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STOXX® Reference Calculations Guide

STOXX.com

CONTENTS

1. INTRODUCTION TO THE STOXX INDEX GUIDES

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

» The **STOXX Calculation guide** provides a general overview of the calculation of the STOXX equity indices, the dissemination, the index formulas and adjustments due to corporate actions

» The **STOXX Index Methodology guide** contains the equity index specific rules regarding the construction and derivation of the portfolio based indices, the individual component selection process and weighting schemes

» The **STOXX World Equity Index Methodology guide** contains the index specific rules regarding the construction and derivation of the STOXX World portfolio based indices, the individual component selection process and weighting schemes

» The **STOXX Strategy Index guide** contains the formulas and description of all strategy indices

» The **STOXX DVP Calculation guide** describes the dividend points products

» The **STOXX Distribution Points Calculation guide** describes the distribution points products

» The **iSTOXX Fund Indices Methodology guide** contains the index specific rules regarding the construction and derivation of the iSTOXX Fund indices, the individual component selection process and weighting schemes

» The **iSTOXX Strategy Indices Methodology guide** contains the index specific rules regarding the construction and derivation of the iSTOXX Strategy indices, the individual component selection process and weighting schemes

» The **iSTOXX Decrement Indices Methodology guide** contains the index specific rules regarding the construction and derivation of the iSTOXX Decrement indices, the individual component selection process and weighting schemes

» The **iSTOXX Equity Indices Methodology guide** contains the index specific rules regarding the construction and derivation of the iSTOXX Equity indices, the individual component selection process and weighting schemes

» The **STOXX Reference Rates guide** contains the rules and methodologies of the reference rate indices

» The **STOXX Reference Calculations guide** provides a detailed view of definitions and formulas of the calculations as utilized in the reports, factsheets, indices and presentations produced by STOXX

» The **Guide to Industry Classifications Used By STOXX** contains general information pertaining to industry classifications used in STOXX indices, together with any references and links to third-parties that create the data.

» The **STOXX Eligible Market Segments guide** contains the list of stock exchanges and market segments.

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

2. CHANGES TO THE GUIDE BOOK

2.1. HISTORY OF CHANGES TO THE STOXX REFERENCE CALCULATIONS GUIDE

- March 2014: First release of the guide
- July 2014: Addition of fundamentals calculations section
- December 2014: Addition of turnover calculation
- August 2017: Annualization factor set to 260 days
- July 2022: Section 1 updated with new guides
- January 2023: Added reference of STOXX Eligible Market Segments guide and removed reference of iSTOXX Bond Index guide
- February 2023: Removed reference of STOXX Bond Index guide
- October 2023: Change in the STOXX logo
- January 2025: Change in STOXX logo, alignment of fonts to STOXX Brandbook.
- August 2025: Addition of a section '12 Months Historical Dividends Per Share (DPS) Calculation' and removed reference of STOXX ESG Index Methodology guide
- December 2025: Update in the section of 'Introduction to the STOXX Index Guides'
- April 2026: Removed reference of STOXX Currency Rates Indices Methodology guide.

3. STATISTICAL CALCULATIONS

3.1. GENERAL DEFINITIONS

Any given time period can be divided in k equally-spaced intervals: $[t_m, t_{m+1}, \dots, t_{m+k}]$.

N is the nominal annualization factor of choice for such equally-spaced intervals, such that $N \cdot (t_z - t_{z-1})$ equals one nominal year. For instance, if the time interval length is one day, then $N = 260$ is used to annualize daily observations to a nominal year of 260 working days.

Accordingly, $k + 1$ price levels can be observed for a financial instrument: $[p_m, p_{m+1}, \dots, p_{m+k}]$.

3.2. RETURNS

Arithmetic and logarithmic returns can be calculated as shown below. Unless differently specified, arithmetic returns are the default calculation.

First, let the ratio of the price levels observed at two generic times t_i and t_j, with $t_m \leq t_i < t_j \leq t_{m+k}$, be expressed as:

(1) $$R_{i,j} = \frac{p_j}{p_i}$$

3.2.1. ARITHMETIC RETURNS

Then, the arithmetic return between time t_i and t_j is given by:

(2) $$r_{i,j} = R_{i,j} - 1$$

The actual return for a period of length k is then:

(3) $$r_{m,m+k} = R_{m,m+k} - 1$$

The corresponding annualized average return for a period of length k and with geometric compounding is given by:

(4) $$r_{k,ann} = (1 + r_{m,m+k})^{\frac{N}{k}} - 1$$

3.2.2. LOGARITHMIC RETURNS

In case of log-returns, the actual and annualized returns are calculated respectively as:

(5) $$r_{m,m+k} = \ln R_{m,m+k}$$

and

(6) $$r_{k,ann} = r_{m,m+k} \cdot \frac{N}{k}$$

3. STATISTICAL CALCULATIONS

Note: For the sake of readability, the expression for a return time-series will be simplified in the following paragraphs according to the following notation:

(7) $$r = [r_1, \dots, r_k] = [r_{m,m+1}, \dots, r_{m+k-1,m+k}]$$

3.3. VARIANCE AND VOLATILITY

Variance and volatility are metrics used to represent how unpredictable the behavior of a statistical variable is. When the statistical variable is represented by a financial instrument's returns, they gauge the riskiness of that instrument.

