Strategy index is available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen.

2.4 DAXplus Covered Call

DAXplus® Covered Call index combines the DAX® index and a DAX call option.

The base date of DAXplus Covered Call is the 31 December 1992, with a base level of 100.

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 1.00 p.m. CET.

On normal trading days, the DAXplus Covered Call index is calculated every 60 seconds, between 9.00 a.m. and 5.55 p.m. CET; on option rollover dates, only from 9.00 a.m. to 1.00 p.m. 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/Reuters currency fixing rates from 5:00 pm 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.dax-indices.com/ressourcen.

2.5 Leveraged and Short Indices

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).

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

The base date of the leveraged indices is 30 December 1987, with a base value of 1,000, analogous to DAX index. The base date of the short indices is 29 December 2006, with a base value of 6,596.92, analogous to the closing value of the DAX index (748,32 analogous to the closing value of the TecDAX index) on that day.

The leveraged and short indices based on underlyings which are calculated real time, are also calculated in real time every 15 seconds between 9.00 a.m. and 5.55 p.m. based on DAX (TecDAX) (performance index).

The calculation and dissemination of the LevDAX x3 and ShortDAX x3 indices, that are calculated realtime, starts at 09:05 a.m. CET.

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

2.6 DAXplus Protective Put

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

The base date of DAXplus Protective Put is 31 December 1992, with a base level of 100.

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 1.00 p.m. CET for the following three months.

On normal trading days, the DAXplus Protective Put index is calculated every 60 seconds, between 9.00 a.m. and 5.55 p.m. CET; on option rollover dates, only from 9.00 a.m. to 1.00 p.m. 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 5:00 pm 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.dax-indices.com/ressourcen.

2.7 DAXplus Minimum Variance Germany

DAXplus Minimum Variance Index is based on the composition of the DAX Index.

The base date of DAXplus Minimum Variance Germany is the 21 September 2001, with a base level of 100.

The chaining takes place on a quarterly basis (i.e. on the third Friday of the last month of a quarter). The optimal weights are calculated as described in chapter 3.4.1. In this context, it can occur that for some constituents, the optimization can result in weight of 0.00 percent. These constituents won't be considered in the index. For the portfolio variance calculation, the index uses daily stock returns over the last twelve months (cf. chapter 3.4.1).

The date, from which the daily returns are considered for the portfolio variance calculation, depends on the chaining date and is updated quarterly. Between two chaining dates the weighting factors q_{iT}, that are derived out of the weights (cf. chapter 3.4.2) are kept constant.

DAXplus Minimum Variance Germany is calculated as performance and price index in real time every 15 seconds, between 9.00 a.m. and 5.55 p.m. CET in Euro, US-Dollar and British Pound. The calculation is based on the last available Xetra® price data. DAXplus Minimum Variance Germany 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 currencies. 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 5:00 pm CET are used to calculate the indices' closing values.

2.8 DAXplus Maximum Sharpe Ratio Germany

DAXplus® Maximum Sharpe Ratio Germany is based on the composition of the DAX®-Index, where weights are derived from an optimization that seeks to maximize the portfolio Sharpe ratio.

The base date of DAXplus Maximum Sharpe Ratio Germany is the 21 September 2001, with a base level of 100.

The chaining takes place on a quarterly basis (i.e. on the third Friday of the last month of a quarter). The weightings are calculated in line with the methodology applied to DAXplus Minimum Variance Germany (cp. chapters 2.7 and 3.4.1). Between two chaining dates the weighting factors q_{iT} which are derived out of the weight (cp. chapter 3.4.2) are kept constant.

DAXplus Maximum Sharpe Ratio Germany is calculated as performance and price index in real time every 15 seconds, between 9.00 a.m. and 5.55 p.m. CET in Euro, US-Dollar and British Pound. The calculation is based on the last available Xetra® price data. DAXplus Maximum Sharpe Ratio Germany 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 currencies. 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 5:00 pm CET are used to calculate the indices' closing values.

2.9 DAXplus Maximum Dividend

The index consists of the 25 companies in the HDAX Index which have the highest expected dividend yield and will pay a dividend within the forthcoming adjustment period. The expected dividend yield will be determined by the announced and the estimated dividend amount and the closing price of the stock at the time of selection.

The ordinary review of the index composition is conducted twice a year in May and November based on data from cut-off dates end of April and end of October. The review results are implemented at the 2nd Friday in May and November and become effective with start of trading on the following trading day. The HDAX® companies which will pay a dividend within the upcoming six months are eligible for inclusion. In addition companies must be among the 80% largest companies in terms of free float Market Cap and the 80% most liquid companies in terms of 3 month average-daily-trading-volume in HDAX®. This ensures a high liquidity of the index. Moreover, companies must rank in the top 80% in terms of price momentum in HDAX® universe excluding the companies with past price history of less than 12 months. Companies with past price history of less than 12 months (such as IPOs and spin-offs) are not eligible for inclusion.

The formula for calculating price momentum for share i is set out below:

$$PriceMomentum_i = \prod_{t=t_1}^{t=t_n} \left(\frac{P_{it}}{O_{it}}\right) - 1$$

where:

P_{it} = closing price of share i at trading day t

O_{it} = gross adjusted opening price of share i at trading day t

t_1 = the first trading day of the 11th month preceding the month of the cut-off date

t_n = the last trading day of the month preceding the month of the cut-off date

If less than 25 companies meet the above criteria, companies will be added from the current components of the Index that have (a) the highest dividend yield from the previous period, and (b) that meet the above criteria for largest companies, most liquid companies and highest price momentum. If 25 companies have not been selected, the companies will be added from the universe that have (a) the highest dividend yield from the previous period, and (b) that meet the above criteria for largest companies, most liquid companies and highest price momentum. By default, the additional companies added will inherit the smallest dividend yield value available within the composition of the current period.

If a member of the DAXplus Maximum Dividend index leaves the HDAX index or publicly announces that it will not pay a dividend on the following scheduled dividend date, it will be removed extraordinarily from the index. The replacement is determined as the best candidate on the most recent ranking list that has not cancelled its dividend distribution, will pay a dividend until the next regular rebalancing and meets the additional index criteria. If no replacement candidate exists in the case of removal from Index universe HDAX, the component is removed from DAXplus Maximum Dividend with no replacement. If no replacement candidate exists in case of a dividend cancelation, the component will remain in the index. The extraordinary review of the index composition will become effective on the trading day following the 2nd Friday of a month following the effective date of the removal from HDAX or announcement date of the dividend cancellation respectively, except the extraordinary review has been triggered by an insolvency of a company or the breach of one of the following basic criteria as described in section 5 of the Guide to the DAX Equity Indices:

- minimum free float
- listing on Regulated Market of FWB
- continuous trading

In those cases, the extraordinary review becomes effective with the same notice period as described in section 5 of the Guide to the DAX Equity Indices (usually 2 trading days).

The constituents of the index are weighted proportionally to their expected dividend yield: the higher the dividend yield, the higher the weight in the index. The maximum weight of a company is subject to a double capping mechanism. In a first step, the maximum weight is capped to 10 percent. This procedure prevents that single issues dominate the index. Then, a liquidity test is conducted based on a reference portfolio with a notional amount of EUR 1bn. A component passes the test if the amount to be allocated does not exceed 2.5-times of the average-daily-trading volume of the company. A breach of this threshold leads to a weight capping equal to 2.5-times of the company's 3-month ADTV value.

The base date of DAXplus® Maximum Dividend Index is 21 May 1999 with an index level of 100.

DAXplus Maximum Dividend is calculated as price, performance and net return index. The calculation is performed every 15 seconds on the basis of the last available Xetra prices. DAXplus Maximum Dividend uses the values of the constituent elements (applying currency conversion, if necessary) in calculation of 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 5:00 pm CET are used to calculate the indices' closing values. DAXplus Maximum Dividend is available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen.

2.10 DAXplus Risk Trigger Germany

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.

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 base date of DAXplus Risk Trigger Germany is the 30 December 1987, with a base level of 1,000.

2.11 Dividend Points Indices

DAX® Dividend Points and DivDAX® Dividend points reflect the income resulting from regular and special dividends of the companies included in the respective underlying index. These distributions are accumulated for the entire index portfolio and hence measure the income of the current year in index points. The Dividend Points indices are reset to zero on the regular chaining date of the underlying indices in December (under Section 3.7).
The indices are calculated and published once a day.

2.12 DAXplus Family

The DAXplus Family index is an all-share index that comprises all companies listed in the Prime Standard segment at the Frankfurt Stock Exchange and meet the specific selection criteria for family enterprises. For this concept, Family enterprises are characterized by the following two attributes:

- **Family Ownership**
  The group of index relevant people is a major shareholder of the company, i.e. it holds at least 25 percent of all ordinary shares

  and/or

- **Family Management**
  The group of index relevant people holds at least 5 percent of the ordinary shares and is member of the company management (management or supervisory board).

  The group of index relevant people consists of founders (both single founders and teams of founders) of the company and their families.

  In a broader sense the group of index relevant people is also assigned such shares that are being held indirectly by an asset management, investment or holding company, in case these are owned or controlled by the group of index relevant people.

In addition, with the DAXplus Family 30 index a liquid selection index is being calculated that comprises the 30 largest family enterprises (according to free float market capitalization) which have an average daily trading volume of at least €500,000 over the preceding three months at the time of index review.

The base date of the DAXplus Family indices is 21 June 2002 with a base value of 1000.

The composition of the index is reviewed on an annual basis in March. The index weighting is based on the free float market capitalization of the shares. The weight of an underlying is limited to a maximum of 10 percent.

The DAXplus Family indices are calculated continuously every 60 seconds from 9 a.m. to 5:45 p.m. as total return index, the price indices are computed once a day at market close. The calculation is based on the last available Xetra® prices. DAXplus Family indices use 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 5:00 pm CET are used to calculate the indices' closing values. DAXplus Family indices are available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen.

2.13 DAX Risk Control Indices

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.

2.14 Currency-Hedged Indices

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/Reuters spot and forward currency fixing rates from 5:00 pm 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.dax-indices.com/ressourcen.

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.

2.15 idDAX 50 Equal Weight Index

The idDAX 50 Equal Weight Index uses the compositions of the DAX index and completes it with the 10 companies with highest turnover from the Regulated Market on FWB Frankfurt Stock Exchange that fulfil the basic criteria for DAX selection indices as outlined in section 4.1.1.1 in the Guide to the DAX Equity Indices as reported in the DAX Selection Indices ranking list.

The sum of the turnover determined on the FWB Frankfurt Stock Exchange for the respective share classes of a company is defined as the order book volume. The reporting date for collecting data is the last trading day of the month for which the ranking list is created. The ranking list is created and published monthly by STOXX Ltd. For more information about the DAX Selection indices, please consult Section 4 of the Guide to the DAX Equity Indices.

All components are equally weighted. Between two chaining dates the weighting factors q_{iT} which are derived out of the weight (cp. Chapter 3.4.2) are kept constant.

The base date of idDAX 50 Equal Weight is the 21 March 2005, with a base level of 100.

Chaining takes place on a quarterly basis, in line with the methodology applied to the DAX (cf. Guide to the DAX Equity Indices).

The idDAX 50 Equal Weight index is calculated as performance (net and gross return) and price index in real time every 1 seconds, between 9.00 a.m. and 5.55 p.m. CET in Euro. The calculation is by default based on Xetra price data. idDAX 50 Equal Weight 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 5:00 pm CET are used to calculate the indices' closing values. idDAX 50 Equal Weight index is available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen.

The idDAX 50 Equal Weight index is subject to Extraordinary Index Review as any other Selection Index as described in section 5 of the Guide to the DAX Equity Indices. A deleted company is replaced by the highest turnover company from the last ranking list.

2.16 DAX Equal Weight Index

The DAX® Equal Weight Index has the identical composition as the DAX® Index at all times. All companies are equally weighted on the regular quarterly review date. Between two chaining dates the weighting factors which are derived from the weight are kept constant.

For replacements between regular chaining events the newly added company is assigned the weight of the deleted one.

The base date of DAX® Equal Weight Index is 21 September 2018 with an index level of 1,000. Chaining takes place on a quarterly basis, in line with the DAX® methodology.

The DAX® Equal Weight Index is calculated as price, performance and net return index in EUR and USD. DAX® Equal Weight Index uses the values of the constituent elements (applying currency conversion, if necessary) in calculation of the 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 5:00 pm CET are used to calculate the indices' closing values.

2.17 DAX ESG Target Index

The DAX® ESG Target index composition is derived from the DAX® index and the HDAX® as follow.

Step 1:

From the DAX® index and the HDAX® index apply the following set of exclusions:

- **Global Standards Screening**: compliant with the Global Standard Screening (GSS). Global Standards Screening identifies companies that violate or are at risk of violating commonly accepted international norms and standards, enshrined in the United Nations Global Compact (UNGC) Principles, the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises, the UN Guiding Principles on Business and Human Rights (UNGPs), and their underlying conventions.

- **Controversy Ratings:** STOXX will exclude companies that Sustainalytics identifies to have a Controversy Rating of Category 5 (Severe). Sustainalytics assesses companies' involvement in incidents with negative environmental, social and governance (ESG) implications. Controversy involvement is one key measure of ESG performance. A controversy is defined as an event or aggregation of events relating to an ESG topic. An event is assessed on its severity on a scale of 1 to 5 (1- Low, 2- Moderate,3- Significant, 4- High, 5- Severe). The highest Event rating under a controversy indicator, automatically becomes the Controversy Rating for a given company.

