

# THOMSON REUTERS CORPORATE RESPONSIBILITY INDICES INDEX METHODOLOGY

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THOMSON REUTERS

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# Thomson Reuters Corporate Responsibility Indices (TRCRI)

## I. General Description

The Thomson Reuters Corporate Responsibility Indices (TRCRI) are a family of indices based on the Thomson Reuters Corporate Responsibility Scores (“TRCRS”), a rating system that evaluates the environmental, social and corporate governance practices of approximately 4,600 companies worldwide.

The current index family includes:

### **Thomson Reuters Corporate Responsibility US Large Cap ESG Index (TRESGUS)**

The Thomson Reuters CRI US Large Cap Environmental Index (TRENVUS)

The Thomson Reuters CRI US Large Cap Social Index (TRSCUS)

The Thomson Reuters CRI US Large Cap Governance Index (TRCGVUS)

### **Thomson Reuters Corporate Responsibility Developed Markets (ex-US) ESG Index (TRESGDX)**

The Thomson Reuters CRI Developed Markets (ex-US) Environmental Index (TRENVDX)

The Thomson Reuters CRI Developed Markets (ex-US) Social Index (TRSCDX)

The Thomson Reuters CRI Developed Markets (ex-US) Governance Index (TRCGVDX)

### **Thomson Reuters Corporate Responsibility Europe ESG Index (TRESGEU)**

The Thomson Reuters CRI Europe Markets Environmental Index (TRENVEU)

The Thomson Reuters CRI Europe Markets Social Index (TRSCUEU)

The Thomson Reuters CRI Europe Markets Governance Index (TRCGVEU)

Each index is derived from an underlying index published by S-Network Global Indexes that is defined by the relevant region and capitalization sector (the “Underlying Indices”). The Thomson Reuters Corporate Responsibility Indices are constructed to be sector-neutral to their underlying indices. They are also constructed to have consistently higher ratings as measured by the TRCRS.

Using the TRCRS derived from the ASSET4 database, we include half of the companies from each of the ten Thomson Reuters Business Classification (TRBC) sectors in the Underlying Indices. Companies which have the highest TRCRS in the relevant category are selected for inclusion in the relevant TRCRI. Eligible stocks are weighted within each sector based on a combination of their float/market capitalization and their TRCRS. Company weights within each sector are then modified by the sector weight of the underlying Index.

The indices are reconstituted annually on the third Friday of December and rebalanced quarterly on the third Friday of the last month of each calendar quarter.



## **II. The Index Committee**

The Thomson Reuters Corporate Responsibility Index Committee (“The Committee”) will be composed of not less than five members. The Committee Chairman will have extensive experience with expertise in international equity markets. The other members will have experience in financial markets, indices, financial products and/or socially responsible investing.

The Committee will be responsible for overseeing the activities of the compilation and calculation agents and approving all changes to the index related to its annual reconstitution and quarterly rebalancings.

The Committee will meet quarterly, either in person or via teleconference, to discuss index issues and organize the annual reconstitution and quarterly rebalancings.

The composition of the Committee may from time to time be changed to reflect changes in market conditions.

All members of the index committee and their advisors shall comply with the Thomson Reuters and S-Network Global Indexes code of conduct and ethics with respect to the disclosure and use of material non-public information.

## **III. Index Value at Inception**

All Thomson Reuters Corporate Responsibility Price Indices had values on their inception dates of December 31, 2007 of 1000.

The TRCRI are also calculated on Total Return and Net Total Return bases.

## **IV. Eligibility Criteria for S-Network 500 US Large Cap Index (SN500)**

The SN500 universe includes stocks whose domiciles and primary exchange listings are in the United States of America. It is compiled according to the following methodology:

- i. Identify the 500 largest capitalization stocks in the US, after removing duplicate and secondary listings, as well as Closed End Funds, MLPs and companies organized under similar structures,
- ii. Weight eligible companies based on float market capitalization.

## **V. Eligibility Criteria and Weighting for Thomson Reuters Corporate Responsibility US Large Cap Indices**

Only stocks that are current constituents of the SN500 index as of the last trading day of the second month of each calendar quarter (“the snapshot date”) are eligible for inclusion in the Thomson Reuters Corporate Responsibility US Large Cap Indices. Half of the numbers of stocks in each of the ten TRBC sectors with the highest applicable ratings as of the last trading day of November are selected for inclusion.