Variance is usually calculated as a function of a financial instrument's returns deviation from their mean, i.e. including the drift term. However, the drift term can, under certain assumptions, be neglected: in this case, the mean value is set to zero.

Unless differently stated, variance is calculated including the drift term.

The returns used can be calculated either in arithmetic or logarithmic form.

3.3.1. VARIANCE WITH DRIFT

Given a time-series of k returns $r = [r_1, \dots, r_k]$, their (sample) variance is given by:

(8) $$\sigma^2(r) = \frac{1}{k-1} \cdot \sum_{i=1}^{k} (r_i - \bar{r})^2$$

where:

(9) $$\bar{r} = \frac{1}{k} \cdot \sum_{i=1}^{k} r_i$$

3.3.2. VARIANCE WITHOUT DRIFT

Simply, the mean return is ditched in the calculation of variance:

(10) $$\sigma^2(r) = \frac{1}{k-1} \cdot \sum_{i=1}^{k} r_i^2$$

Both variance measures can be annualized as:

(11) $$\sigma_{k,ann}^2(r) = \sigma^2(r) \cdot N$$

3.3.3. VOLATILITY

Once a measure of variance is calculated, the corresponding volatility is obtained by taking its square-root:

(12) $$\sigma(r) = \sqrt{\sigma^2(r)} \text{ and } \sigma_{k,ann}(r) = \sqrt{\sigma_{k,ann}^2(r)}$$

3.4. COVARIANCE

Covariance provides a measure of the co-movements of two statistical variables, or how the two variables move together: it shows the tendency in their linear relationship.

In broad terms, a positive (negative) covariance means that two variables exhibit a similar (different) behavior and tend to move in the same (different) direction(s); the larger the absolute value of covariance, the stronger the relationship.
A covariance of zero means that the observed variables tend to move in an uncoordinated way and expectations on the behavior of the one cannot be derived from the behavior of the other. The interpretation of the magnitude of the metric, however, is made difficult by the fact that covariance values are unbounded.

It is worthwhile to stress what covariance measures, i.e. the strength of the *linear approximation* of the *actual relationship* between two variables: while covariance is a useful aggregated indicator, a scatter plot of the variables can tell much about the nature of the relationship of the variables.

Similarly to variance, covariance can also be calculated including or excluding the drift term of both time-series involved.

Unless differently stated, covariance is calculated including the drift term.

3.4.1. COVARIANCE WITH DRIFT

Given two time-series of k returns $r = [r_1, \dots, r_k]$ for the reference financial instrument and $b = [b_1, \dots, b_k]$ for its benchmark, their sample covariance is given by:

(13) $$cov(r,b) = \frac{1}{k-1} \cdot \sum_{i=1}^{k} (r_i - \bar{r}) \cdot (b_i - \bar{b})$$

3.4.2. COVARIANCE WITHOUT DRIFT

Both drift terms are removed:

(14) $$cov(r,b) = \frac{1}{k-1} \cdot \sum_{i=1}^{k} r_i \cdot b_i$$

Both covariance measures can be annualized as:

(15) $$cov_{k,ann}(r,b) = cov(r,b) \cdot N$$

3.5. CORRELATION

Correlation is a normalized representation of covariance and is bound within the range [-1,1]. The advantages over covariance are that a) correlation metric makes comparison among different variable pairs possible and b) the metric, being bounded, is easier to interpret.

Correlation inherits the caveats of covariance.

3. STATISTICAL CALCULATIONS

Given two time-series of k returns $r = [r_1, \dots, r_k]$ for the reference financial instrument and $b = [b_1, \dots, b_k]$ for its benchmark, their correlation is given by:

(16) $$\rho(r, b) = \frac{cov(r,b)}{\sigma(r) \cdot \sigma(b)}$$

Depending on the arguments' specifications, correlation can be calculated with or without drift, but it is not affected by the use of annualized values.

3.6. TRACKING ERROR

Tracking error gauges how closely a financial instrument tracks its benchmark: this is measured by the volatility of the return differential between the two.

Given two time-series of k returns $r = [r_1, \dots, r_k]$ for the reference financial instrument and $b = [b_1, \dots, b_k]$ for its benchmark, the tracking error is given by the volatility of an instrument's returns in excess of the benchmark's returns:

(17) $$TE(r, b) = \sigma\big(ER(r, b)\big)$$

where:

(18) $ER(r, b) = [ER_1(r_1, b_1), \dots, ER_k(r_k, b_k)]$ and $ER_i(r_i, b_i) = r_i - b_i$.

