

Guide to the World Luxury Index*

Version 1.5

October 2023

* World Luxury Index is an index of BNP Paribas, calculated and distributed by Deutsche Börse AG.

General Information

In order to ensure the highest quality of each of its indices, Deutsche Börse AG exercises the greatest care when compiling and calculating indices on the basis of the rules set out in this Guideline.

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

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The indices of Deutsche Börse AG do not represent a recommendation for investment of whatever nature. In particular, the compilation and calculation of the various indices shall not be construed as a recommendation of Deutsche Börse AG to buy or sell individual instruments, or the basket of instruments underlying a given index.

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History of Amendments to the Rules and Regulations

October 2023	Version 1.5 Change in the website address
July 2023	Version 1.4 Clarification of sub-sector capping and the index ranking process Addition of chapter 2.5.1 US Securities and Exchange Holding Foreign Companies Accountable Act (HFCAA)
August 2022	Version 1.3 Methodology adjustment of the quarterly review process by introducing quarterly underlying data announcements dates and changing the review date to the second Friday (T-5). The changes can be found in chapter 2.6
March 2022	Version 1.2 Exclusion of Russian companies from the index universe
October 2008	Version 1.1 Changed calculation period
February 2007	Version 1.0 Launch of World Luxury Index

1 General Index Information

Deutsche Börse calculates and distributes more than 2,000 indices which enhance the transparency of the markets it operates, thus facilitating comparison.¹ At the same time, indices are increasingly used as underlying instruments for financial products such as futures, options, warrants, as well as funds.

Deutsche Börse indices are based on different weighting concepts. The indices' constituents can be weighted equally, according to their market capitalization or their free float market capitalization. Furthermore, all indices of Deutsche Börse can be calculated both as price- and as total return indices.

Price indices measure the actual price performance, and are only adjusted for income from subscription rights and special distributions.

As for performance indices, all income from dividend and bonus payments is reinvested in the index portfolio.

The indices are calculated according to the Xetra trading calendar.

1.1 World Luxury Index

World Luxury Index comprises the 20 largest and most liquid issues of the luxury goods industry worldwide. A company is considered as belonging to the industry of luxury goods if more than 50 percent of the overall turnover is generated from luxury articles.

The index constituents must have an average daily stock exchange turnover of at least 5 million US-Dollars over the past 6 months in order to be eligible for World Luxury Index and to ensure its liquidity and quality.

The ranking of World Luxury Index candidates is based on the revenue percentage per luxury goods sub-sector. The higher the revenue percentage per luxury goods sub-sector is, the higher the company ranks. For companies with the same revenue percentage per luxury goods sub-sector, the company with the higher full market capitalization will receive the higher index rank. The number of companies per luxury goods sub-sector in the World Luxury Index is restricted to 5.²

Russian companies are excluded from index inclusion, this applies in particular to ADRs and GDRs on Russian companies.

¹ Cp. „Guide to the Equity Indices of Deutsche Börse“ for an overview of Selection- und All Share-indices.

² The luxury goods sector and sub-sector classification is performed by MarketLine. The data on percentage revenues per luxury goods sub-sector are provided by MarketLine.

The index weighting is based on market capitalization. Moreover, each company is capped to 10 percent within the index weighting. The chaining takes place on a quarterly basis in accordance with the Deutsche Börse equity indices DAX[®] methodology. The review and the adjustment of the composition take place on 3rd Friday in September.

The base value of World Luxury Index is 100 and corresponds to the base date 2. February 2007. The history data are available as of 31. December 2001.

The World Luxury Index is calculated as price index. The Index is calculated and disseminated in EURO every 15 seconds between 9.00 a.m. and 10.15 p.m. CET. The index calculation is based on prices from Reuters and Xetra[®].

World Luxury Index offers market participants the opportunity to participate in a stable luxury goods industry even under cyclical economic variation.

2 Calculation Method

2.1 Index Formula

World Luxury Index is calculated as follows:

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

whereby:

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

n = Number of constituents in the index

p_{i0} = Closing price of share/ADR/GDR of company i on the trading day before the first inclusion in an index of Deutsche Börse

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

q_{i0} = Number of shares/ADRs/GDRs or weighting factor of company i on the trading day before the first inclusion in an index of Deutsche Börse

q_{iT} = Number of shares/ADRs/GDRs or 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:

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

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

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

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/ADRs/GDRs required from each company to track the underlying index portfolio.

2.2 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 only one single adjustment factor (six decimal places) is computed using the total markdown. Where several adjustment events are required for a single share/ADR/GDR but at different times, the factors rounded that way are multiplied by each other, and the product is rounded to six decimal places again.

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 instrument-specific adjustment.

2.3 Cap Limit

Capping is a procedure which satisfies the suitable weighting of index constituents and prevents single underlyings from dominating the index.

On the day of regular quarterly chaining, the weighting of any single company in the World Luxury Index is capped to 10 percent of the index capitalization, respectively.

For this purpose, the index capitalization is computed. If any single company accounts for more than 10 percent of 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 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.