- **Controversial Weapons:** Not involved in Controversial Weapons activities, as identified by Sustainalytics. The following weapons are considered controversial: anti-personnel mines, biological and chemical weapons, cluster weapons, depleted uranium, nuclear weapons and white phosphorus weapons. The criteria for involvement are:

    - Internal production or sale of controversial weapons
    - The ultimate holding company owns >10% of voting rights of an involved company
    - >10% of voting rights of a company is owned by the involved company

- **Product Involvement**: Not have any Product Involvement in the following areas. STOXX will exclude companies that Sustainalytics identifies to have:

  Tobacco:
  STOXX will exclude companies that Sustainalytics identifies to have:
  - >0% revenues from manufacturing tobacco products
  - >5% revenues from supplying tobacco-related products/services
  - >5% revenues from the distribution and/or retail sale of tobacco products.

  Thermal Coal:
  STOXX will exclude companies that Sustainalytics identifies to have:
  - >5% revenues from thermal coal extraction (including thermal coal mining and exploration)
  - >5% power generation capacity: coal-fired electricity, heat or steam generation capacity / thermal coal electricity production (including utilities that own/operates coal-fired power plants)

  Military Contracting:
  STOXX will exclude companies that Sustainalytics identifies to have:
  - >5% revenues from manufacturing military weapons systems and/or integral, tailor made components of these weapons
  - >5% revenues from tailor made products and/or services that support military weapons

  Small Arms:
  STOXX will exclude companies that Sustainalytics identifies to have:
  - >0% revenues from manufacturing and selling assault weapons to civilian customers
  - >0% revenues from manufacturing and selling small arms (non-assault weapons) to civilian customers
  - >0% revenues from manufacturing and selling key components of small arms
  - >5% revenues from manufacturing and selling small arms to military / law enforcement customers
  - >5% revenues from retail and/or distribution of assault weapons
  - >5% revenues from retail and/or distribution of small arms (non-assault weapons))

  Nuclear Power:
  STOXX will exclude companies that Sustainalytics identifies as having:
  - >5% revenues from nuclear power production:

  Note: in this category Sustainalytics tracks the percentage of a company's generating capacity that is based on nuclear power
  - >5% revenues from nuclear power supporting products / services, including:
    - Design and construction of nuclear power plants
    - Design and manufacture of specialized parts for use in nuclear power plants, including steam generators, control rod drive mechanisms, reactor vessels, cooling systems, containment structures, fuel assemblies, and digital instrumentation and controls
    - Special services, such as the transport of nuclear power materials, and nuclear plant maintenance;
    - Uranium mining and exploration, including companies that mine uranium and convert, enrich, and fabricate

- >5% revenues from nuclear power distribution, including:
  - The resale or distribution of electricity generated from nuclear power;
  - This applies to distributors, resellers and utilities that distribute nuclear power as a part of their energy mix

Note: In this category Sustainalytics tracks the percentage of a company's energy mix that is generated from nuclear power

Oil Sands:

STOXX will exclude companies that Sustainalytics identifies to have:

- >5% revenues from extracting oil sands. This category evaluates oil sands' share of total oil and gas average production in barrels of oil equivalent per day

Step 2:

The replacement of excluded companies from the DAX® as described in Step 1 will be achieved in the following manner:

The remaining companies of the screened HDAX® (as per Step 1), are ranked in terms of free float market capitalization (as reported in the latest DAX Selection Indices ranking list), from high to low, with each constituent displaying its corresponding ESG score.

Starting with the largest companies in terms of free float market capitalization, a company is included in the index if it has the same or better ESG rank than the DAX Regular Exit 'candidate rank' for free float market capitalization (see Section 4.1.1.3 of the Guide to the DAX Equity Indices). The ESG rank is computed based on the HDAX composition after omitting all exclusions. This process is repeated until the number of constituents in the DAX® ESG Target Index matches the number of constituents of the DAX® index.

Chaining takes place on a quarterly basis, in line with the methodology applied to the DAX® (cf. Guide to the DAX Equity Indices).

Between two chaining dates the weighting factors Qit, that are derived out of the weights (cf. section 3.18.1) are kept constant.

The base date of DAX® ESG Target index is the 24 September 2012, with a base level of 1000.

The DAX® ESG Target index is calculated as performance (net and gross return) and price index in real time every 1 seconds, between 9.00 a.m. and 5.55 p.m. CET in Euro. The calculation is by default based on Xetra price data DAX ESG Target 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 5:00 pm CET are used to calculate the indices' closing values. DAX ESG Target index is available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen.

Companies that are excluded from the HDAX® index because of an extraordinary index review (as described in section 5 of the Guide to the DAX Equity Indices) that are constituents of the DAX® ESG Target Index are removed from the DAX® ESG Target as well with the same notice period. A deleted company is not replaced.

2.18 DAX ESG Screened and MDAX ESG Screened Indices

The ESG Screened indices' composition is derived from its parent index' composition, DAX® index and MDAX® index, respectively. From the parent index companies are filtered for exclusion based on the following set of criteria. Companies with missing data are considered ineligible and are excluded. Due to the exclusion approach, the derived ESG screened indices can have less constituents then the parent index. Companies that are excluded are not replaced in the index.

- **ESG Ratings:** Companies with ISS-ESG ESG Ratings of D- or below are excluded.

- **Norms Based Screening**: Companies are assessed against their adherence to international norms on human rights, labour standards, environmental protection and anti-corruption established in the UN Global Compact and the OECD Guidelines. Companies identified as 'Red' are excluded. ISS-ESG identifies companies as 'Red', if they are failing to respect established norms and where the issue remains unaddressed.

- **Controversial Weapons:** Not involved in Controversial Weapons activities, as identified by ISS-ESG. The following weapons are considered controversial: anti-personnel mines, biological weapons, chemical weapons, cluster munitions, depleted uranium program, and nuclear weapons (including Non-NPT). ISS-ESG's Controversial Weapons Research is designed to identify all companies in a corporate structure that have control over the relevant business activities, i.e., all immediate parent companies up to the ultimate parent. Companies identified as 'Red' are excluded.

- **Product Involvement**: Companies with Product Involvement in the following areas are excluded:

Tobacco:

STOXX will exclude companies that ISS-ESG identifies to have:

- >0% revenues from involvement in the production of tobacco products.
- >5% revenues from the wholesale or retail distribution of tobacco products.

Thermal Coal Mining:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from thermal coal mining, including any exposure in production or services. The maximum percentage of revenues values are based on the best available data, which may include reported revenues, reported percentage of revenues, or estimated revenues based on available information

Thermal Coal Power Generation:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from thermal coal power generation. The maximum percentage of revenues values are based on the best available data, which may include reported revenues, reported percentage of revenues, or estimated revenues based on available information.

Oil Sands:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from the extraction and processing of oil sands for the most recent fiscal year period.

Nuclear Power Service:

STOXX will exclude companies that ISS-ESG identifies to have:

- >1% revenues from the provision of services to the nuclear power industry, including the supply of key components, technical support, maintenance, and the management of nuclear waste.

Nuclear Power Production:

STOXX will exclude companies that ISS-ESG identifies to have:

- >1% revenues from the generation of electric power from nuclear fission.

Nuclear Power Uranium:

STOXX will exclude companies that ISS-ESG identifies to have:

- >1% revenues from involvement in uranium exploration, extraction, and processing.

Civilian Firearms:

STOXX will exclude companies that ISS-ESG identifies to have:

- >0% revenues from involvement in the production of civilian firearms and/or the provision of related services.
- >5% revenues from involvement in the distribution of civilian firearms.

Military Equipment:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from involvement in the production of military equipment and/or the provision of related services.

The base date of the DAX ESG Screened and MDAX ESG Screened indices is 16 December 2016, with a base level of 1000.

The DAX ESG Screened and MDAX ESG Screened indices are calculated as performance (net and gross return) and price index in real time every 1 seconds, between 9.00 a.m. and 5.55 p.m. CET in Euro.

The calculation is by default based on Xetra price data, ESG screened indices use 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 5:00 pm CET are used to calculate the indices' closing values. ESG screened indices are available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen.

2.19 MDAX ESG+ Index

The MDAX ESG+ index composition is derived from its parent index, the MDAX® index. Companies that are excluded are not replaced in the index.

From the parent index apply the following set of exclusions, companies missing data are excluded:

- **ESG Ratings:** Companies with ISS-ESG ESG Ratings of D- or below are excluded.

- **Norms Based Screening**: companies are assessed against their adherence to international norms on human rights, labour standards, environmental protection and anti-corruption established in the UN Global Compact and the OECD Guidelines. Companies identified as 'Red' are excluded. ISS-ESG identifies companies are 'Red', if they are failing to respect established norms and where the issue remains unaddressed.

- **Controversial Weapons:** Not involved in Controversial Weapons activities, as identified by ISS-ESG. The following weapons are considered controversial: anti-personnel mines, biological weapons, chemical weapons, cluster munitions, depleted uranium programme, white phosphorus weapons and nuclear weapons (including Non-NPT). ISS-ESG's Controversial Weapons Research is designed to identify all companies in a corporate structure that have control over the relevant business activities, i.e., all immediate parent companies up to the ultimate parent. Companies identified as 'Red' are excluded.

- **Business Activities**: Companies with Product Involvement in the following areas will be excluded:

Tobacco:

STOXX will exclude companies that ISS-ESG identifies to have:

- >0% revenues from involvement in the production of tobacco products.
- >5% revenues from the wholesale or retail distribution of tobacco products.
- >5% revenues from services related to tobacco products.

Thermal Coal Mining:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from thermal coal mining, including any exposure in production or services. The maximum percentage of revenues values are based on the best available data, which may include reported revenues, reported percentage of revenues, or estimated revenues based on available information

Thermal Coal Mining Expansion:

STOXX will exclude companies that ISS-ESG identifies to have:

- Any involvement in thermal coal mine development operations or plans effective March 2022.

Thermal Coal Power Generation:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from generation of electric power using coal. The maximum percentage of revenues values are based on the best available data, which may include reported revenues, reported percentage of revenues, or estimated revenues based on available information.

Thermal Coal Power Generation Expansion:

STOXX will exclude companies that ISS-ESG identifies to have:

- Any involvement in coal power expansion or plans effective March 2022

Oil Sands:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from the extraction and processing of oil sands for the most recent fiscal year period.

Arctic Oil & Gas Exploration:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from the extraction of oil and gas extraction through arctic drilling for the most recent fiscal year period.

Hydraulic Fracturing:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from hydraulic fracturing for the most recent fiscal year period.

Nuclear Power Service:

STOXX will exclude companies that ISS-ESG identifies to have:

- >1% revenues from the provision of services to the nuclear power industry, including the supply of key components, technical support, maintenance, and the management of nuclear waste.

Nuclear Power Production:

STOXX will exclude companies that ISS-ESG identifies to have:

- >1% revenues from the generation of electric power from nuclear fission.

Nuclear Power Uranium:

STOXX will exclude companies that ISS-ESG identifies to have:

- >1% revenues from involvement in uranium exploration, extraction, and processing.

Civilian Firearms:

STOXX will exclude companies that ISS-ESG identifies to have:

- >0% revenues from involvement in the production of civilian firearms and/or the provision of related services.
- >5% revenues from involvement in the distribution of civilian firearms.

Military Equipment:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from involvement in the production of military equipment and/or the provision of related services.
- >10% revenues from involvement in military equipment and services

If less than 20% of the companies of the parent index are excluded by the screens above, the worst companies in terms of ESG performance, as defined by ISS-ESG, are excluded until the target number of constituents is reached.

Chaining takes place on a quarterly basis, in line with the methodology applied to the DAX® (cf. Guide to the DAX Equity Indices). The cut-off date for ISS-ESG data is the last trading day of the month prior to the chaining.

The base date of the MDAX ESG+ index is 17 March 2017, with a base level of 1000.

The MDAX ESG+ index is calculated as performance (net and gross return) and price index in real time every 1 seconds, between 9.00 a.m. and 5.55 p.m. CET in Euro.

The calculation is by default based on Xetra price data, the 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 5:00 pm CET are used to calculate the indices' closing values. ESG screened indices are available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen.

Companies that are excluded from the parent index (the MDAX index) because of an extraordinary index review (as described in section 5 of the Guide to the DAX Equity Indices) that are constituents of the MDAX ESG+ index are removed from the MDAX ESG+ index as well with the same notice period. A deleted company is not replaced.

2.20 DAX 50 ESG+ Index

The DAX 50 ESG+ index composition is derived from its parent index, the HDAX® index as follows:

From the parent index HDAX®, the 75 largest companies in terms of free float Market Cap are selected and a set of exclusion criteria as stated below are applied. Companies with missing data are excluded.

- **ESG Ratings:** Companies with ISS-ESG ESG Ratings of D- or below are excluded.

- **Norms Based Screening**: companies are assessed against their adherence to international norms on human rights, labour standards, environmental protection and anti-corruption established in the UN Global Compact and the OECD Guidelines. Companies identified as 'Red' are excluded. ISS-ESG identifies companies are 'Red', if they are failing to respect established norms and where the issue remains unaddressed.