The annualized tracking error is given by:

(19) $$TE_{k,ann}(r, b) = \sigma_{k,ann}\big(ER(r, b)\big).$$

3.7. DRAWDOWN

Drawdown measures the magnitude of a financial instrument's loss since its last peak. The maximum drawdown, in turn, represents the largest loss suffered by a financial instrument in its history.

Like returns, drawdowns can be calculated in arithmetic or logarithmic form. Unless differently specified, arithmetic form is used.

Let the following ratio be defined:

(20) $$D_j = \frac{p_j}{\max_{t \epsilon [t_i, t_j]} \{p_t\}}$$

3.7.1. ARITHMETIC DRAWDOWN

The arithmetic drawdown is given by:

(21) $$DD_j = D_j - 1$$

3.7.2. LOGARITHMIC DRAWDOWN

The logarithmic drawdown is given by:

(22) $$DD_j = \ln D_j$$

In both cases, the maximum drawdown is given by:

(23) $$MDD_j = \min_{t \leq j}\{DD_t\}$$

3.8. INFORMATION AND SHARPE RATIOS

3.8.1. INFORMATION RATIO

Information ratio measures excess return of a financial instrument over its benchmark, adjusted for the risk and it is obtained as the ratio of the average excess return to the tracking error of the two instruments.

Given two time-series of k returns $r = [r_1, \ldots, r_k]$ for the reference financial instrument and $b = [b_1, \ldots, b_k]$ for its benchmark, the information ratio is given by:

(24) $$IR(r,b) = \frac{\overline{ER}(r,b)}{TE(r,b)}$$

where:

(25) $$\overline{ER} = \frac{1}{k} \cdot \sum_{i=m+1}^{m+k} ER_i(r_i, b_i)$$

and the annualized IR is given by:

(26) $$IR_{k,ann}(r,b) = IR(r,b) \cdot \sqrt{N}$$

3.8.2. SHARPE RATIO

The Sharpe ratio is equivalent to the information ratio, where the benchmark is a risk-free security.

The Sharpe ratio is calculated using a risk-free rate time-series as benchmark. The actual and annualized Sharpe Ratio are calculated as:

(27) $$SR(r,rf) = IR(r,rf)$$

and

(28) $$SR_{k,ann}(r,rf) = IR_{k,ann}(r,rf)$$

with $rf = [rf_1, \dots, rf_k]$.

3.9. BETA

The beta of a financial instrument measures the sensitivity of a financial instrument's returns to the benchmark returns and can be seen as the volatility-adjusted correlation of the two. Equivalently, beta can be obtained as the slope of the Security Market Line in the Capital Asset Pricing Model (where the benchmark is the world portfolio).

Given two time-series of k returns $r = [r_1, \dots, r_k]$ for the reference financial instrument and $b = [b_1, \dots, b_k]$ for its benchmark, the beta of the instrument relative to the benchmark is given by:

(29) $$\beta(r,b) = \frac{cov(r,b)}{\sigma^2(b)} = \frac{\sigma(r)}{\sigma(b)} \cdot \rho(r,b)$$

Depending on the arguments' specifications, beta can be calculated with or without drift, but, as correlation, it is not affected by the use of annualized value.

4.1. GENERAL DEFINITIONS

Parameter	Description
t	Index calculation time t
i	Index constituent i $(i = 1, \dots, n)$
n	Number of constituents in $Index_{R,t}$ at time t
$p_{i,t}$	Close price of index constituent i at time t
$x_{i,t}$	Exchange rate from currency of constituent i to base currency of the index at time t
$q_{i,t}$	Number of shares of index constituent i at time t in the index, adjusted over time to account for any applicable corporate action, as defined in the STOXX Equity Calculation Guide: ➢ **Free-float market capitalization weighted index** The weighting scheme reflects the free-float market share of the index constituents: $q_{i,t} = s_{i,t} \cdot ff_{i,t} \cdot cf_{i,t}$ ➢ **Alternatively weighted index**

4. FUNDAMENTALS CALCULATIONS

The index constituents are weighted proportionally to a metric specific to the index concept, e.g. dividend yield or inverse of volatility:

$$q_{i,t} = wf_{i,t} \cdot cf_{i,t}$$

$s_{i,t}$	Total number of shares of index constituent i at time t
$ff_{i,t}$	Free-float factor of index constituent i at time t
$cf_{i,t}$	Capping factor of index constituent i as deemed valid by STOXX at time t
$wf_{i,t}$	Number of shares of constituent i at time t, reflecting the specific weighting scheme adopted by the index
$ts_{i,t}$	Number of shares of constituent i traded at time t
$EPS_{i,t}$	Earnings per Share of index constituent i at time t
$BV_{i,t}$	Book Value of index constituent i at time t
$CF_{i,t}$	Cash Flow of index constituent i at time t
$Sales_{i,t}$	Revenues from Sales of index constituent i at time t
$Index_{R,t}$	Close level of $Index$ in its variant R at time t. R can take values P, NR and GR respectively for Price, Net Return and Gross Return variant.
D_t	Divisor for $Index_{R,t}$ at time t