All stocks selected for inclusion are weighted on a hybrid basis. Fifty percent of the weight assigned to each stock within a sector is based on float market capitalization and fifty percent of the weight assigned to each stock within a sector is based on the stocks relevant rating. Weights of stocks within each sector are then modified by the sectors weights of the SN500



index. Share weights will be based on prices as of the close of trading on the second Friday of the rebalancing month (“The Record Date”).

## **VI. Eligibility Criteria for S-Network Developed Markets (ex-US) Index (SNDMI)**

The SNDMI universe includes stocks whose domiciles and primary exchange listings are in countries identified by the World Bank as High Income Countries, and excludes stocks from countries a) located in the Americas, b) that do not have stock exchanges or open stock exchange structures, and c) were members of the former Comecon. It is compiled according to the following methodology:

- iii. Compile securities from aforementioned country list,
- iv. Identify primary listings and remove duplicate and secondary listings,
- v. Sort active securities descending by full Market Capitalization to derive market capitalization percentile,
- vi. Remove securities below 99%,
- vii. Capture 70% of total float market capitalization of each country contained in the universe. Companies are added to the country universe successively, starting with the company with the largest market capitalization in the country. Companies are added to the country universe in descending order based on their float market capitalization until the total float market capitalization of the companies added to the country equals at least 70% of the total country float market capitalization,
- viii. Weight eligible companies based on float market capitalization

## **VII. Eligibility Criteria and Weighting for the Thomson Reuters Corporate Responsibility Developed Markets (ex-US) Indices**

Only stocks that are current constituents of the SNDMI index as of the last trading day of the second month of each calendar quarter (“the snapshot date”) are eligible for inclusion in the Thomson Reuters Corporate Responsibility Developed Markets (ex US) Indices. Half of the numbers of stocks in each of the ten TRBC sectors with the highest applicable ratings as of the last trading day of November are selected for inclusion.

All stocks selected for inclusion in the indices are weighted on a hybrid basis. Fifty percent of the weight assigned to each stock within a sector is based on float market capitalization and fifty percent of the weight assigned to each stock within a sector is based on the stocks relevant rating. Weights of stocks within each sector are then modified by the sector weights of the SNDMI index. Share weights will be based on prices as of the close of trading on the second Friday of the rebalancing month (“The Record Date”).

## **VIII. Eligibility Criteria for S-Network Europe 500 Large Cap Index (SNE500)**

The SNE500 universe includes stocks whose domiciles and primary exchange listings are in Europe. It is compiled according to the following methodology:

- i. Identify the 500 largest capitalization stocks in Europe, after removing duplicate and secondary listings, as well as Closed End Funds, MLPs and companies organized under similar structures,
- ii. Weight eligible companies based on float market capitalization.



## **IX. Eligibility Criteria and Weighting for Thomson Reuters Corporate Responsibility Europe ESG Indices**

Only stocks that are current constituents of the SNE500 index as of the last trading day of the second month of each calendar quarter (“the snapshot date”) are eligible for inclusion in the Thomson Reuters Corporate Responsibility Europe ESG Indices. Half of the numbers of stocks in each of the ten TRBC sectors with the highest applicable ratings as of the last trading day of November are selected for inclusion.

All stocks selected for inclusion are weighted on a hybrid basis. Fifty percent of the weight assigned to each stock within a sector is based on float market capitalization and fifty percent of the weight assigned to each stock within a sector is based on the stocks relevant rating. Weights of stocks within each sector are then modified by the sectors weights of the SNE500 index. Share weights will be based on prices as of the close of trading on the second Friday of the rebalancing month (“The Record Date”).

## **X. Rules for Reconstitutions, Rebalances, and Index Changes**

The Thomson Reuters Corporate Responsibility Indices are calculated by Thomson Reuters PLC. (“The Calculation Agent”). The Calculation Agent is also responsible for index maintenance and price dissemination. The calculation, maintenance and dissemination rules are as follows:

**Index Rebalancings.** The Thomson Reuters Corporate Responsibility Indices are rebalanced quarterly on the third Friday of the last month of each calendar quarter. Index changes take place at each rebalancing date (the third Friday of the last month of each calendar quarter).

**Index Reconstitutions.** The Thomson Reuters Corporate Responsibility Indices are reconstituted annually on the third Friday of December.

**Additions and Deletions.** Additions and Deletions to the Indices are made 1) at the close of trading on the annual reconstitution date (third Friday of December) and 2) in the event of the deletion of a constituent stock due to a corporate action. When a stock is deleted, a replacement will be added on the next rebalancing date.