- **Controversial Weapons:** Not involved in Controversial Weapons activities, as identified by ISS-ESG. The following weapons are considered controversial: anti-personnel mines, white phosphorus weapons, biological weapons, chemical weapons, cluster munitions, depleted uranium programme, and nuclear weapons (including Non-NPT). ISS-ESG's Controversial Weapons Research is designed to identify all companies in a corporate structure that have control over the relevant business activities, i.e., all immediate parent companies up to the ultimate parent. Companies identified as 'Red' are excluded.

- **Business Activities**: Companies with Product Involvement in the following areas will be excluded:

Tobacco:

STOXX will exclude companies that ISS-ESG identifies to have:

  - >0% revenues from involvement in the production of tobacco products.

- >5% revenues from the wholesale or retail distribution of tobacco products.
- >5% revenues from services related to tobacco products.

Thermal Coal Mining:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from thermal coal mining, including any exposure in production or services. The maximum percentage of revenues values are based on the best available data, which may include reported revenues, reported percentage of revenues, or estimated revenues based on available information

Thermal Coal Mining Expansion:

Effective March 2022, STOXX will exclude companies that ISS-ESG identifies to have:

- Any involvement in thermal coal mine development operations or plans.

Thermal Coal Power Generation:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from generation of electric power using coal. The maximum percentage of revenues values are based on the best available data, which may include reported revenues, reported percentage of revenues, or estimated revenues based on available information.

Thermal Coal Power Generation Expansion:

Effective March 2022, STOXX will exclude companies that ISS-ESG identifies to have:

- Any involvement in coal power expansion or plans.

Oil Sands:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from the extraction and processing of oil sands for the most recent fiscal year period.

Arctic Oil & Gas Exploration:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from the extraction of oil and gas extraction through arctic drilling for the most recent fiscal year period.

Hydraulic Fracturing:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from hydraulic fracturing for the most recent fiscal year period.

Nuclear Power Service:

STOXX will exclude companies that ISS-ESG identifies to have:

- >1% revenues from the provision of services to the nuclear power industry, including the supply of key components, technical support, maintenance, and the management of nuclear waste.

Nuclear Power Production:

STOXX will exclude companies that ISS-ESG identifies to have:

- >1% revenues from the generation of electric power from nuclear fission.

Nuclear Power Uranium:

STOXX will exclude companies that ISS-ESG identifies to have:

- >1% revenues from involvement in uranium exploration, extraction, and processing.

Civilian Firearms:

STOXX will exclude companies that ISS-ESG identifies to have:

- >0% revenues from involvement in the production of civilian firearms and/or the provision of related services.
- >5% revenues from involvement in the distribution of civilian firearms.

Military Equipment:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from involvement in the production of military equipment and/or the provision of related services.
- >10% revenues from involvement in military equipment and services

From the remaining companies, the top 50 companies in terms of ESG score, sourced from ISS-ESG ESG Performance Score, are then selected into the index. In case less than 50 companies are eligible for inclusion, no additional company will be added and the index will be constituted by less than 50 companies, In case the ESG Score is identical for two companies, the larger company in terms of free float Market Cap is selected.

Chaining takes place on a quarterly basis, in line with the methodology applied to the DAX® (cf. Guide to the DAX Equity Indices). The cut-off date for ISS-ESG data is the last trading day of the month prior to the chaining.

The base date of the DAX 50 ESG+ index is 20 March 2017, with a base level of 1000.

The DAX 50 ESG+ index is calculated as performance (net and gross return) and price index in real time every 1 seconds, between 9.00 a.m. and 5.55 p.m. CET in Euro.

The calculation is by default based on Xetra price data, the 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 5:00 pm CET are used to calculate the indices' closing values. ESG screened indices are available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen.

Companies that are excluded from the parent index (the HDAX index) because of an extraordinary index review (as described in section 5 of the Guide to the DAX Equity Indices) that are constituents of the DAX 50 ESG+ index are removed from the DAX 50 ESG+ index as well with the same notice period. A deleted company is not replaced.

2.21 DAX Futures Switch Index

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 base date of the DAX Futures Switch Index is 29th December 2000, with a base level of 1000. It is disseminated following the STOXX Eurex Calendar.

Further information can be found in the STOXX Vendor Code Sheet.

2.22 DAX Futures Leverage Index

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 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
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

Further information can be found in the STOXX Vendor Code Sheet.

2.23 DAX 30 ESG Index

The DAX 30 ESG Index composition is derived from its parent index, the HDAX® index as follows:

From the parent index, companies are filtered for exclusion based on the following set of criteria. Companies with missing data are excluded. The cut-off date for all underlying data is the last trading day of the month prior to the review month.

- **Norms Based Screening**: Companies are assessed against their adherence to international norms on human rights, labour standards, environmental protection and anti-corruption established in the UN Global Compact and the OECD Guidelines. Companies identified as ‘Red’ are excluded. ISS-ESG identifies companies are ‘Red’, if they are failing to respect established norms and where the issue remains unaddressed.

- **Controversial Weapons:** Not involved in Controversial Weapons activities, as identified by ISS-ESG. The following weapons are considered controversial: anti-personnel mines, biological weapons, chemical weapons, cluster munitions, depleted uranium programme, white phosphorus, and nuclear weapons (including Non-NPT). ISS ESG's Controversial Weapons Research is designed to identify all companies in a corporate structure that have control over the relevant business activities, i.e., all immediate parent companies up to the ultimate parent. Companies identified as 'Red' are excluded.

Tobacco:

STOXX will exclude companies that ISS-ESG identifies to have:

- >0% revenues from involvement in the production of tobacco products.
- >5% revenues from services related to tobacco products.
- >5% revenues from the wholesale or retail distribution of tobacco products.

Coal:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from extraction/mining of coal for the most recent fiscal year period.
- >5% revenues from generation of electric power using coal. The maximum percentage of revenues values are based on the best available data, which may include reported revenues, reported percentage of revenues, or estimated revenues based on available information.

Unconventional Oil & Gas:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues from the extraction and processing of oil sands for the most recent fiscal year period.
- >5% revenues from the hydraulic fracturing for the most recent fiscal year period.
- >5% revenues from oil and gas extraction through arctic drilling for the most recent fiscal year period.

Military Equipment:

STOXX will exclude companies that ISS-ESG identifies to have:

- >10% revenues from involvement in military equipment and services.

Civilian Firearms:

STOXX will exclude companies that ISS-ESG identifies to have:

- >0% revenues from involvement in the production of civilian firearms and/or the provision of related services.
- >5% revenues from involvement in the distribution of civilian firearms.

Nuclear Power:

STOXX will exclude companies that ISS-ESG identifies to have:

- >5% revenues derived from the provision of services to the nuclear power industry, including the supply of key components, technical support, maintenance, and the management of nuclear waste.
- >5% revenues from core activities in the nuclear fuel cycle to produce energy, including uranium mining, processing and enrichment, fuel production, and the operation of power reactors.

From the remaining companies, the top 60 companies in terms of Free Float Market Capitalization (as reported in the latest DAX selection indices selection list) are selected. From these, the top 30 companies in terms of ESG score, sourced from ISS-ESG ESG Performance Score, are then selected into the index. In case the ESG Score is identical for two companies, the larger company in terms of Free Float Market Capitalization is selected.

In case not enough eligible securities than required by the index methodology are found, no additional company is added.

Chaining takes place on a quarterly basis, in line with the methodology applied to the DAX® (cf. Guide to the DAX Equity Indices). The cut-off date for ISS-ESG data is the last trading day of the month prior to the chaining.

The base date of the DAX 30 ESG index is 20 March 2017, with a base level of 1000.

The DAX 30 ESG index is calculated as performance (net and gross return) and price index in real time every 1 second, between 9.00 a.m. and 5.55 p.m. CET in Euro.

The calculation is by default based on Xetra price data, the 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 5:00 pm CET are used to calculate the indices' closing values. ESG screened indices are available in the currencies set forth in the Vendor Code Sheet which is available under https://www.dax-indices.com/ressourcen.

Companies that are excluded from the parent index (the HDAX index) because of an extraordinary index review (as described in section 5 of the Guide to the DAX Equity Indices) that are constituents of the DAX 30 ESG index are removed from the DAX 30 ESG index as well with the same notice period. A deleted company is not replaced.

3 Calculation

The calculation of the indices described in this document is based on several formula defined in the following. The adjustment of price-relevant capital changes as well as the calculation of implied changes in the correction factor c_{it} are described in chapter 3.18.

3.1 DivDAX, DivMSDAX, DAXplus Seasonal Strategy and DAXplus Export Strategy

3.1.1 Index Formulas

The indices are conceived according to the Laspeyres formula set out below:

A. DivDAX® and DAXplus® Export Strategy

$$\text{Index}_t = K_T \cdot \frac{\sum_{i=1}^{n} p_{it} \cdot q_{iT} \cdot ff_{iT} \cdot c_{it}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot \text{Base}$$

B. DAXplus® Seasonal Strategy

$$\text{Index}_t = \begin{cases} K_T \cdot \dfrac{\sum_{i=1}^{n} p_{it} \cdot q_{iT} \cdot ff_{iT} \cdot c_{it}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot \text{Base} & \text{;October until July} \\ \text{Index}_j & \text{;August and September} \end{cases}$$

whereby:

c_{it}	=	Adjustment factor of company i at time t
ff_{iT}	=	Free float factor of share class i at time T
n	=	Number of shares in the index
p_{i0}	=	Closing price of share i on the trading day before the first inclusion in the index
p_{it}	=	Price of share i at time t

q_{i0}	=	Number of shares of company i on the trading day before the first inclusion in the index
q_{iT}	=	Number of shares of company i at time T
t	=	calculation time of the index
K_T	=	Index-specific chaining factor valid as of chaining date T
T	=	Date of the last chaining

The formula set out below is equivalent in analytic terms, but designed to achieve relative weightings:

$$\text{Index}_t = \frac{\sum_{i=1}^{n} p_{it} \cdot \left(K_T \cdot \frac{ff_{iT} \cdot q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}\right)}{\sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100} \cdot \text{Base} = \frac{\sum_{i=1}^{n} p_{it} \cdot F_i}{A} \cdot \text{Base}$$

whereby: $A = \sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100$

and: $F_i = K_T \cdot \frac{ff_{iT} \cdot q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}$

Index calculation can be reproduced in simplified terms by using the expression F_i:

- Multiply the current price by the respective F_i weighting factor;
- take the sum of these products; and
- divide this by the base value (A) which remains constant until a modification in the index composition occurs.

The F_i factors provide information on the number of shares required from each company to track the underlying index portfolio.

3.1.2 Computational Accuracy

The K_T chaining factors are used and published as figures rounded to seven decimal places.

The c_{it} adjustment factors are included in the index formula on the basis of six decimal places.

In the event of several adjustment events coinciding, such as “ex-dividend” and “ex subscription right” markdowns on the same day, only one single adjustment factor (six decimal places) is computed using the total markdown. Where several adjustment events are required for a single share but at different times, the factors rounded that way are multiplied by each other, and the product is rounded to six decimal places again.

When determining the c_{it} adjustment factor for subscription rights, the rights value is used as a figure with two decimal places. Only in the case of a capital increase out of company reserves, such rights value is not rounded at all. If a dividend disadvantage has to be prorated (e.g. for three months), the value of such disadvantage used for index calculation is rounded to two decimal places.

The free float-factors are used as figures rounded to four decimal places.

The indices are rounded to two decimal places and published accordingly. The F_i factors are rounded to five decimal places and published accordingly, changing with each share-specific adjustment.

3.1.3 Cap Limit

On the day of regular quarterly chaining, the weighting of any single company in DivDAX®, DAXplus® Export Strategy and in DAXplus® Seasonal Strategy is capped to 10 percent of the index capitalization, respectively.

For this purpose, the index capitalization is computed using the total number of all freely available shares. If any single class of shares accounts for a share of more than i.e. 10 percent in the respective capitalization, the number of shares used as weight for that company is reduced to 10 percent of the index capitalization (which is being reduced accordingly). Should yet another company exceed the cap limit after that, the capitalization is to be determined with which both companies would account for exactly 10 percent of the revised index capitalization. This procedure is repeated for as long as there is no company exceeding the respective cap limit. Then the next smaller integer of shares resulting in the desired capitalization is used as the new weight for calculating the index.

Where the capped share of a company falls or rises below or above 10 percent during the quarter, it may only be raised or lowered to 10 percent again on the following chaining date as the above-described procedure is repeated for every single chaining process.

3.1.4 New Listings and Deletions

Regular modifications to the index composition only occur if the ordinary chaining coincides with the actualization of the index composition at the same time. This process is based on the criteria as set out in: “Guide to the DAX Equity Indices”.

3.1.5 Chaining

Dividend payments and capital changes are initially reflected through an adjustment of the respective c_{it} adjustment factors. Quarterly chaining is carried out on the maturity date of the various equity index futures

of Eurex, implying that on this day (i.e. on the third Friday of the last month of a quarter), the index is calculated for the last time on the basis of weights valid up to that point. The new weights will apply from the next trading day.