4.2. INDEX FUNDAMENTALS

4.2.1.DIVIDEND YIELD

For a Net or Gross Return index, the Dividend Yield is defined as its excess return as compared to the corresponding Price index over the chosen reference time period $[t_1, t_2]$:

(30) $$DY_{NR,[t_1,t_2]} = \frac{Index_{NR,t_2}}{Index_{NR,t_1}} - \frac{Index_{P,t_2}}{Index_{P,t_1}}$$

(31) $$DY_{GR,[t_1,t_2]} = \frac{Index_{GR,t_2}}{Index_{GR,t_1}} - \frac{Index_{P,t_2}}{Index_{P,t_1}}$$

4.2.2.PRICE/EARNINGS RATIO

The Price/Earnings ratio of an index is defined as the ratio between the aggregated market value and the aggregated Earnings per Share of its constituents:

4. FUNDAMENTALS CALCULATIONS

(32) $$PE_t = \frac{\frac{\sum_{i=1}^{n} p_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{D_t}}{\frac{\sum_{i=1}^{n} EPS_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{D_t}} = \frac{\sum_{i=1}^{n} p_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{\sum_{i=1}^{n} EPS_{i,t} \cdot q_{i,t} \cdot x_{i,t}}$$

4.2.3. PRICE/BOOK VALUE RATIO

The Price/Book Value ratio of an index is defined as the ratio between the aggregated market value and the aggregated Book Value of its constituents:

(33) $$PB_t = \frac{\frac{\sum_{i=1}^{n} p_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{D_t}}{\frac{\sum_{i=1}^{n} BV_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{D_t}} = \frac{\sum_{i=1}^{n} p_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{\sum_{i=1}^{n} BV_{i,t} \cdot q_{i,t} \cdot x_{i,t}}$$

4.2.4. PRICE/CASHFLOW RATIO

The Price/Cash Flow ratio of an index is defined as the ratio between the aggregated market value and the aggregated Cash Flow of its constituents:

(34) $$PCF_t = \frac{\frac{\sum_{i=1}^{n} p_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{D_t}}{\frac{\sum_{i=1}^{n} CF_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{D_t}} = \frac{\sum_{i=1}^{n} p_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{\sum_{i=1}^{n} CF_{i,t} \cdot q_{i,t} \cdot x_{i,t}}$$

4.2.5. PRICE/SALES RATIO

The Price/Sales ratio of an index is defined as the ratio between the aggregated market value and the aggregated Revenues of its constituents:

(35) $$PS_t = \frac{\frac{\sum_{i=1}^{n} p_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{D_t}}{\frac{\sum_{i=1}^{n} Sales_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{D_t}} = \frac{\sum_{i=1}^{n} p_{i,t} \cdot q_{i,t} \cdot x_{i,t}}{\sum_{i=1}^{n} Sales_{i,t} \cdot q_{i,t} \cdot x_{i,t}}$$

4.3. SECURITY AVERAGE DAILY TRADED VALUE (ADTV)

The Average Daily Traded Value represents the value of trades executed on an average day in a reference time period for a certain security.

Security ADTVs are processed by country.
For each security i belonging to the observed country c, all prices and traded quantities available during the selected calendar period are taken: this may lead to a different number N_i of total records per each security i.
To simplify the identification of non-trading days, for each security the number $NrNull_i$ of null records is counted; then an adjustment factor for non-trading days is calculated for each country c as:

(36) $$NTD\_adj_c = \min_{i \in c}\{NrNull_i\}$$

Consequently, the ADTV for security i belonging to country c is calculated as:

4. FUNDAMENTALS CALCULATIONS

(37) $$ADTV_{i\in c,\left[t_1,t_{N_i}\right]} = \frac{\sum_{t=t_1}^{t_{N_i}} p_{i,t} \cdot ts_{i,t} \cdot x_{i,t}}{N_i - NTD\_adj_{c\ni i}}$$

4.4. TURNOVER

The turnover of an index indicates what portion of it is bought or sold over a certain period, following rebalancing events: it can thus be seen as a gauge of the amount of trading needed to replicate that index.