2.4 Adjustments

The indices of Deutsche Börse 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”. If the absolute amount of the accumulated distributions (dividends, bonus and special distributions, spin-offs or subscription rights on other security-classes) between two regular chaining dates accounts for more than 10 percent of the market capitalization of the distributing company on the day before the first distribution, the part of the distribution exceeding the 10 percent will not be reinvested in a single stock but in the overall index portfolio per unscheduled chaining date.

All continuously calculated 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 Deutsche Börse via its website (www.deutsche-boerse.com) on the evening before each adjustment. As with all other adjustment processes, there may be differences between the computed 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.

For the calculation of the adjustment factors of all the indices see “Guide to the equity indices of Deutsche Börse”.

2.5 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 predominantly based on the criteria as set out in chapter 1.1.

2.5.1 U.S. Securities and Exchange Holding Foreign Companies Accountable Act (HFCAA)

Companies which are on the “Conclusive list of issuers identified under the HFCAA” published by the U.S. Securities and Exchange Commission (SEC) are screened for eligibility in the World Luxury Index on the last trading day of January, April, July, and October, as follows:

- if a company being part of the conclusive list reaches the trading prohibition term within the next 6 months, the security is deleted from the World Luxury Index effective the next trading day following the 3rd Friday of March, June, September and December.
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- if a company being part of the conclusive list reaches the trading prohibition term within the next 6 months, the security is ineligible for the World Luxury Index.

If an alternative listing is available for companies which are on the “Conclusive list of issuers identified under the HFCAA”, and subject to the universe of World Luxury Index coverage, the alternative listing might be added to the World Luxury Index universe only at the following chaining date as described in section 2.6 of the Guide to the World Luxury Index.

STOXX will communicate on the first trading day of March, June, September, and December the list of identified securities that are excluded from the World Luxury Index.

2.6 Chaining

In line with the concept conceived by Deutsche Börse for its indices, 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. As of the following trading day the new weights apply.

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.

2.6.1 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 constituents weightings 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 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 adjustment factor (c_{it}) is set to 1.

The business forecast is published again on the Wednesday before the chaining date (T-2). It contains all corporate actions that have come to the attention of STOXX since the initial publication of the business forecast (including delistings and IPOs) and that become effective between the quarterly underlying data announcement date and the chaining date.

2.6.2 Quarterly Chaining

The quarterly chaining procedure encompasses the following measures:

- The number of shares/ADRs/GDRs is 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.
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- 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 actualization 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:

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

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/ADRs/GDRs ($q_{i,T+1}$), which are determined based on closing prices of the last Friday before the chaining. The c_{it} adjustment factors are set to 1.

The following applies accordingly:

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

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:

$$F_i = K_{T+1} \cdot \frac{q_{i,T+1} \cdot c_{it}}{\sum_{i=1}^n q_{i0}} \cdot 100$$

2.6.3 Unscheduled Chaining

In the event of a deletion of an index constituent, chaining is carried out in line with the procedure described in section **Error! Reference source not found.** above, however, usually without adjustment to the number of shares and the various c_{it} factors.

In case a new stock succeeds the stock leaving the index, the replacement will enter the index with the same weight the old stock had, based on the closing price of its last day in the index.

The weighting factor “q” of the successor “i” is then calculated as follows:

$$q_{i,S+1} = \frac{p_{jS} \cdot q_{jT}}{p_{iS}}$$

i = new company

j = company leaving the index

S = last day of old company in the index

T = date of the last chaining

In this case (replacement with the same weight) no chaining is necessary.

3 General Information

3.1 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).

In the event of price changes of more than 1 percent against the last traded price, the corresponding index is labelled 'U' (unchecked). The calculated index value is subsequently checked for data entry or computation errors. Any data entry or computation error is corrected accordingly, followed by a recalculation of the respective index. In the case of a deviation in excess of 1 percent where no error has occurred, the index is revalidated (i.e. labelled in keeping with its corresponding status).

3.2 Historical Data

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

Time series for the various indices are available from Info Operations – Customer Service (cf. chapter 4.2) at Deutsche Börse AG.

3.3 Derivative Instruments

All continuous calculated indices published by Deutsche Börse meet the requirements of an underlying instrument for derivative financial instruments. The transparency of index calculations permits a reproduction of the respective index portfolio.

With XTF[®], Deutsche Börse has been offering yet another segment on Xetra[®] since April 2000, in which exchange-traded funds ('ETFs') can be traded like single shares. The majority of these ETFs tracks the performance of individual underlying equity indices.

3.4 Licensing

Exchanges, banks and investment companies may apply to BNP Paribas for licenses to use these indices as underlying instruments for derivative instruments. The standardized licensing agreement grants the licensee the right to use the indices for any number of instruments, with the license fee set according to the actual usage.

4 Appendix

4.1 ISINs and Alpha Codes

Index	Alpha (Price)	ISIN (Price)	Alpha (Perf.)	ISIN (Perf.)
World Luxury Index (EUR)	N8WV	DE000AOLLPU8	N.A.	N.A.

4.2 Your Direct Line to Deutsche Börse

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

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