Deletions are made at any time, in the event a stock is liquidated, de-listed, files for bankruptcy, is acquired, merges with another stock, or if, in the opinion of the Index Committee, 1) the stock represents excessive risk due to pending regulatory or similar legal action or 2) the stock is subject to extreme events having a material impact on its status in one or more of the ESG pillars. Upon deletion, the weight of the removed stock is reallocated proportionately to the remaining constituents. Additions/replacements are made only upon the effective date of the quarterly rebalancing.

**Index Changes.** Changes to the indices due to corporate actions, such as mergers, acquisitions, and de-listings, are applied on the effective date of the action, unless otherwise determined by the Index Committee. Whenever possible, changes will be announced at least two business days prior to their implementation.



## **XI. Roles of Parties in the Quarterly Rebalance**

- i) On the first Friday of the rebalancing month, the Compilation Agent shall provide the Committee, or its designee, with a list of constituents for the Thomson Reuters Corporate Responsibility Indices.
- ii) The Committee shall approve or reject the changes and notify the calculation agent of its decisions not later than the Tuesday following the first Friday of the rebalancing month.
- iii) Not later than the Tuesday following the first Friday of the rebalancing month, the Index Committee or its designee will issue a press release announcing additions and deletions to the TRCRI. The press release will be posted on the TRCRI web site.
- iv) The Compilation Agent will provide final share weights to the Committee or its designee on the Monday following the second Friday of the rebalancing month. Share weights will be based on prices as of the close of trading on the second Friday of the rebalancing month (“the record date”).
- v) The Index Committee or its designee will approve the final share weights prior to the close of US markets on the next business day and will distribute this information to the Calculation Agent and all TRCRI licensees.
- vi) The effective date of the rebalancing will be on the close of business on the third Friday of the last month of each calendar quarter. The Compilation Agent will post all final rebalancing data and information on its FTP server prior to the open on the next business day following the rebalancing date.
- vii) TRCRI will post all rebalancing data on its website prior to the open on the next business day following the rebalancing date.

## **XII. Roles of Parties in the Annual Reconstitution**

- i) The Compilation Agent will submit to the Calculation Agent an updated version of the S-Network SNDMI universe not later than last business day of the month prior to the reconstitution month.
- ii) The Compilation Agent will screen the constituents of the universe to identify the stocks in each sector with the TRCRS as of the close of trading the snapshot date.
- iii) On the first Friday of December, the Compilation Agent shall provide the Committee, or its designee, with a list of constituents for the TRCRI.
- iv) The Committee shall approve or reject the changes and notify the calculation agent of its decisions not later than the Tuesday following the first Friday of December.
- v) Not later than the Tuesday following the first Friday of December, the Index Committee or its designee will issue a press release announcing additions and deletions to TRCRI. The press release will be posted on the TRCRI web site.



- vi) The Compilation Agent will provide final share weights to the Committee or its designee on the Monday following the second Friday of December. Share weights will be based on prices as of the close of trading on the second Friday of December (“the record date”).
- vii) The TRCRI Index Committee or its designee will approve the final share weights prior to the close of US markets on the next business day and will distribute this information to the Calculation Agent and all TRCRI licensees.
- viii) The effective date of the reconstitution will be on the close of business on the third Friday of December. The Compilation Agent will post all final rebalancing data and information on its FTP server prior to the open on the next business day following the reconstitution date.
- ix) TRCRI will post all reconstitution data on its website prior to the open on the next business day following the reconstitution date.

### **XIII. Calculation of Index Values**

- i) The Calculation Agent will calculate price-only index values using price data on each reported trade it receives on each component security.
- ii) The Calculation Agent will distribute index values to vendors via the New York Stock Exchange Global Index Feed at set 15-second intervals.
- iii) The index calculations will start each trading day at 7:00PM (EST - US) (opening price) and will cease calculation each trading day at approximately 4:30PM (EST-US) (closing price).
- iv) The Indices will be calculated and disseminated in USD and EUR.
- v) The Calculation Agent will also distribute total return index values immediately following the close of trading on US stock markets on each business day.