STOXX provides an annualized one-way turnover measure, based on quarterly data, i.e. on the quarterly Review events.
For a given index, the turnover for a given Review event is calculated as follows:

1. take the index composition list valid for the close of the index Review Implementation date $(\text{quarter } Q-1)$
2. take the index composition list valid for the open of the index Review Effective date $(\text{quarter } Q)$
3. create a pool of the securities from both composition lists
4. for each security i, calculate the weight change – in absolute terms – between the two compositions:

   (38) $$TO_{i,Q} = \frac{\left|w_{i,open,Q} - w_{i,close,Q-1}\right|}{2}$$

5. calculate the index turnover as sum of all turnovers of the n securities in the index:

   (39) $$TO_{index,Q} = \sum_{i=1}^{n} TO_{i,Q}$$

6. the annualized turnover is then given by:

   (40) $$TO_{index,ann} = \frac{4}{q'+1} \cdot \sum_{q=0}^{q'} TO_{index,Q-q}$$

   where q′ is the number of preceding quarterly data available and is capped to 3.

   If $q' = 0$, no annualized turnover is provided.

5. 12 MONTHS HISTORICAL DIVIDENDS PER SHARE (DPS) CALCULATION

5.1. GENERAL DEFINITIONS

STOXX calculates the 12 months dividends per share figure within a time frame of one year prior to the review cut-off date and considers gross ordinary dividends with an official dividend ex-date within this time frame.

Dividend consideration
Ordinary dividends are defined as those paid from regular profit or accumulated earnings. Ordinary dividends include Cash Dividends, Cash with Stock alternative dividends and Stock with Cash alternative dividends.
Capital returns paid from the company's share capital or capital reserves and variable ordinary dividends are included in the calculation of the historical dividend per share.
Special dividends are not considered. As stated in the STOXX Calculation Guide, special dividends are defined as dividends which are outside the scope of the regular dividend policy or that the company defines as an extraordinary distribution.

Dividend period
If a company follows a regular dividend policy and a regular payment has a dividend ex-date outside of the time frame of one year prior to the review cut-off date (see case 1), STOXX may extend the cut-off date up to one month from the last ex-date into the future to include such dividends. The extension of the time frame is applied in order to prevent a regular dividend payment being excluded from the historical dividend per share calculation due to a minor shift in the payment schedule (see case 2 and 3). However, this extension of the time frame is not applied to companies with no dividend history.
If a company started to pay dividends within the time frame of one year prior to the review cut-off date for the first time, only those dividends with an ex-date within this time frame are considered for the historical DPS (see case 4 and 5). No annualization of the dividend amount is performed, irrespective of the dividend frequency. However, this rule does not apply for US and Canadian securities where a different annualization treatment is applied.

US and Canadian companies
For US and Canadian companies, the regular dividend payments are annualized by multiplying the latest dividend payment by the frequency of the regular payments (see case 6). This calculation approach takes into account the regularity of the dividend payments in the US and Canadian market. Irregular and variable payments with a dividend ex-date within the time frame of one year prior to the review cut-off date are not annualized but added to the DPS calculation (see case 7 and 8).

Dividend cancellations
In case of a cancellation of a future dividend announced prior to the review cut-off date, dividends already paid with an ex-date within the time frame of one year prior to the review cut-off date are included in the calculation of the historical DPS (see case 10). However, for companies with an annual dividend payment frequency, the previous annual dividend is not included (see case 9).

5. 12 MONTHS HISTORICAL DIVIDENDS PER SHARE (DPS) CALCULATION

Dividend frequency change
If the dividend payment frequency changes, only dividends with an official dividend ex-date within a time frame of one year prior to the review cut-off date are considered. An example may be when the dividend payment frequency changes from annual to semi-annual. In this case, STOXX calculates the historical dividend per share by only considering the annual dividend amount if no semi-annual dividend amount with a dividend ex-date within the time frame is observed. If the dividend ex-dates of the previous annual dividend and the semi-annual dividend are within the time frame, the annual dividend amount is divided by the new payment frequency and added to the semi-annual dividend amount (see cases 12-16).

5.2. 12 MONTHS HISTORICAL DIVIDEND YIELD CALCULATION

The 12 months historical dividends per share is used for the calculation of the dividend yield as defined by the following formula:

$$12M\ Gross\ (Net)\ Dividend\ Yield_t = \frac{12M\ Historical\ Gross\ (Net)\ DPS_t\ /\ FXrateDividend_t}{PricePerShare_t /\ FXrate_t}$$

Where:

- t is the review cut-off date which is the last dissemination day of the month preceding the review month.

- $12M\ Gross\ (Net)\ Historical\ DPS_t$ is the historical gross (net) dividend per share calculated at time t.

- $FXrateDividend_t$ is the FX rate of the dividend currency of a security vs EUR at time t.

- $PricePerShare_t$ is the closing share price of the security at time t.

- $FXrate_t$ is the FX rate of the price currency of a security vs EUR at time t.

The 12M historical gross dividend yield is calculated before any applicable withholding tax.

The 12M gross dividend yield is adjusted for corporate actions. The yield is calculated based on the adjusted 12M historical DPS and the adjusted review cut-off price at time t.

The FX rates are based of the WMR Closing Spot rates (4 p.m. UK time).