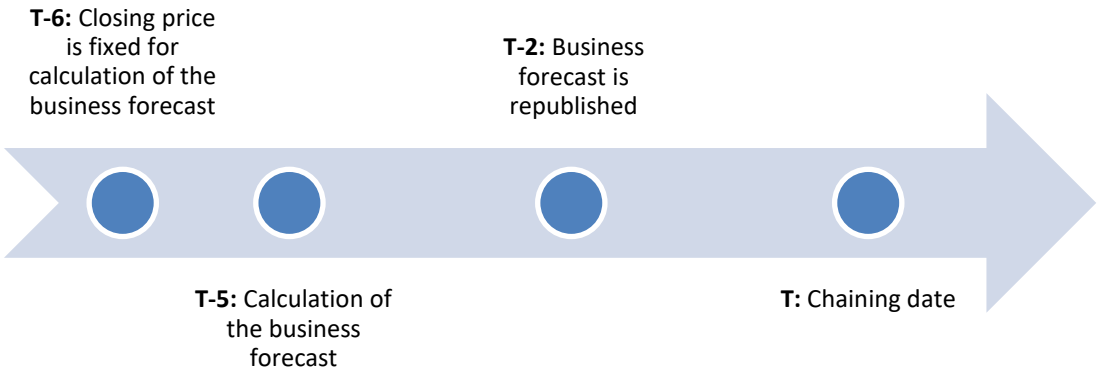
A change in the index composition also becomes necessary in the event of an index component issue being or becoming subject to extraordinary circumstances, such as deletion, composition proceedings, bankruptcy, new admission, etc.

3.1.6 Business Forecast

The business forecast is published at the quarterly underlying data announcement date, five trading days before the chaining date (i.e. at the second Friday in March, June, September, and December). It contains the composition, constituents weighting and cap factors for the new index compositions effective from the trading day following the third Friday of a review month.

The new number of shares, free float factors and closing prices used to determine the constituents weightings and cap factors are fixed at the trading day prior to the quarterly underlying data announcement date (T-6). For this purpose, the c_{it} adjustment factors are set to 1.

The business forecast will be republished on the Wednesday before the chaining date (T-2), taking into account all corporate actions with ex-dates effective during the period between the quarterly underlying data announcement date and the chaining date (including delistings and IPOs) STOXX became aware of since the initial publication of the business forecast at the quarterly underlying data announcement date.



3.1.7 Ordinary Chaining

The ordinary chaining procedure takes place on a quarterly basis and encompasses the following measures:

- The number of shares and the respective free float-factors are updated in accordance with the capital changes carried out.
- The accumulated income from distributions and capital changes is allocated to the index component issues according to the respective new weights. For this purpose, the individual c_{it} adjustment factors are set to 1.
- The following applies for capital increases that are announced before the review effective date, but effective date for registration of new shares is after review implementation date: to account for the price adjustment, the change in share capital will be adjusted via the correction factor c_{it} at ex-date of the capital increase; at Index review, c_{it} is set to 1. The q_{it} will be adjusted at the next following regular index review.
- A chaining factor is calculated to avoid a gap in the respective index.

  If the ordinary chaining coincides with the update of the index composition at the same time, a change of the composition takes place additionally.

  These measures help to prevent the weighting scheme from "ageing" due to capital changes and the accumulation of income.

  Chaining is carried out in three steps:

  a) *Calculation of the index value on the chaining date according to the old weighting scheme*

  The following applies accordingly:

$$\text{Index}_t = K_T \cdot \frac{\sum_{i=1}^{n} p_{it} \cdot ff_{iT} \cdot q_{iT} \cdot c_{it}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot \text{Base}$$

  This value corresponds to the closing index published on the date of chaining, and is used with two decimal places (as published) for all subsequent calculations.

  b) *Computation of an interim value*

  The interim value is computed using the number of shares valid on the chaining date ($q_{i,T+1}$) and the current free float factors ($ff_{i,T+1}$). The c_{it} adjustment factors are set to 1.

  The following applies accordingly:

$$\text{Interim value} = \frac{\sum_{i=1}^{n} p_{it} \cdot ff_{i,T+1} \cdot q_{i,T+1}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot \text{Base}$$

  The interim value is used as an exact figure for subsequent calculations.

  c) *Calculation of the new chaining factor*

The following applies accordingly:

$$K_{T+1} = \frac{\text{Index}_t}{\text{Interim value}}$$

After chaining, the index is computed on the basis of the new chaining factor (K_{T+1}).

After calculation of the chaining factor, capital changes and dividend payments due on the date of chaining are taken into account via the c_{it} factor.

The F_i weighting factors of the index formula based on relative weights are calculated as follows:

$$F_i = K_{T+1} \cdot \frac{ff_{i,T+1} \cdot q_{i,T+1} \cdot c_{it}}{\sum_{i=1}^{n} q_{io}} \cdot 100$$

3.1.8 Unscheduled Chaining

In the event of a change in the index composition, chaining is carried out in line with the procedure described in section 3.1.7 above, however, without adjustment to the number of shares and the various c_{it} factors. Newly included issues are taken into account with their respective current number of shares.

Computation of the interim value is based on the component issues of the revised index portfolio.

$$\text{Interim value} = \frac{\sum_{i=1}^{n} p_{it} \cdot ff_{iT} \cdot q_{iT} \cdot c_{it}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot \text{Base}$$

With the new chaining factor to result as

$$K_{T+1} = \frac{\text{Index}_t}{\text{Interim value}}$$

If a newly included company was not listed in the Frankfurt Stock Exchange's Prime Standard or General Standard segments on the base date, the number of shares (q_{i0}) and the price (p_{i0}) must be sourced from the Third Segment (Open Market – OTC market) as per that base date. If the company was not listed in Frankfurt at all, the corresponding figures from the respective domestic exchange are used for the index calculation instead. If the company was not listed at all on the base date of the index, the basis number of shares (q_{i0}) corresponds to the number of shares at the time of admission to trading. The basis price (p_{i0}) is the first price available at the time of such admission.

3.2 DAXplus Covered Call and DAXplus Protective Put

3.2.1 Index Formulas

A. DAXplus Covered Call

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

$$CC_t = \frac{DAX_t - C_t}{DAX_s - C_0} \cdot CC_s$$

The rolling is carried out monthly on every third Friday.

$$CC_s = \frac{DAX_s - C'_s}{DAX_{s-m} - C'_0} \cdot CC_{s-m}$$

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

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

B. DAXplus Protective Put

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

$$PP_t = \frac{DAX_t + P_t}{DAX_s + P_0} \cdot PP_s$$

The rolling is carried out on third Friday at the end of each quarter.

$$PP_s = \frac{DAX_s + P'_s}{DAX_{s-m} + P'_0} \cdot PP_{s-m}$$

whereby:

PP_t = protective put index at time t

PP_s = settlement value of protective put index on last rolling day

PP_{s-m} = settlement value of protective put index one rolling before

DAX_t = last price of DAX® before time t

DAX_s = settlement price of DAX on last rolling day

DAX_{s-m} = settlement price of DAX one rolling before

P_t = last price of put option before time t

P_0 = inclusion price of new put option on last rolling day

P'_s = settlement price of old put option on expiry day

P'_0 = inclusion price of old put option one rolling before

3.2.2 Computational Accuracy

DAX®, DAX Call Option, DAX Put Option, DAXplus® Covered Call index and DAXplus® Protective Put index are published as figures rounded to two decimal places.

3.2.3 Rolling

DAXplus® Covered Call requires a monthly rollover operation, whereby the old call option ceases trading at 1.00 p.m. 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 DAXplus Protective Put requires a quarterly rollover operation, whereby the old put option ceases trading at 1.00 p.m. 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 call- and put options are included in the respective index are based on the weighted averages of all best bids for call options and best asks for put options quoted on Eurex® between 1.15 p.m. and 1.45 p.m. CET.

3.2.4 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 or 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 1.15 p.m. 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 1.15 p.m. CET.

3.3 Leveraged and Short Indices

3.3.1 Index Formula

Leveraged and short Indices are calculated as follows:

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

Where:

L = leverage factor
IDX = reference index
IR = interest rate:
Daily Leverage Indices: €STR[4] + (EURIBOR (12M) - 1Y €STR Swap Rate)
Daily Short Indices: €STR[4]
Monthly Leverage / Short Indices: EURIBOR (1M)
c_M = cost of borrowing (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

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

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:

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

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
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*

3.3.2 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-NEW 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, $\sigma = \frac{\text{VDAX - NEW}}{100}$

3.3.3 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

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 strategy index reaches a value of 0 or below over the course of the 15, the index is set to a value of 0 and its calculation / dissemination is discontinued

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. The monthly leveraged and short indices have a floor value of zero.

3.3.4 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.

3.3.5 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”).

3.3.6 Computational Accuracy

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

All adjustment factors of the reference index are described in the “Guide to the DAX Equity Indices”.

3.4 DAXplus Minimum Variance and Maximum Sharpe Ratio Germany

3.4.1 Weight Calculation

The weight calculation of DAXplus® Minimum Variance Germany and DAXplus® Maximum Sharpe Ratio Germany takes place in three steps.

Step 1)

The daily returns over the last twelve months are calculated as follows for each constituent:

$$\lambda_{ik} = \ln\left(\frac{\text{Share}_{ik}}{\text{Share}_{ik-1}}\right)$$

whereby:

λ_{ik} = daily return of share i = 1, …, 40 at the time k =1, …, HT

$Share_{ik}$ = closing price of share i =1, …, 40 at the time k=2, …, HT

k = trading day index

HT = number of trading days over the last twelve months

Step 2)

Based on the returns, calculated in step 1 for all DAX constituents, the variances and the covariances are calculated as follows:

$$\sigma_i = \sqrt{HT \cdot \frac{1}{HT-1} \sum_{k=1}^{HT} \left(\lambda_{ik} - \overline{\lambda}_i\right)^2}$$

where:

σ_i = standard deviation of share i =1, …, 40

$\overline{\lambda}_i$ = average yield of share i =1, …, 40

$$Cov_{i,j} = HT \cdot \frac{1}{HT-1} \sum_{k=1}^{HT} \left(\lambda_{ik} - \overline{\lambda}_i\right) \cdot \left(\lambda_{jk} - \overline{\lambda}_j\right)$$

whereby:

$Cov_{i,j}$ = covariance[5] of share i=1, …, 40 to share j=1, …, 40

Step 3)

Based on the variances and covariances calculated in step 2, the optimized portfolio weights can be calculated. For DAXplus Minimum Variance Germany the function to be optimized looks as follows:

$$\sigma^2{}_{Portfolio} = \sum_{i=1}^{40} \sum_{j=1}^{40} x_i \cdot x_j \cdot Cov_{i,j} = \sum_{i=1}^{40} \sum_{j=1}^{40} x_i \cdot x_j \cdot \sigma_i \cdot \sigma_j \cdot \rho_{i,j}$$

x_i = weight of share i =1, …, 40 in DAX portfolio

$\rho_{i,j}$ = correlation coefficient of share i =1, …, 40 to share j =1, …, 40

$\sigma^2{}_{Portfolio}$ = variance of DAX portfolio

5) In case i=j the covariance is the same as the variance of share i.

The correlation coefficient describes the reaction of a share to the price change of another share in the same portfolio and can be calculated as follows:

$$\rho_{i,j} = \frac{Cov_{i,j}}{\sigma_i \cdot \sigma_j}$$

For DAXplus Maximum Sharpe Ratio Germany the function to be optimized applies as follows:

$$sr_p = \frac{r_p - r_f}{\sigma_{Portfolio}}$$

The Sharpe ratio reflects the difference between return of the portfolio and the risk-free return in relation to the portfolios standard deviation.

$$r_p = \pi_1 \cdot x_1 + \ldots + \pi_n \cdot x_n$$

$$\pi_i = \ln\left(\frac{Share_{iEndoftheyear}}{Share_{iBeginningoftheyear-1}}\right)$$

π_i = annual return of constituent i =1, …, 40

r_p = designated return for the entire portfolio

$$\sigma_{Portfolio} = \sqrt{\sigma^2_{Portfolio}}$$

$\sigma_{Portfolio}$ = standard deviation of the entire portfolio

r_f = risk- free return on capital market

Following the optimization models with objective function and constraints:

A) DAXplus Minimum Variance Germany:

$$min \quad \sigma^2_{Portfolio} = \sum_{i=1}^{40}\sum_{j=1}^{40} x_i \cdot x_j \cdot \sigma_i \cdot \sigma_j \cdot \rho_{i,j}$$

B) DAXplus Maximum Sharpe Ratio Germany:

$$\max \; sr_p = \frac{r_p - r_f}{\sigma_{Portfolio}}$$

The objective functions are optimized subject to the following constraints:

$Constraint\ 1: \sum_{i=1}^{40} x_i = 1$

The first constraint indicates that the sum of the weights in the portfolio must be equal to 100 percent. For some constituents, the optimization can result in weight of 0.00 percent. These constituents won't be considered in the index.

Constraint 2: $x_i \geq 0$ for (i=1, …, 40)

The second constraint completes the mathematical model taking into account the non-negativity of the weight as well as exclusion of short sales.

$Constraint\ 3: x_i \leq 0.1$for (i=1, …, 40)

The third constraint makes sure that the weight of each constituent is restricted to 10 percent.

In case of negative value for the objective function of DAXplus Maximum Sharpe Ratio Germany, the constituents from the last index composition are considered and weighted equally.

3.4.2 Weighting Factors Calculation

The weighting factors q_{iT} are derived using the weights which were determined in chapter 3.4.1. For each constituent the weight x_i is multiplied by the scale factor 1 bn. and divided by the current price p_{it}. Reference date for the calculation is the last trading day of the month preceding the chaining month. The calculation of the weighting factors (q_{iT}) will be carried out using the closing prices of this date. The determined weighting factors become effective for the index calculation on the next chaining Friday.

$$q_{iT} = \frac{x_i}{p_{it}} \cdot 1\ \text{bn.}$$

The scale factor 1 bn. is defined as the sum of the product of the prices p_{it} and weighting factors q_{iT}.