### **XIV. Dissemination**

Index values are disseminated in US dollars and Euro via the NYSE:

#### **Price Indices:**

#### **The TRCR US Large Cap ESG Index**

The TRCR US Large Cap Environmental Index  
 The TRCR US Large Cap Social Index  
 The TRCR US Large Cap Governance Index

#### **TRESGUS**

TRENVUS  
 TRSCUS  
 TRCGVUS

#### **The TRCR Developed Markets (ex-United States) ESG Index**

The TRCR Developed Markets (ex-United States) Environmental Index  
 The TRCR Developed Markets (ex-United States) Social Index  
 The TRCR Developed Markets (ex-United States) Governance Index

#### **TRESGDX**

TRENVDX  
 TRSCDX  
 TRCGVDX

#### **The TRCR Europe ESG Index**

The TRCR Europe Environmental Index

#### **TRESGEU**

TRENVEU





The TRCR Europe Social Index  
The TRCR Europe Governance Index

TRSCEU  
TRCGVEU

#### **Total Return Indices:**

##### **The TRCR US Large Cap ESG Index**

The TRCR US Large Cap Environmental Index  
The TRCR US Large Cap Social Index  
The TRCR US Large Cap Governance Index

**TRESGUST**  
TRENVUST  
TRSCUST  
TRCGVUST

##### **The TRCR Developed Markets (ex-United States) ESG Index**

The TRCR Developed Markets (ex-United States) Environmental Index  
The TRCR Developed Markets (ex-United States) Social Index  
The TRCR Developed Markets (ex-United States) Governance Index

**TRESGDXT**  
TRENVDXT  
TRSCDXT  
TRCGVDXT

##### **The TRCR Europe ESG Index**

The TRCR Europe Environmental Index  
The TRCR Europe Social Index  
The TRCR Europe Governance Index

**TRESGEUT**  
TRENVEUT  
TRSCEUT  
TRCGVEUT

Values for the Thomson Reuters Corporate Responsibility Price Indices are distributed in “real-time,” that is, in 15-second snapshots, between approximately 7:00PM (EST) and 4:30PM (EST) Sunday through Friday, excluding US exchange holidays. Values for the Thomson Reuters Total Return Indices are distributed once daily, at approximately 4:30PM (EST), Monday through Friday, excluding exchange holidays.

#### **XV. Ongoing Maintenance**

- i) In addition to the scheduled quarterly reviews, the TRCRI are reviewed on an ongoing basis. Changes in index composition and related weight adjustments are necessary whenever there are extraordinary events such as liquidations, conversions, delistings, bankruptcies, mergers or takeovers involving index components. In these cases, each event will be taken into account on its effective date. Whenever possible, the changes in the index’s components will be announced at least two business days prior to their implementation date.
- ii) Changes of Eligible Securities. In the event that a component no longer meets the eligibility requirements described in Section IV herein, it will be removed from the index on the effective date of the next rebalancing.
- iii) Changes of Sector Classification. Stocks are eligible for inclusion in the TRCRI based on their inclusion in an applicable sector. Mergers, takeovers, and spin-offs, may cause a stock to lose its eligibility. In such a circumstance, the stock will be deleted from the index on the effective date of the next rebalancing. A stock’s classification may also require an immediate change as the result of a special event such as a merger, takeover or spin-off.
- iv) Mergers. If two index constituents merge, the replaced position will be allocated proportionally to surviving constituents. If an index constituent merges with a non-component stock, its component position will be replaced by the new stock, provided



the new stock meets the eligibility criteria for the S-Network SNDMI Universe. If the combined stock fails to meet the eligibility criteria for the universe, it will be deleted from the index unless otherwise determined by the Index Committee. If deleted, the weight of the merged index constituent shall be redistributed proportionately to the remaining constituents in the index.

- v) **Takeovers.** If an index component is taken over by another component stock, the former will be removed from the index immediately upon completion of the takeover. If an index component is taken over by a non-component stock, it will be replaced by the acquiring stock immediately, if the acquiring stock meets the eligibility criteria for the universe. If the acquiring stock does not meet the eligibility criteria for the universe, the weight of the removed stock will be reallocated proportionately to the remaining constituents in the index.
- vi) **Conversions:** If an index component is converted to a non-eligible financial security, it will be deleted from the index 5 business days following the effective date of the conversion and the weight of the removed stock will be reallocated proportionately to the remaining constituents in the index, unless otherwise determined by the Index Committee.
- vii) **Share Offerings, Tenders and Purchases.** All Share Offerings, Tenders and Purchases that result in an increase or decrease of shares will be implemented at the quarterly reconstitution.
- viii) **Removal of Stock from the universe.** If a current component of the TRCRI is removed from the universe it will also be deleted from TRCRI. The weight of the removed stock will be reallocated proportionately to the remaining constituents of the index.
- ix) **Removal of Stocks Due to Delisting, Bankruptcy or Extreme Financial Distress.** If an index constituent is de-listed by its primary market, or is in bankruptcy proceedings, it will be removed from the index.