5.3. 12 MONTHS HISTORICAL DIVIDENDS PER SHARE CALCULATION EXAMPLES

The examples listed below provide guidance on how STOXX calculates the 12 months historical dividends per share (DPS). The 12 months historical DPS data is used in the calculation of the 12 months historical dividend yield.

5. 12 MONTHS HISTORICAL DIVIDENDS PER SHARE (DPS) CALCULATION

Examples of the 12 Months Dividends per Share calculation

The DPS computation relies on the payment frequency and the time frame of one year prior to the review cut-off date. Within this timeframe, individual payments are aggregated based on the frequency defined by the issuer. The calculation methodology mainly differs between US and Canadian securities and Non - US/Canadian securities. All examples displayed below are related to the review cut-off date Friday, 30th of May 2025. The 12M historical DPS is calculated based on the gross dividends of a security before any applicable withholding tax rate.

Case 1: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **0.15 + 0.15 = 0.3 EUR / Net DPS: 0.1215 + 0.1215 = 0.243 EUR**

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company A	ES	12.12.2023	0.13	0.1053	EUR	SEMI_ANNUAL
Company A	ES	18.06.2024	0.15	0.1215	EUR	SEMI_ANNUAL
Company A	ES	17.12.2024	0.15	0.1215	EUR	SEMI_ANNUAL
Company A	ES	05.06.2025	0.17	0.1377	EUR	SEMI_ANNUAL
Case 1 Example						

Case 2: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **0.15 + 0.17 = 0.32 EUR / Net DPS: 0.1215 + 0.1377 = 0.2592 EUR**

The latest payment with a dividend ex-date after the review cut-off date is included in the computation of the 12M historical DPS, as the company follows a regular dividend payment schedule. The extension is limited to one month in the future and includes a time window of 13 months based on the dividend ex-date of the previous year. In this example time window is extended to 25th June 2025.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company B	ES	12.12.2023	0.13	0.1053	EUR	SEMI_ANNUAL
Company B	ES	25.05.2024	0.15	0.1215	EUR	SEMI_ANNUAL
Company B	ES	17.12.2024	0.15	0.1215	EUR	SEMI_ANNUAL
Company B	ES	05.06.2025	0.17	0.1377	EUR	SEMI_ANNUAL
Case 2 Example						

Case 3: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **0.15 = 0.15 EUR / Net DPS: 0.1215 = 0.1215 EUR**

The latest payment with a dividend ex-date after the review cut-off date is not included in the computation of the 12M historical DPS, as the future dividend payment has a dividend ex-date outside of the extended time window of 13 months based on the dividend ex-date of the previous year. In this example time window is extended to 25th June 2025.

5. 12 MONTHS HISTORICAL DIVIDENDS PER SHARE (DPS) CALCULATION

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company C	ES	12.12.2023	0.13	0.1053	EUR	SEMI_ANNUAL
Company C	ES	25.05.2024	0.15	0.1215	EUR	SEMI_ANNUAL
Company C	ES	17.12.2024	0.15	0.1215	EUR	SEMI_ANNUAL
Company C	ES	02.07.2025	0.17	0.1377	EUR	SEMI_ANNUAL
Case 3 Example						

Case 4: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **0.8 + 0.8 + 0.82 = 2.42 EUR / Net DPS: 0.68 + 0.68 + 0.697 = 2.057 EUR**

If a company started to pay dividends recently or omitted dividend payments during the previous year, only payments within the time frame of one year prior to the review cut-off date are included in the computation of the 12 months historical DPS irrespective of the dividend frequency. The time frame will not be extended.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company D	NL	02.08.2024	0.8	0.68	EUR	QUARTERLY
Company D	NL	20.11.2024	0.8	0.68	EUR	QUARTERLY
Company D	NL	03.03.2025	0.82	0.697	EUR	QUARTERLY
Case 4 Example						

Case 5: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows**: 0.8 + 0.8 + 0.82 = 2.42 EUR / Net DPS: 0.68 + 0.68 + 0.697 = 2.057 EUR**

If a company started to pay dividends recently, only the payments within the time frame of one year prior to the review cut-off date are included in the computation of the 12 months historical DPS irrespective of the dividend frequency. The time window is not extended due to incomplete dividend history.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company E	NL	02.08.2024	0.8	0.68	EUR	QUARTERLY
Company E	NL	20.11.2024	0.8	0.68	EUR	QUARTERLY
Company E	NL	03.03.2025	0.82	0.697	EUR	QUARTERLY
Company E	NL	04.06.2025	0.82	0.697	EUR	QUARTERLY
Case 5 Example						

5. 12 MONTHS HISTORICAL DIVIDENDS PER SHARE (DPS) CALCULATION

Examples of the 12 Months Dividends per Share Calculation of US and Canadian Securities

Case 6: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **0.7* 4 = 2.8 USD / Net DPS: 0.49*4 = 1.96 USD**