The weighting factors are kept constant for the following three months after the chaining procedure.

3.4.3 Index Formula

The weighting factors q_{iT} are kept constant between two chaining dates and DAXplus® Minimum Variance Germany and DAXplus® Maximum Sharpe Ratio Germany are calculated as follows:

$$\text{Index}_t = K_T \cdot \frac{\sum_{i=1}^{n} p_{it} \cdot q_{iT} \cdot c_{it}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot \text{Base}$$

whereby:

c_{it} = Adjustment factor of company i at time t

n = Number of shares in the index

p_{i0} = Closing price of share of company i on the trading day before the first inclusion in the index

p_{it} = Price of share of company i at time t

q_{i0} = weighting factor of company i on the trading day before the first inclusion in the index

q_{iT} = weighting factor of company i at time T

t = calculation time of the index

K_T = Index-specific chaining factor valid as of chaining date T

T = Date of the last chaining

The formula set out below is equivalent in analytic terms, but designed to achieve relative weightings:

$$\text{Index}_t = \frac{\sum_{i=1}^{n} p_{it} \cdot \left(K_T \cdot \frac{q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}\right)}{\sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100} \cdot \text{Base} = \frac{\sum_{i=1}^{n} p_{it} \cdot F_i}{A} \cdot \text{Base}$$

whereby:

$$A = \frac{\sum_{i=1}^{n} p_{i0} \cdot q_{i0} \cdot 100}{\sum_{i=1}^{n} q_{i0}}$$

and:

$$F_i = K_T \cdot \frac{q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}$$

Index calculation can be reproduced in simplified terms by using the expression F_i:

- Multiply the current price by the respective F_i weighting factor;
- take the sum of these products; and
- divide this by the base value (A) which remains constant until a modification in the index composition occurs.

The F_i factors provide information on the number of shares required from each company to track the underlying index portfolio.

3.4.4 Computational Accuracy

DAXplus® Minimum Variance Germany and DAXplus® Maximum Sharpe Ratio Germany are published rounded to two decimal places.

All factors which are required for the calculation are rounded to two decimal places as well.

All DAX® adjustment factors are described in the "Guide to the DAX Equity Indices".

3.4.5 Chaining

The chaining[6] procedure for DAXplus® Minimum Variance Germany and DAXplus® Maximum Sharpe Ratio Germany takes place as described in chapters 3.1.5, 3.1.6, 3.1.7 and 3.1.8, with the special focus on actualization of the weights x_i and weighting factors q_{iT} as defined in chapter 3.4.1 in step 3 and in chapter 3.4.2.

3.5 DAXplus Maximum Dividend

3.5.1 Index formula

$$\text{Index}_t = K_T \cdot \frac{\sum_{i=1}^{n} p_{it} \cdot q_{iT} \cdot c_{it}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot \text{Basis}$$

c_{it}	=	Adjustment factor of company i at time t
n	=	Number of shares in the index
p_{it}	=	Price of share of company i at time t
p_{iT}	=	Closing price of share of company i at time t
q_{iT}	=	weighting factor of company i at time T
t	=	calculation time of the index
K_T	=	Index specific chaining factor valid as of chaining date T
T	=	Date of the last chaining

3.5.2 Determination of weighting factors

The weighting factors are derived from the expected dividend yields by dividing the dividend yield DY_i by the current price p_i and multiplying by the normalization factor of 1 billion. The expected dividend yield is calculated on the basis of announced or expected dividends and the closing price at the time of the ranking.

$$DY_i = \frac{\sum_t d_{i,t}}{p_i}$$

[6] The free float factors f_{it} are set to 1.

whereby:

$d_{i,t}$ = announced or expected dividend payout for share i at time t

p_i = closing price of share i on the last trading day in April and October

t = time within the upcoming six-month index calculation period

The index weights and weighting factors are calculated as follows:

$$w_i = \frac{DY_i}{\sum DY_i}$$

$$q_{i,T} = \frac{w_i}{p_{i,T}} \cdot 1\,bn$$

whereby:

w_i = weight of share i

DY_i = expected dividend yield of share i

$p_{i,T}$ = closing price of share i at the trading day before the quarterly underlying data announcement date (T-6)

The weighting factors q_{iT} from each chaining remain stable for six month.

3.5.3 Chaining

The chaining[7] procedure for DAXplus® Maximum Dividend Index takes place as described in chapters 3.1.5, 3.1.7 and 3.1.8 with the deviation that the chaining is conducted biannually in May and November with chaining date being the 2nd Friday of the review month as described in chapter 2.9.

3.6 DAXplus Risk Trigger Germany

3.6.1 Index formula

$$RTI_t = RTI_{t-1} \cdot \frac{Index_t}{Index_{t-1}}$$

whereby:

t = calculation time of the index

$Index_t$ = DAX / eb.rexx Money Market, depending on the currently selected asset class

[7] The free float factors f_{it} are set to 1.

3.6.2 Calculation Accuracy

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

All adjustment factors are described in the “Guide to the DAX Equity Indices”.

3.7 Dividend Points Indices

3.7.1 Index formula

DAX® Dividend Points and DivDAX® Dividend Points are calculated as follows:

$$DVP_t = DVP_{t-1} + DP_t,$$

with DP_t reflecting the dividend points of the underlying index portfolio.

The dividend points of the index portfolio are derived as follows:

$$DP_t = K_T \cdot \frac{\sum_{i=1}^{n} d_{it} \cdot q_{it} \cdot ff_{it} \cdot c_{it}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot Basis$$

d_{it} = Distribution of share class i on ex-date t

The index is calculated based on distribution data determined in accordance with the DAX Equity Indices.

The remaining parameters are identical to those used in the calculation of the underlying price index (cf. Guide to the DAX Equity Indices).

After the regular index chaining in December the Dividend Points index is reset to zero.

3.7.2 Calculation Accuracy

DAX® Dividends Points and DivDAX® Dividend Points are published rounded to two decimal places.

All adjustment factors are described in the “Guide to the DAX Equity Indices”.

3.8 DAXplus Family-Index

3.8.1 Index Formula

The indices are based on the index formula of Laspeyres und are calculated as follows:

$$Index_t = K_T \cdot \frac{\sum p_{it} \cdot ff_{iT} \cdot q_{iT} \cdot c_{it}}{\sum p_{i0} \cdot q_{i0}} \cdot Base$$

whereby:

c_{it} = Adjustment factor of share i at time t

ff_{iT} = Free float factor of share i at time T

n	=	Number of shares in the index
p_{i0}	=	Closing price of share i on the trading day before the first inclusion in the index
p_{it}	=	Price of share i at time t
q_{i0}	=	Number of shares of company i on the trading day before the first inclusion in the index
q_{iT}	=	Number of shares of company i at time T
t	=	calculation time of the index
K_T	=	Index specific chaining factor valid as of chaining date T
T	=	Date of the last chaining

3.8.2 Calculation Accuracy

The DAXplus® Family index will be published rounded at two decimal places.

All adjustment factors refer to the "Guide to the DAX Equity Indices".

3.8.3 Chaining

The chaining[8] procedure for DAXplus® Family-Index takes place as described in chapters 3.1.5, 3.1.6, 3.1.7 and 3.1.8.

3.9 DAX Risk Control Indices

3.9.1 Index Formula

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

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

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

[8] The free float factors f_{it} are set to 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

3.9.2 Determination of the Target Weight (Tgtw)

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

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

where:

$TgtVol$	5% (10%, 15%, 20%)
$Max\,\mathrm{Re}\,alizedVol_{20,60}$	is the maximum of the realized volatilities measured over 20 days and 60 days

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

where:

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

3.9.3 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 $abs\left\{1 - \frac{w_{t-1}}{Tgtw_{t-1}}\right\} > Toleranz$

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	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%

3.10 Currency-Hedged Indices

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

$FX_{c,t}$ = Spot currency rate for day t

$FF_{c,t}$ = 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

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:

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

3.10.1 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:

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

3.10.2 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:

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

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

3.11 DAXplus 30 Decrement 40 index

3.11.1 Index Formula

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

whereby:

IV_t = index value on day t

IV_0 = 708.68 on 04 January 2005

U_t = index value of underlying DAX EUR (TR) index on day t

D = fixed index points decrement (40)

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.

3.12 idDAX 50 Equal Weight

3.12.1 Index Formula

The idDAX 50 Equal Weight Index uses the Laspeyres index formula and are calculated as follows:

$$\mathrm{Index}_t = K_T \cdot \frac{\sum_{i=1}^{n} p_{it} \cdot q_{iT} \cdot c_{it}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot \mathrm{Base}$$

whereby:

c_{it} = Adjustment factor of company i at time t

n	=	Number of shares in the index
p_{i0}	=	Closing price of share i on the trading day before the first inclusion in the index
p_{it}	=	Price of share i at time t
q_{i0}	=	Weighting factor of company i on the trading day before the first inclusion in the idDAX 50 Equal Weight Index
q_{iT}	=	Weighting factor of company i at time T
t	=	calculation time of the index
K_T	=	Index-specific chaining factor valid as of chaining date T
T	=	Date of the last chaining

The calculation is based on the input data used for calculating the DAX index (cf. DAX Equity Indices).

3.12.2 Chaining

The chaining[9] procedure for idDAX 50 Equal Weight Index takes place as described in chapters 3.1.5, 3.1.6, 3.1.7 and 3.1.8.

3.13 idDAX 50 Equal Weight Decrement 4.00%

3.13.1 Index Formula

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

whereby:

$\mathrm{IV_t}$ = index value on day t

$\mathrm{IV_0}$ = 100 on 21 March 2005

$\mathrm{U_t}$ = index value of underlying idDAX 50 Equal Weight EUR (Net Total Return) index on day t

D = constant number of percentage subtracted (4%)

$\mathrm{ACT_{(t-1,t)}}$ = 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] The free float factors f_{it} are set to 1.

3.14 idDAX 50 ESG NR Decrement 4.00%

3.14.1 Index Formula

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

whereby:

$\mathrm{IV_t}$ = index value on day t

$\mathrm{IV_0}$ = 1000 on 24 September 2012

$\mathrm{U_t}$ = index value of underlying DAX 50 ESG (Net Return) index on day t

D = constant number of percentage subtracted (4%)

$\mathrm{ACT_{(t-1,t)}}$ = number of actual calendar days between t-1 and t

3.15 DAX Equal Weight Index

3.15.1 Index Formula

The DAX® Equal Weight Index is calculated as follows:

$$\mathrm{Index_t} = \mathrm{K_T} \cdot \frac{\sum_{i=1}^{n} p_{it} \cdot q_{iT} \cdot c_{it}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot \mathrm{Base}$$

whereby:

c_{it}	=	Adjustment factor of company i at time t
n	=	Number of shares in the index
p_{i0}	=	Closing price of share of company i on the trading day before the first inclusion in the index
p_{it}	=	Price of share of company i at time t
q_{i0}	=	weighting factor of company i on the trading day before the first inclusion in the index
q_{iT}	=	weighting factor of company i at time T
t	=	calculation time of the index
K_T	=	Index-specific chaining factor valid as of chaining date T
T	=	Date of the last chaining

The calculation is based on the input data used for calculating the DAX index (cf. DAX Equity Indices).

3.15.2 Determination of weighting factors

For chaining the weighting factor $q_{i,T+1}$ of every company will be adjusted in order to ensure that every company has the same weighting in the index.

The following applies accordingly:

$$q_{i,t+1} = \frac{1}{p_{it} \cdot n} \cdot c$$

whereby:

t	=	Time of last trading on the day of scheduled or unscheduled chaining
n	=	Number of shares in index
p_{it}	=	Price of company i at time t
q_{it+1}	=	Weighting factor of company i at time t+1
c	=	Scaling factor ($1\,000\,000 \cdot \sum_{i=1}^{n} p_{it}$)

Weighting factors are rounded to the nearest integer.

3.15.3 Chaining

The chaining[10] procedure for the DAX Equal Weight Index takes place as described in chapters 3.1.5, 3.1.6, 3.1.7 and 3.1.8.

3.16 Discretion

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

3.16.1 Exercise of Discretion

Discretion may only be exercised by STOXX Committee(s) (as defined hereafter) with a view to resolve issues arising in maintaining the prevailing index methodology in response to events, with an overarching aim to accurately and reliably measure the market or economic realities as defined in this Guide.

Discretion shall be exercised in line with the following principles:

- The body or person(s) exercising discretion must not be affected by a conflict of interest;
- The body or person(s) exercising discretion must have the requisite skills, knowledge and experience to exercise such discretion;
- All facts and circumstances relevant for the exercise of discretion must have been established and properly documented prior to the exercise of discretion;
- The exercise of discretion must comply with all applicable laws and regulations;
- The body or person(s) exercising discretion must act on the basis of the relevant facts and circumstances only, must give proper weight to the various considerations and ignore irrelevant facts and circumstances;

[10] The free float factors f_{it} are set to 1.

- The body or person(s) exercising discretion must act with a view to maintain the integrity of the market or economic reality by aiming to ensure that indices remain representative and can be replicated, taking into account, inter alia, some, or all of the following:
- Relevance of the event to the DAX indices
- Trading accessibility of the affected market
- Availability of alternative markets
- Ability of market participants to replicate the index or, where applicable, the results of the index review
- Public information related to the events and their development in the foreseeable future
- The body or person(s) exercising discretion must act honestly, reasonably, impartially and in good faith.