For US and Canadian securities, regular dividend payments are annualized by multiplying the latest dividend payment by the dividend frequency.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company F	US	15.05.2024	0.6	0.42	USD	QUARTERLY
Company F	US	15.08.2024	0.6	0.42	USD	QUARTERLY
Company F	US	21.11.2024	0.6	0.42	USD	QUARTERLY
Company F	US	20.02.2025	0.7	0.49	USD	QUARTERLY
Company F	US	23.05.2025	0.7	0.49	USD	QUARTERLY
Company F	US	14.08.2025	0.7	0.49	USD	QUARTERLY
Case 6 Example						

Case 7: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **0.7* 4 + 1.8 = 4.6 USD / Net DPS: 0.49*4 + 1.26 = 3.22 USD**

For US and Canadian securities, regular dividend payments are annualized by multiplying the latest dividend payment by the dividend frequency. Variable and irregular payments paid by the company within a time frame of one year prior to the review cut-off date are summed up in addition to the annualized regular DPS.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company G	US	15.05.2024	0.6	0.42	USD	QUARTERLY
Company G	US	15.08.2024	0.6	0.42	USD	QUARTERLY
Company G	US	21.11.2024	0.6	0.42	USD	QUARTERLY
Company G	US	20.02.2025	2.5*	1.75	USD	QUARTERLY
Company G	US	23.05.2025	0.7	0.49	USD	QUARTERLY
Company G	US	14.08.2025	0.7	0.49	USD	QUARTERLY
Case 7 Example *Regular gross dividend of USD 0.7 and variable Gross dividend of USD 1.8						

Case 8: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **0.7*4 + 1.8 + 0.9 = 5.5 USD / Net DPS: 0.49*4 + 1.26 + 0.63 = 3.85 USD**

For US and Canadian securities, regular dividend payments are annualized by multiplying the latest dividend payment by the dividend frequency. Variable and irregular payments paid by the company within a time frame of one year prior to the review cut-off date are summed up in addition to the annualized regular DPS.

5. 12 MONTHS HISTORICAL DIVIDENDS PER SHARE (DPS) CALCULATION

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company H	US	15.05.2024	0.6	0.42	USD	QUARTERLY
Company H	US	15.08.2024	1.5*	1.05	USD	QUARTERLY
Company H	US	21.11.2024	0.6	0.42	USD	QUARTERLY
Company H	US	20.02.2025	2.5**	1.75	USD	QUARTERLY
Company H	US	23.05.2025	0.7	0.49	USD	QUARTERLY
Company H	US	14.08.2025	1.8***	1.26	USD	QUARTERLY

Case 8 Example
*Regular gross dividend of USD 0.7 and variable gross dividend of USD 0.9
**Regular gross dividend of USD 0.7 and variable gross dividend of USD 1.8
***Regular gross dividend of USD 0.7 and variable gross dividend of USD 1.10

Examples of the 12 Months Dividends per Share Calculation in case of Dividend Cancellation

Case 9: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **0 EUR / Net DPS: 0 EUR**

In case of cancellation of a future dividend announced prior to the review cut-off date, the previous annual dividend within a time frame of one year prior to the review cut-off date is not included in the calculation of the 12M historical DPS.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company I	FI	12.06.2023	3.5	2.275	EUR	ANNUAL
Company I	FI	18.06.2024	4	2.6	EUR	ANNUAL
Company I	FI	13.06.2025	4.2*	2.73*	EUR	ANNUAL

Case 9 Example
* Gross dividend of EUR 4.2 is cancelled

Case 10: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **0.8 + 0.8 + 0.82 = 2.42 EUR / Net DPS: 0.68 + 0.68 + 0.697 = 2.057 EUR**
In case of a cancellation of a future dividend announced prior to the review cut-off date, dividends with an ex-date within one year prior to the review cut-off date are included in the calculation of the 12M historical DPS.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company J	NL	02.09.2024	0.8	0.68	EUR	QUARTERLY
Company J	NL	04.12.2024	0.8	0.68	EUR	QUARTERLY
Company J	NL	03.03.2025	0.82	0.697	EUR	QUARTERLY
Company J	NL	03.06.2025	0.82*	0.697*	EUR	QUARTERLY

Case 10 Example
* Gross dividend of EUR 0.82 is cancelled

5. 12 MONTHS HISTORICAL DIVIDENDS PER SHARE (DPS) CALCULATION

Case 11: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **0 USD / Net DPS: 0 USD**

For US and Canadian securities, regular dividend payments are annualized. In case the latest dividend payment is cancelled, and the cancellation is announced prior to the review cut-off date, the 12M historical DPS is calculated as 0.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company K	US	15.05.2024	0.6	0.42	USD	QUARTERLY
Company K	US	15.08.2024	0.6	0.42	USD	QUARTERLY
Company K	US	21.11.2024	0.6	0.42	USD	QUARTERLY
Company K	US	20.02.2025	0.7	0.49	USD	QUARTERLY
Company K	US	23.05.2025	0.7	0.49	USD	QUARTERLY
Company K	US	14.08.2025	0.7*	0.49 *	USD	QUARTERLY
Case 11 Example * Gross dividend of USD 0.7 is cancelled						

Examples of the 12 Months Dividends per Share Calculation in case of Dividend Frequency Changes

Case 12: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **(2.9/2) + 1.2 = 2.65 EUR / Net DPS: (2.349/2) + 0.972 = 2.1465 EUR**

If the company changes the dividend payment frequency, only dividends with an ex-date one year prior to the review cut-off date are included in the calculation of the historical 12M DPS. The annual dividend amount is divided by the new payment frequency and summed up with the latest semi-annual payment within the time frame of one year prior to the review cut-off date.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company L	ES	12.12.2022	2.5	2.025	EUR	ANNUAL
Company L	ES	14.12.2023	2.6	2.106	EUR	ANNUAL
Company L	ES	10.12.2024	2.9	2.349	EUR	ANNUAL
Company L	ES	18.05.2025	1.2	0.972	EUR	SEMI_ANNUAL
Case 12 Example						

Case 13: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **(2.9/4) * 3 + 0.8 = 2.975 EUR / Net DPS: (2.349/4) * 3 + 0.648 = 2.40975 EUR**

If the company changes the dividend payment frequency, only dividends with an ex-date one year prior to the review cut-off date are included in the calculation of the historical 12M DPS. The annual dividend amount is divided by the new payment frequency and summed up with the latest quarterly payment within the time frame of one year prior to the review cut-off date.

5. 12 MONTHS HISTORICAL DIVIDENDS PER SHARE (DPS) CALCULATION

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company M	ES	12.12.2022	2.5	2.025	EUR	ANNUAL
Company M	ES	14.12.2023	2.6	2.106	EUR	ANNUAL
Company M	ES	10.12.2024	2.9	2.349	EUR	ANNUAL
Company M	ES	21.03.2025	0.8	0.648	EUR	QUARTERLY
Company M	ES	19.06.2025	0.8	0.648	EUR	QUARTERLY
Case 13 Example						

Case 14: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **(2.9/4) * 2 + 0.8 + 0.8 = 3.05 EUR / Net DPS: (2.349/4) * 2 + 0.648 + 0.648 = 2.4705 EUR**

If the company changes the dividend payment frequency, only dividends with an ex-date one year prior to the review cut-off date are included in the calculation of the historical 12M DPS. The annual dividend amount is divided by the new payment frequency and summed up with the latest quarterly payments within the time frame of one year prior to the review cut-off date.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company N	ES	12.12.2022	2.5	2.025	EUR	ANNUAL
Company N	ES	14.12.2023	2.6	2.106	EUR	ANNUAL
Company N	ES	10.12.2024	2.9	2.349	EUR	ANNUAL
Company N	ES	21.03.2025	0.8	0.648	EUR	QUARTERLY
Company N	ES	29.05.2025	0.8	0.648	EUR	QUARTERLY
Case 14 Example						

Case 15: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **5 EUR /Net DPS: 4.05 EUR**

If the company changes the dividend payment frequency, only dividends with an ex-date one year prior to the review cut-off date are included in the calculation of the historical 12M DPS. Only the latest annual dividend amount within the time frame of one year prior to the review cut-off date is considered for the 12M historical DPS.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company O	ES	12.12.2023	1.2	0.972	EUR	QUARTERLY
Company O	ES	02.04.2024	1.2	0.972	EUR	QUARTERLY
Company O	ES	07.06.2024	1.2	0.972	EUR	QUARTERLY
Company O	ES	28.05.2025	5	4.05	EUR	ANNUAL
Case 15 Example						

5. 12 MONTHS HISTORICAL DIVIDENDS PER SHARE (DPS) CALCULATION

Case 16: Based on the dividend payment schedule as shown on the table below, the 12M historical gross DPS is computed as follows: **1.2 + 1.2 + 3 = 5.4 EUR / Net DPS: 0.972 + 0.972 + 2.43 = 4.374 EUR**

If the company changes the dividend payment frequency, only dividends with an ex-date one year prior to the review cut-off date are included in the calculation of the historical 12M DPS. The two latest quarterly dividends within the timeframe and the semi-annual are summed up within the time frame of one year prior to the review cut-off date.

Instrument_Name	Country	ExDate	Gross_Dividend	Net_Dividend	Div_Currency	Div_Frequency
Company P	ES	02.04.2024	1.2	0.972	EUR	QUARTERLY
Company P	ES	07.06.2024	1.2	0.972	EUR	QUARTERLY
Company P	ES	02.09.2024	1.2	0.972	EUR	QUARTERLY
Company P	ES	10.12.2024	1.2	0.972	EUR	QUARTERLY
Company P	ES	18.05.2025	3	2.43	EUR	SEMI_ANNUAL
Case 16 Example						