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

Discretionary Rule: *Any exercise of discretion must take into account the rationale of the index, the purpose of the rules with regard to which discretion is exercised, the objective to preserve market integrity and reliability of the index calculation to avoid undue market impact, the technical feasibility and economic reasonability, and the interest of licensees or investors.*

The cases in which STOXX Ltd. may exercise discretion regarding the index methodology and its application are noted in the respective rules of this Guide.

The following bodies (hereafter each of them separately also referred to as "STOXX Committee") are involved in the decision-making process relevant for the indices governed by this Guide:

- Product Initiation Committee (PIC),
- Product Approval Committee (PAC),
- Index Operations Committee (IOC),
- Index Management Committee (IMC),
- Index Governance Committee (IGC),
- Oversight Committee (OC),
- Management Board (MB).

Case	Responsible STOXX Committee
Index Termination and Transition	IGC
Sector Affiliation	IGC
Exclusion from Rankings	IGC
Deviation from Fast Exit/Fast Entry rules and Regular Exit/Regular Entry rules in exceptional cases	IGC

Procedure in case of a breach of the Basic Criteria	IGC
Determination of expected price to new shares in case of Subscription Rights on Other Share Classes	IGC
Procedure for Subscription Rights on Instruments with Embedded Options	IGC
Limitations	IGC
Review and approve treatment of Calculation Errors. Non-rule-based Correction.	IOC, IGC
Annual methodology review schedule	IGC
Initiation of ad hoc methodology reviews	IMC
Determination regarding materiality of changes to the index methodology	IMC,
Deviation from standard consultation period in case of material changes of the index methodology	IGC
Deviations from notification procedure in case of non-material changes of the index methodology	IMC
Extreme or exceptional market conditions or analogous extraordinary situations to be addressed in a fast track way (e,g, Pandemic)	IGC
Periodic review of current index methodologies (e.g. matching of underlying interest) including initiation of ad-hoc reviews of benchmarks or benchmark families and clarification of methodologies (if required).	IGC
(Annual) Review of the control framework (including identification of operational risks and definition of measures that address operational risks).	IOC, IMC
Review and approve reports on monitoring of outsourced service providers, contributors, risks and incidents reporting (Art. 10 BMR relevant)	IGC
Consideration and follow-up on the implementation of remedial actions based on results of internal and external audits.	IGC
Monitoring of input data (including input data from contributors).	IOC, IGC, OC
Review and approval of special cases identified during index review	IOC, IMC, IGC
Review and approval of complex corporate actions (disagreement on treatment of corp. action or application of rules)	IOC, IMC, IGC
Decisions with respect to complaints.	IGC

Review and approve periodic reporting requirements under the Periodic Review Policy.	IGC
Review and approve changes in case thresholds of significant or critical benchmarks exceeded and notify competent authority	IGC
Approval of introduction of new internal or strategic projects for new product ideas.	PIC
Responsibilities for clients requests: Decision to proceed or not or further analysis required.	PIC
Approval of launch of new products, including checks on suitability based on Positioning Paper .(including Regulatory Checklist, financial products that will be used and confirmation that any maintenance tool will be delivered by the launch date).	PAC, IGC
Responsibilities for clients, strategic or internal requests: -Final estimation of costs and revenues and final launch date -Final Positioning Paper (including Regulatory Checklist, financial products that will be used and confirmation that any maintenance tool will be delivered by the launch date).	PAC, IGC

3.17 Calculation Correction

This section outlines the rules and procedures applicable in case of a calculation error meaning the provision of index values, usage of index constituents or other elements or the application of weightings, capping, or other aspects of the index methodology in a manner that is not line with this index methodology, e.g. due to a mistake, incorrect input data, etc

3.17.1 Rule-based Correction

STOXX Ltd. corrects a Calculation Error without delay on the dissemination day it occurred, provided that STOXX Ltd. becomes aware of such Calculation Error before 15:30 CET of that dissemination day and insofar as technically and operationally feasible. STOXX Ltd. does not change intraday index composition of an index.

If STOXX Ltd. became aware of a Calculation Error at or after 15:30 CET, STOXX Ltd. aims at correcting the Calculation Errors as of the end of the next dissemination day, including corrections to index constituents.

STOXX Ltd. amends without undue delay previous incorrect index values or input data only if they required for the calculate subsequent index values calculation. Incorrect real-time index values disseminated before the effective time of the correction are not restated.

3.17.2 Non-rule based Correction

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

- if and how the Calculation Error should be corrected, including if the index shall be restated, and/or
- if the dissemination of index values shall be suspended (Discretionary Rule, see Section 3.16.1).

An index should be restated, when the performance of the index (other than Selection Indices) can no longer be replicated. A suspension of index dissemination is triggered when the relevant STOXX Committee decides that the correction will take significant time during which misleading index values could lead to financial, legal and reputational risks (Discretionary Rule, see Section 3.16.1).

STOXX Ltd. suspends the dissemination of an index at the latest at the end of the dissemination day after it became aware of a Calculation Error, if the Calculation Error has not been corrected by then.

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

3.17.3 Notifications

In general, notifications take the form of an announcement on the DAX website (http://www.dax-indices.com). Announcements can (but need not, depending on the decision of STOXX Ltd.) be published via financial relevant media.

With regard to Calculation Errors, STOXX Ltd. issues notifications in accordance with the following rules:

- STOXX Ltd. will publish a notification before correcting a Calculation Error. Notifications are effective immediately following their issuance, unless otherwise specified in the notification.
- The notification will specify if a Calculation Error will be corrected retrospectively. In case of retrospective correction, STOXX Ltd. will publish the notification using the new end of day closing price.
- If STOXX Ltd. decides under Section 3.17.2 that index dissemination is suspended until the Calculation Error is corrected, a resume notification is published specifying the point in time when index dissemination is resumed and the correction will take place.

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 the applicable laws and may decide to issue such Notification at a later point in time when such reasons have lapsed (Discretionary Rule, see Section 3.16). 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 (Discretionary Rule, see Section 3.16).

3.18 DAX ESG Target

3.18.1 Weight Calculation

The weights are derived through an optimization process with the goal of maximising the portfolio ESG score (using Sustainalytics' ESG score) under the following constrains:

- Asset Bounds. For the eligible assets, let
  - w_i = the asset weight in the optimized portfolio
  - b_i = the asset weight in the HDAX
  - b_{min} = the minimum asset weight in the HDAX

  then the bounds are:

  $$MAX(b_{min}, b / 2) < w < MIN(10 * b, b + 2\%, 10\%)$$

- Tracking Error: Predicted tracking error < 1.5%
- Hard Turnover Limit: One-way, quarterly turnover < 10%
- Soft Turnover Limit: One-way, quarterly turnover < 5%
- Supersector Active Exposures: Less than 5% active exposure (+/-5%) w/r/t Parent Benchmark. Companies are assigned to the Supersectors according to the sector classification described in Section 11.3 of the DAX Equity Guide. This constraint is not applied to the Utilities Supersector.
- Total Carbon Intensity Reduction: At least 30% reduction relative to the Parent.
  Carbon Intensity = (Scope 1 + Scope 2 GHG emissions) / Revenue (EUR million))

In case of infeasibilities, the Tracking Error, Soft Turnover, and Sector Active Exposures can all be potentially violated if necessary, to find a solution that minimizes the aggregated violations of those constraints.

The portfolio construction is performed using Axioma's Portfolio Optimization software. Risk predictions are made using the Axioma Europe Medium Horizon Equity Fundamental Factor Risk Model.

3.18.2 Weighting Factors Calculation

The weighting factors Q_{it} are derived using the weights which were determined in section 3.18.1. For each constituent the weight w_i is multiplied by the scale factor 100 bn. and divided by the current price p_{it}.
The determined weighting factors become effective for the index calculation on the next chaining Friday.
Q_{it}= 100bn * w_i / p_{it}

The scale factor 100 bn. is defined as the sum of the product of the prices p_{it} and weighting factors Q_{it}. The weighting factors are kept constant for the following three months after the chaining procedure.

3.18.3 Index Formula

The weighting factors Q_{it} are kept constant between two chaining dates and DAX ESG Target index are calculated as follows:

$$\text{Index}_t = K_T \cdot \frac{\sum_{i=1}^{n} p_{it} \cdot q_{iT} \cdot c_{it}}{\sum_{i=1}^{n} p_{i0} \cdot q_{i0}} \cdot \text{Base}$$

whereby:

c_{it}	=	Adjustment factor of company i at time t
n	=	Number of shares in the index
p_{i0}	=	Closing price of share of company i on the trading day before the first inclusion in the index
p_{it}	=	Price of share of company i at time t
q_{i0}	=	weighting factor of company i on the trading day before the first inclusion in the index
q_{iT}	=	weighting factor of company i at time T
t	=	calculation time of the index
K_T	=	Index-specific chaining factor valid as of chaining date T
T	=	Date of the last chaining

The formula set out below is equivalent in analytic terms, but designed to achieve relative weightings:

$$\text{Index}_t = \frac{\sum_{i=1}^{n} p_{it} \cdot \left(K_T \cdot \frac{q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}\right)}{\sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100} \cdot \text{Base} = \frac{\sum_{i=1}^{n} p_{it} \cdot F_i}{A} \cdot \text{Base}$$

whereby:

$$A = \frac{\sum_{i=1}^{n} p_{i0} \cdot q_{i0} \cdot 100}{\sum_{i=1}^{n} q_{i0}}$$

and:

$$F_i = K_T \cdot \frac{q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}$$

Index calculation can be reproduced in simplified terms by using the expression F_i:

- Multiply the current price by the respective F_i weighting factor;
- take the sum of these products; and

- divide this by the base value (A) which remains constant until a modification in the index composition occurs.

The F_i factors provide information on the number of shares required from each company to track the underlying index portfolio.

3.18.4 Chaining

Chaining takes place on a quarterly basis, in line with the methodology applied to the DAX® (cf. Guide to the DAX Equity Indices). Deviating from the standard chaining process, the prices used to determine the constituent weights are as of 3 days before the quarterly underlying data announcement date (T-8).

3.19 DAX ESG Screened and MDAX ESG Screened

3.19.1 Weight Calculation

The index weighting is based on the free float market capitalization, whereby the maximum weighting per share is capped at 10 percent. This cap is designed to prevent individual shares from dominating the index.

3.19.2 Index Formula

The indices are each calculated as price and performance indices.

The DAX ESG Screened and MDAX ESG Screened indices use the Laspeyres index formula and are calculated as follows:

$$\text{Index}_t = K_T \cdot \frac{\sum p_{it} \cdot ff_{iT} \cdot q_{iT} \cdot c_{it}}{\sum p_{i0} \cdot q_{i0}} \cdot \text{Base}$$

whereby:

c_{it}	=	Adjustment factor of company i at time t
ff_{iT}	=	Free float factor of share class i at time T
n	=	Number of shares in the index
p_{i0}	=	Closing price of share i on the trading day before the first inclusion in the index
p_{it}	=	Price of share i at time t
q_{i0}	=	Number of shares of company i on the trading day before the first inclusion in the index
q_{iT}	=	Number of shares of company i at time T
t	=	calculation time of the index
K_T	=	Index-specific chaining factor valid as of chaining date T
T	=	Date of the last chaining
Base	=	value of the index at base date

The formula set out below is equivalent in analytic terms, but designed to achieve relative weightings:

$$\text{Index}_t = \frac{\sum_{i=1}^{n} p_{it} \cdot \left(K_T \cdot \frac{ff_{iT} \cdot q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}\right)}{\sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100} \cdot \text{Basis} = \frac{\sum_{i=1}^{n} p_{it} \cdot F_i}{A} \cdot \text{Basis}$$

whereby: $A = \sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100$

and: $F_i = K_T \cdot \frac{ff_{iT} \cdot q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}$

The index calculation can be reproduced in simplified terms by using the expression F_i:

- Multiply the current price by the respective F_i weighting factor;
- Take the sum of these products; and
- Divide this by the base value (A), which remains constant until the index composition is modified.

The F_i factors provide information on the number of shares required from each company to track the underlying index portfolio.

3.19.3 Chaining

Chaining takes place on a quarterly basis, in line with the methodology applied to the DAX® (cf. Guide to the DAX Equity Indices). The cut-off date for ISS-ESG data is the last trading day of the month prior to the chaining.

The base date of the DAX ESG Screened and MDAX ESG Screened indices is 16 December 2016, with a base level of 1000.

3.19.4 Replacements

Companies that are excluded from the parent index (DAX index resp., MDAX index) because of an extraordinary index review (as described in section 5 of the Guide to the DAX Equity Indices) that are constituents of the DAX ESG Screened index (resp., MDAX ESG Screened index) are removed from the respective ESG Screened index as well with the same notice period. A deleted company is not replaced.

3.20 MDAX ESG+ Index

3.20.1 Weight Calculation

The index weighting is based on the free float market capitalization, whereby the maximum weighting per share is capped at 10 percent. This cap is designed to prevent individual shares from dominating the index.

3.20.2 Index Formula

The MDAX ESG+ index is capital weighted. Only the shares in the free float are considered when calculating the capitalization. The index is calculated as price and performance indices.

The index uses the Laspeyres index formula and is calculated as follows:

$$\text{Index}_t = K_T \cdot \frac{\sum p_{it} \cdot ff_{iT} \cdot q_{iT} \cdot c_{it}}{\sum p_{i0} \cdot q_{i0}} \cdot \text{Base}$$

whereby:

c_{it}	=	Adjustment factor of company i at time t
ff_{iT}	=	Free float factor of share class i at time T
n	=	Number of shares in the index
p_{i0}	=	Closing price of share i on the trading day before the first inclusion in the index
p_{it}	=	Price of share i at time t
q_{i0}	=	Number of shares of company i on the trading day before the first inclusion in the index
q_{iT}	=	Number of shares of company i at time T
t	=	calculation time of the index
K_T	=	Index-specific chaining factor valid as of chaining date T
T	=	Date of the last chaining
Base	=	value of the index at base date

The formula set out below is equivalent in analytic terms, but designed to achieve relative weightings:

$$\text{Index}_t = \frac{\sum_{i=1}^{n} p_{it} \cdot \left(K_T \cdot \frac{ff_{iT} \cdot q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}\right)}{\sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100} \cdot \text{Basis} = \frac{\sum_{i=1}^{n} p_{it} \cdot F_i}{A} \cdot \text{Basis}$$

whereby: $$A = \sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100$$

and: $$F_i = K_T \cdot \frac{ff_{iT} \cdot q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}$$

The index calculation can be reproduced in simplified terms by using the expression F_i:

- Multiply the current price by the respective F_i weighting factor;
- Take the sum of these products; and
- Divide this by the base value (A), which remains constant until the index composition is modified.

The F_i factors provide information on the number of shares required from each company to track the underlying index portfolio.

3.21 DAX 50 ESG+ Index

3.21.1 Weight Calculation

The index weighting is based on the free float market capitalization, whereby the maximum weighting per share is capped at 7 percent. This cap is designed to prevent individual shares from dominating the index.

3.21.2 Index Formula

The DAX 50 ESG+ index is capital weighted. Only the shares in the free float are considered when calculating the capitalization. The index is calculated as price and performance indices.

The index uses the Laspeyres index formula and is calculated as follows:

$$\text{Index}_t = K_T \cdot \frac{\sum p_{it} \cdot ff_{iT} \cdot q_{iT} \cdot c_{it}}{\sum p_{i0} \cdot q_{i0}} \cdot \text{Base}$$

whereby:

c_{it}	=	Adjustment factor of company i at time t
ff_{iT}	=	Free float factor of share class i at time T
n	=	Number of shares in the index
p_{i0}	=	Closing price of share i on the trading day before the first inclusion in the index
p_{it}	=	Price of share i at time t
q_{i0}	=	Number of shares of company i on the trading day before the first inclusion in the index
q_{iT}	=	Number of shares of company i at time T
t	=	calculation time of the index
K_T	=	Index-specific chaining factor valid as of chaining date T
T	=	Date of the last chaining
Base	=	value of the index at base date

The formula set out below is equivalent in analytic terms, but designed to achieve relative weightings:

$$\text{Index}_t = \frac{\sum_{i=1}^{n} p_{it} \cdot \left(K_T \cdot \frac{ff_{iT} \cdot q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}\right)}{\sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100} \cdot \text{Basis} = \frac{\sum_{i=1}^{n} p_{it} \cdot F_i}{A} \cdot \text{Basis}$$

whereby: $$A = \sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100$$

and: $$F_i = K_T \cdot \frac{ff_{iT} \cdot q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}$$

The index calculation can be reproduced in simplified terms by using the expression F_i:

- Multiply the current price by the respective F_i weighting factor;
- Take the sum of these products; and
- Divide this by the base value (A), which remains constant until the index composition is modified.

The F_i factors provide information on the number of shares required from each company to track the underlying index portfolio.

3.22 DAX Futures Switch Index

3.22.1 Index Formula

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).

$R_{\mathrm{f,\,t}}$ = Fixing of risk-free rate on day (t) (€STR (t-1) used).

3.22.2 Computational Accuracy

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

3.23 DAX Futures Leverage Index

3.23.1 Index Formula

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.

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

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:

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

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

With:

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

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

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

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

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

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.

3.23.3 Index Floor

If the leverage/short indices reach a value of 0.010 or below, the index is set to a value of 0.010 and its calculation/dissemination is discontinued. 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.

3.23.4 Computational Accuracy

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

3.24 DAX 30 ESG Index

3.24.1 Weight Calculation

The index weighting is based on the free float market capitalization, whereby the maximum weighting per share is capped at 10 percent. This cap is designed to prevent individual shares from dominating the index.

3.24.2 Index Formula

The DAX 30 ESG index is capital weighted. Only the shares in the free float are considered when calculating the capitalization. The index is calculated as price and performance indices.

The index uses the Laspeyres index formula and is calculated as follows:

$$\text{Index}_t = K_T \cdot \frac{\sum p_{it} \cdot ff_{iT} \cdot q_{iT} \cdot c_{it}}{\sum p_{i0} \cdot q_{i0}} \cdot \text{Base}$$

whereby:

c_{it}	=	Adjustment factor of company i at time t
ff_{iT}	=	Free float factor of share class i at time T
n	=	Number of shares in the index
p_{i0}	=	Closing price of share i on the trading day before the first inclusion in the index
p_{it}	=	Price of share i at time t
q_{i0}	=	Number of shares of company i on the trading day before the first inclusion in the index
q_{iT}	=	Number of shares of company i at time T
t	=	calculation time of the index
K_T	=	Index-specific chaining factor valid as of chaining date T
T	=	Date of the last chaining
Base	=	value of the index at base date

The formula set out below is equivalent in analytic terms, but designed to achieve relative weightings:

$$\text{Index}_t = \frac{\sum_{i=1}^{n} p_{it} \cdot \left(K_T \cdot \frac{ff_{iT} \cdot q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}\right)}{\sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100} \cdot \text{Basis} = \frac{\sum_{i=1}^{n} p_{it} \cdot F_i}{A} \cdot \text{Basis}$$

whereby: $A = \sum_{i=1}^{n} p_{i0} \cdot \frac{q_{i0}}{\sum_{i=1}^{n} q_{i0}} \cdot 100$

and: $$F_i = K_T \cdot \frac{ff_{iT} \cdot q_{iT}}{\sum_{i=1}^{n} q_{i0}} \cdot 100 \cdot c_{it}$$

The index calculation can be reproduced in simplified terms by using the expression F_i:

- Multiply the current price by the respective F_i weighting factor;
- Take the sum of these products; and
- Divide this by the base value (A), which remains constant until the index composition is modified.

The F_i factors provide information on the number of shares required from each company to track the underlying index portfolio.

3.25 idDAX 30 ESG Decrement 4.0% Index

3.25.1 Index Formula

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

whereby:

IV_t	Index value on day t
IV_0	1000 on 20 March 2017
U_t	Index value of underlying DAX 30 ESG EUR (Net Total 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.

4 Adjustments

The performance indices are adjusted for exogenous influences (e.g. price-relevant capital changes) by means of certain correction factors, assuming a reinvestment according to the "opération blanche".

The indices require a simultaneous adjustment of systematic price changes. The prerequisite for this is to calculate the correction factor on an ex-ante basis.

Consequently, already the first "ex" price can be adequately included for index calculation purposes. The ex-ante incorporation of adjustments presupposes a general acceptance of the computation formula as well as a general availability of the parameters used.

All parameters necessary for the respective computation are available from STOXX Ltd. via its website (dax-indices.com) on the evening before each adjustment. As with all other adjustment processes there may be differences between the calculated values and the actually traded prices. However, since a preliminary correction is necessary and any delay would be problematic, this procedure remains the most appropriate one.

The calculated adjustment factor and a synthetic price accordingly adjusted for this factor are used in the index from the ex-date of a share as long as there is no "ex" price available.

A detailed description of price-relevant capital changes as well as a description of the calculation of the correction factor C_{it} can be found in the Guide to the DAX Equity Indices.

For customers STOXX Ltd. provides a 10-calendar-days corporate action forecast.

5 General Information

5.1 Index Labels

An index is published with the label “A” (“amtlich”) once the opening criteria are fulfilled. Where the opening criteria have not been met for an index on a certain trading day, an index value is derived from the last available prices at the end of the calculation period. Accordingly, this index is labelled “I” (indicative).

Subsequent index ticks are continuously checked for its deviation. Once an index specific threshold is breached, the corresponding index ticks are disseminated with an index supplement "U" (for unchecked, instead of "A" for amtlich) and an immediate operational check is triggered. If the deviation was justified (e.g. due to market conditions), the index will manually be switched back to "A", i.e. labelled in line with its corresponding status.

5.2 Historical Data

Historical index data exists for all indices, dating back at least to the respective base date.

Until 18 June 1999, inclusive, data had been generated on the basis of prices sourced from floor trading at the Frankfurt Stock Exchange. Since 21 June 1999, time series have been based on Xetra® price data.

Time series for the various indices are available at www.dax-indices.com.

5.3 Index Termination Policy

For termination of an index or an index family that underlie financial products issued on the market, to the knowledge of STOXX Ltd., a market consultation will be conducted by STOXX Ltd. in advance of the 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 3.16.1). 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 Ltd. may rethink its decision to terminate an index or an index family (Discretionary Rule, see Section 3.16.1). At the end of the consultation period, STOXX Ltd. will publicly announce its final decision about the termination. A transition period will be granted in the event of termination (Discretionary Rule, see Section 3.16.1)
For termination of an index or an index family that do not underlie financial products issued on the market, no market consultation will be conducted.

5.4 Limitations

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

- insufficient rules, meaning the absence of a methodology rule, provision or procedure which leads to a failure when determining the respective index value or which leads to an index value that does not properly reflect the concept / nature of the index, e.g.:
  - performance of the index can no longer be physically replicated;
  - insufficiently available index constituents to fulfil the requirements of the Index Methodology;

- unclear rules, meaning a situation in which the rules leave multiple possible interpretations on how a certain rule shall be applied to a specific situation;
- data insufficiency, meaning a scenario in which the calculation of an index is no longer possible due to insufficient data quantity or quality;
- failure to produce index values as intended;
- market disruption which results in the performance of the index being unable to be tracked,
- events with a market impact that by their nature could reasonably not be foreseen, or events whose impact on an index or the economic reality the index intends to represent, cannot be determined in advance. Events covered in this section include, but are not limited to, events of natural, social, political, economic nature that may negatively impact regional or global societies or economies. Examples may be, but are not limited to, the following: (i) change to currency convertibility or restriction on capital flows announced by a country; (ii) market disruption, e.g. an event that materially negatively influences the aggregated liquidity, capitalization or tradability of an entire market; (iii) exchange closure, (iv) government intervention, (v) pandemic, (vi) natural catastrophe.

If a Limitation has occurred, the IGC shall decide if and how the Limitation shall be rectified (Discretionary Rule, see Section 3.16.1). Any such rectification may comprise deviations from the index methodology which may apply as long as the Limitation persists (Discretionary Rule, see Section 3.16.1).

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

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

If a review is cancelled, STOXX aims to perform it at the next scheduled review of the index or at the next quarterly review date (3rd Friday of March, June, September and December), whichever comes first and subject to the then prevailing market conditions.

If a decision to deviate from the index methodology is taken, it will be communicated as soon as possible in form of an Announcement or Press Release. 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 3.16.1). 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.

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

5.5 Methodology Review

The purpose of the methodology review is to ensure 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.

5.6 Frequency of Review

In order to ensure the index integrity is maintained at all times, the methodology is reviewed annually and ad hoc if a Limitation has occurred. If a Limitation cannot be properly dealt 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.

5.7 Review Procedure

5.7.1 Initiation of Methodology Review

The IMC proposes an annual methodology review schedule for approval by the IGC (Discretionary Rule, see Section 3.16).

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 Ltd. Committees (Discretionary Rule, see Section 3.16).

5.7.2 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 5.8 below),
b) the change is triggered by an Unclear Rule or Insufficient Rule (as part of a Limitation, Section 5.4), 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.

5.8 Material Changes with Consultation

In case of 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 change in the index objective or market/economic reality the index aims to represent (e.g. market leader components vs. mid cap companies),
- a change which affects the composition and weighting rules of an Index,
- a change in the calculation methods and formulas,

- a change in the rules regarding the rebalancing of the weights of index constituents by application of the index methodology (Index Rebalancing),
- a change in the rules regarding the review of index constituents and their respective weights by application of the index methodology (Index Review), and/or
- rules regarding a change in the adjustment of weights of the index constituents or the compositions of the index constituents (as applicable) of equity indices due to Corporate Actions (Corporate Action Adjustment),

resulting in a significant change of the concept / nature of the index. The IMC determines whether an amendment is material as defined. In cases where the materiality cannot clearly be assessed the IMC is responsible for making the decision (Section 3.16).

STOXX Ltd. consults a proposed material change with reasonably affected licenses/investors. A licensee shall be considered affected if he has licensed the respective index. An investor shall be considered affected if he owns contracts or financial instruments that reference the respective index. Taking into account the principle of proportionality, STOXX Ltd. informs affected licenses/investors as follows:

- licensees either directly and/or via public consultation;
- investors either via licensees affected by the material change and/or via public consultation.

STOXX Ltd. shall inform affected licensees and investors of the key elements of the index methodology that will in its view be impacted by a proposed material change and information on the rationale for any proposed material change including an assessment as to whether the representativeness of the index and its appropriateness for its intended use are put at risk in case the proposed material change is not put in place.

The consultation shall enable investors and licensees to submit comments. The standard consultation period shall be at least 1 month with the option to extend this period (Discretionary Rule, see Section 3.16). The IGC may decide to shorten the 1 month period (Discretionary Rule, see Section 3.16) in the following cases:

- in urgent cases, such as a situation in which the index cannot be replicated anymore;
- in situations where there is no known licensee / investor impact or only a limited number of affected licensees / investors;
- in order to align the effective date of a proposed changed with an Index Rebalancing, Index Review, and Corporate Action Adjustment, or
- any other similar cases.

The IGC in accordance with this Section 5.8 will consider the feedback received and decide whether the material change shall become effective (Discretionary Rule, see Section 3.16). The IGC is not bound by any feedback received. If the received feedback is ambiguous, the IGC may decide to conduct another

consultation (Discretionary Rule, see Section 3.16). If no licensee / investor participate in the consultation, the consulted material change shall enter into effect as outlined in the consultation material.

If the IGC decides that a material change shall become effective, STOXX Ltd. will communicate a timeline on the implementation of the material change, if not already communicated in the consultation material. The decision will be communicated as soon as possible in the form of an Announcement or Press Release. 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 3.16). 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.

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

5.9 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 3.16). 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 3.16). 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.

6 Appendix

6.1 ISINs and Alpha Codes

Index	Alpha (Price)	ISIN (Price)	Alpha (Gross)	ISIN (Gross-TR)	Alpha (Net)	ISIN (Net-TR)
DivDAX®	GSUK	DE000A0C33C3	GSUL	DE000A0C33D1		
DivMSDAX	2DW3	DE000A0Z3LT6	2DW2	DE000A0Z3LS8		
DAXplus® Seasonal Strategy	D1AA	DE000A0C4BU0	D1AB	DE000A0C4BV8		
DAXplus® Export Strategy	D1EK	DE000A0C4BW6	D1EP	DE000A0C4BX4		
DAXplus® Covered Call			D3CC	DE000A0C4BY2		
DAXplus® Protective Put			D1A8	DE000A0C4CS2		
DAXplus® Minimum Variance Germany (EUR)	XEFM	DE000A0METM0	XEFN	DE000A0METN8	445P	DE000A1EXPH3
DAXplus® Minimum Variance Germany (USD)	XEFZ	DE000A0METZ2	XEF0	DE000A0MET03	445R	DE000A1EXPK7
DAXplus® Minimum Variance Germany (GBP)	XEGB	DE000A0MEUB1	XEGC	DE000A0MEUC9	445Q	DE000A1EXPJ9
DAXplus® Maximum Sharpe Ratio Germany (EUR)	XEFK	DE000A0METK4	XEFL	DE000A0METL2	445S	DE000A1EXPL5
DAXplus® Maximum Sharpe Ratio Germany (USD)	F9MF	DE000A0ME7F9	F9MG	DE000A0ME7G7	445U	DE000A1EXPN1
DAXplus® Maximum Sharpe Ratio Germany (GBP)	F9MS	DE000A0ME7T0	F9MT	DE000A0ME7U8	445T	DE000A1EXPM3
DAXplus® Maximum Dividend	1NGX	DE000A0XXEA4	1NGL	DE000A0XXDZ3	7401	DE000A2L0415
DAXplus® Risk Trigger Germany			G7X3	DE000A0X7J39		
DAX® Dividend Points			1MZB	DE000A0XXAL9		
DivDAX® Dividend Points			G73K	DE000A0X7KL8		
DAXplus® Family	D1BM	DE000A0YKTM2	D1BL	DE000A0YKTL4		
DAXplus® Family 30	D1BP	DE000A0YKTP5	D1BN	DE000A0YKTN0		
idDAX® 50 Equal Weight	0TMU	DE000A2FG2Q2	0TMW	DE000A2FG2S8	0TMV	DE000A2FG2R0
idDAX® 50 Equal Weight Decrement 4.00%	0TM8	DE000A2FG242				
idDAX® 50 ESG NR Decrement 4.00%		DE000A3C7BA2				
DAX® Equal Weight (EUR)	A3QH	DE000A2L0MV0	A3QK	DE000A2L0MX6	A3QJ	DE000A2L0MW8

Index	Alpha (Price)	ISIN (Price)	Alpha (Gross)	ISIN (Gross-TR)	Alpha (Net)	ISIN (Net-TR)
DAX® Equal Weight (USD)	A3QL	DE000A2L0MY4	A3QN	DE000A2L0M08	A3QM	DE000A2L0MZ1
DAX® ESG Target (EUR)	AL8S	DE000A3CLUK2	AL8M	DE000A3CLUH8	AL8P	DE000A3CLUJ4
DAX® ESG Target (USD)	AMWB	DE000A3CLUN6	AL80	DE000A3CLUL0	AMWA	DE000A3CLUM8
DAX® ESG Screened (EUR)	DB10	DE000A3DDX06	DD1D	DE000A3DDX22	DB11	DE000A3DDX14
MDAX® ESG Screened (EUR)	DD1E	DE000A3DDX30	DD1G	DE000A3DDX55	DD1F	DE000A3DDX48
MDAX® ESG+ (EUR)	I1HX	DE000A3DMSH8	I1HZ	DE000A3DMSK2	I1HY	DE000A3DMSJ4
DAX® 50 ESG+ (EUR)	DN2J	DE000A3DSHT3	I1H2	DE000A3DSHV9	DN2K	DE000A3DSHU1
DAX 30 ESG (EUR)	AL8Q	DE000A3EX321	AL8C	DE000A3EX305	AL8D	DE000A3EX313
idDAX 30 ESG Decrement 4.0% (EUR)	AL8T	DE000A3EXCH7				

Leverage & Short Indices

LevDAX® x2	2DMT	DE000A0Z3JF9	D1AJ	DE000A0C4B34		
LevDAX® x2 AR	DL36	DE000A1EX242	DL3Y	DE000A1EX2X9		
LevDAX® x3	DL37	DE000A1EX259	DL3Z	DE000A1EX2Y7		
LevDAX® x3 AR	DH6A	DE000A1EXY51	DH56	DE000A1EXY02		
LevDAX® x4	2DMV	DE000A0Z3JH5	4NAS	DE000A0SNAM8		
LevDAX® x4 AR	DL38	DE000A1EX267	DL31	DE000A1EX2Z4		
LevDAX® x5	DH6B	DE000A1EXY69	DH57	DE000A1EXY10		
LevDAX® x5 AR	DL39	DE000A1EX275	DL32	DE000A1EX200		
LevDAX® x6	DH6C	DE000A1EXY77	DH58	DE000A1EXY28		
LevDAX® x6 AR	DL30	DE000A1EX283	DL33	DE000A1EX218		
LevDAX® x7	DH6D	DE000A1EXY85	DH59	DE000A1EXY36		
LevDAX® x7 AR	DN2A	DE000A1EX291	DL34	DE000A1EX226		
LevDAX® x8	DH6E	DE000A1EXY93	DH50	DE000A1EXY44		
LevDAX® x8 AR	DN2B	DE000A1EX3A5	DL35	DE000A1EX234		
LevDAX® x9	0JBD	DE000A13PHW5	0JBE	DE000A13PHX3		
LevDAX® x10	0JBF	DE000A13PHY1	0JBG	DE000A13PHZ8		
LevDAX® x2 Monthly			2DWK	DE000A0Z3K92		
LevDAX® Optimal	2DWZ	DE000A0Z3LP4	2DW0	DE000A0Z3LQ2		
ShortDAX®	2DMM	DE000A0Z3H97	D1A8	DE000A0C4CT0		
ShortDAX® AR	DL3N	DE000A1EX2M2	DL3F	DE000A1EX2D1		
ShortDAX® x2	2DMP	DE000A0Z3JB8	D1A9	DE000A0SNAK2		
ShortDAX® x2 AR	DL3P	DE000A1EX2N0	DL3G	DE000A1EX2E9		

Index	Alpha (Price)	ISIN (Price)	Alpha (Gross)	ISIN (Gross-TR)	Alpha (Net)	ISIN (Net-TR)
ShortDAX® x3	DL3Q	DE000A1EX2P5	DL3H	DE000A1EX2F6		
ShortDAX® x3 AR	DH6K	DE000A1EXZF6	DH6F	DE000A1EXZA7		
ShortDAX® x4	2DMR	DE000A0Z3JD4	4NAQ	DE000A0SNAL0		
ShortDAX® x4 AR	DL3R	DE000A1EX2Q3	DL3I	DE000A1EX2G4		
ShortDAX® x5	DH6L	DE000A1EXZG4	DH6G	DE000A1EXZB5		
ShortDAX® x5 AR	DL3S	DE000A1EX2R1	DL3J	DE000A1EX2H2		
ShortDAX® x6	DH6M	DE000A1EXZH2	DH6H	DE000A1EXZC3		
ShortDAX® x6 AR	DL3T	DE000A1EX2S9	DL3K	DE000A1EX2J8		
ShortDAX® x7	DH6N	DE000A1EXZJ8	DH6I	DE000A1EXZD1		
ShortDAX® x7 AR	DL3U	DE000A1EX2T7	DL3L	DE000A1EX2K6		
ShortDAX® x8	DH6P	DE000A1EXZK6	DH6J	DE000A1EXZE9		
ShortDAX® x8 AR	DL3V	DE000A1EX2U5	DL3M	DE000A1EX2L4		
ShortDAX® x9	0JBH	DE000A13PH09	0JBJ	DE000A13PH17		
ShortDAX® x10	0JBK	DE000A13PH25	0JBL	DE000A13PH33		
ShortDAX® x2 Monthly			2DWL	DE000A0Z3LA6		
ShortMDAX® x1	X2HV	DE000A1X2XY4	X2HW	DE000A1X2XZ1		
ShortTecDAX	2DWY	DE000A0Z3LN9	2DWX	DE000A0Z3LM1		
ShortTecDAX AR	DL3X	DE000A1EX2W1	DL3W	DE000A1EX2V3		

Risk Control Indices

DAX Risk Control 5% RV (ER)			2DWM	DE000A0Z3LB4		
DAX Risk Control 5% RV (TR)			2DWN	DE000A0Z3LC2		
DAX Risk Control 10% RV (ER)			2DWR	DE000A0Z3LF5		
DAX Risk Control 10% RV (TR)			2DWS	DE000A0Z3LG3		
DAX Risk Control 12% RV (ER)			2DYL	DE000A0Z3MB2		
DAX Risk Control 12% RV (TR)			2DYM	DE000A0Z3MC0		
DAX Risk Control 15% RV (ER)			2DWT	DE000A0Z3LH1		
DAX Risk Control 15% RV (TR)			2DWU	DE000A0Z3LJ7		
DAX Risk Control 20% RV (ER)			2DWV	DE000A0Z3LK5		
DAX Risk Control 20% RV (TR)			2DWW	DE000A0Z3LL3		

Hedged Indices

DAX Monthly Hedged AUD	0JBX	DE000A13PJE9	0JB1	DE000A13PJJ8		

Index	Alpha (Price)	ISIN (Price)	Alpha (Gross)	ISIN (Gross-TR)	Alpha (Net)	ISIN (Net-TR)
DAX Monthly Hedged CHF	0JBY	DE000A13PJF6	0JB2	DE000A13PJK6		
DAX Monthly Hedged JPY	0JBZ	DE000A13PJG4	0JB3	DE000A13PJL4		
DAX Monthly Hedged USD	0JB0	DE000A13PJH2	0JB4	DE000A13PJM2		
DAX Monthly Hedged JPY TTM	I1HS	DE000A3DH2N9	I1HR	DE000A3DHXJ4	I1HT	DE000A3DH2P4
DAX Daily Hedged CZK	4J0W	DE000A3CK371	4J0Y	DE000A3CK397	4J0X	DE000A3CK389
DAX Daily Hedged AUD	0JEE	DE000A161DE6	0JEH	DE000A161DH9		
DAX Daily Hedged JPY	0JEF	DE000A161DF3	0JEJ	DE000A161DJ5		
DAX Daily Hedged USD	0JEG	DE000A161DG1	0JEK	DE000A161DK3		
DAX Daily Hedged GBP	0K5K	DE000A2GYHM1	0K5H	DE000A2GYHK5	0K5J	DE000A2GYHL3
HDAX Monthly Hedged CHF (TR)			0JEC	DE000A161DC0		
HDAX Monthly Hedged USD (TR)			0JED	DE000A161DD8		
HDAX Monthly Hedged CHF (Pr)	0JEA	DE000A161DA4				
HDAX Monthly Hedged USD (Pr)	0JEB	DE000A161DB2				
HDAX Hedged USD (TR)			X2H0	DE000A1X2Y33		
DAXplus 30 Decrement 40 EUR (Pr)	0JH0	DE000A161F06				

DAX Futures Indices

Index	Alpha (Total Return)	ISIN (Total Return)	Alpha (Excess Return)	ISIN (Excess Return)
DAX Futures Switch EUR	Q2JF	DE000A3DZD53	Q2JB	DE000A3DZD12
DAX Futures Leverage Long 7X EUR			Q2H9	DE000A3DZD04
DAX Futures Leverage Short 7X EUR			Q2JC	DE000A3DZD20
DAX Futures Leverage Long 5X EUR			Q2JD	DE000A3DZD38
DAX Futures Leverage Short 5X EUR			Q2JE	DE000A3DZD46

6.2 Contact

- **Information on prices, index concepts and licenses**

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