\* If an index component is de-listed by its primary market due to failure to meet financial or regulatory requirements, it will be removed from the index and its weight will be reallocated to the remaining constituents in the index.

\* If an index component enters bankruptcy proceedings, it will be removed from the index and will remain ineligible for re-inclusion until it has emerged from bankruptcy. However, the Committee may, following a review of the bankrupt company and the issues involved in the filing, decide to keep the stock in the index.

\* The Committee may, at its discretion, remove a stock it has determined to be in extreme financial distress or subject to regulatory action from the TRCRI, if the Committee deems the removal necessary to protect the integrity of the index and the interests of investors in products linked to the index.

- x) **Pricing of Stocks in Extreme Financial Distress for Index Maintenance.**

\* When a stock is suspended from trading due to financial distress and subsequently de-listed by its primary market prior to resumption of trading, the Calculation Agent



will use the best-available alternate pricing source to determine the value at which the stock should be removed from the index.

\* If the stock's primary market price is no longer available due to its suspension or de-listing, a current price from another exchange, such as a regional or electronic marketplace, may be used. In the absence of those prices in the case of U.S. securities, OTC Bulletin Board, OTC Equity (non-OTCBB stocks), and Pink Sheet traded prices could be applied in that order.

\* If neither a traded price nor a bid/asked range is available, the Committee will evaluate the status of the suspended stock. The Committee may consult with managers of portfolios linked to indices in which the stock is a constituent in determining the value of the stock. If the Committee concludes that the security has become worthless or is likely to remain too illiquid to be traded, it will be removed from the index at .01 local currency of the stock.

## XVI. Calculation and Adjustments

### i) Input Data Sources

\* Real-time stock prices are provided by Reuters. The latest trading price is used for index calculation.

\* The number of shares is determined separately for each class of stock. This information is obtained from regulatory filings and a variety of data vendors. The data also may be sourced from the constituent stocks themselves.

\* Corporate actions are sourced from public news services, regulatory filings and data vendors. The constituent stocks themselves may be used as an additional source.

### ii) Index Formula. The TRCRI are calculated using a Laspeyres formula. This formula is used for the calculation of the return index and the price index. The only difference is that the divisor $D_t$ is different for the two indices (return index and price index).

The index is computed as follows:

$$\text{Index}_t = \frac{\sum_{i=1}^n (p_{it} \times q_{it} \times r_{it} \times f_{it})}{C_t \times \sum_{i=1}^n (p_{i0} \times q_{i0} \times r_{i0} \times f_{i0})} \times \text{Base Index Value} = \frac{M_t}{B_t} \times \text{Base Index Value}$$

The above mentioned formula can be simplified as:  $\text{Index}_t = \frac{M_t}{D_t}$

Where:



$D_t$	=	$\frac{B_t}{\text{base index value}}$	= divisor at time (t)
$n$	=		the number of stocks in the index
$P_{i0}$	=		the closing price of stock i at the base date
$q_{i0}$	=		the number of shares of stock i at the base date
$r_{i0}$	=		the exchange rate from local currency to USD at the base date
$f_{i0}$	=		the float factor of company i at the base date
$P_{it}$	=		the price of stock i at time (t)
$q_{it}$	=		the number of shares of stock i at time (t)
$r_{it}$	=		the exchange rate from local currency to USD at time (t)
$f_{it}$	=		the float factor of company i at time (t)
$C_t$	=		the adjustment factor for the base date market capitalization
$t$	=		the time the index is computed
$M_t$	=		market capitalization of the index at time (t)
$B_t$	=		adjusted base date market capitalization of the index at time (t)

Dividend payments are not taken into account in the price indices, whereas dividend payments are reinvested in the index constituents of the total return index on a proportional basis. The adjustment protects the indices from the effects of changes in index composition and the impact of corporate actions.

- iii) Divisor Adjustments. Corporate actions affect the share capital of component stocks and therefore trigger increases or decreases in the index. To avoid distortion, the divisor of the index is adjusted accordingly.
- iv) Changes in the index's market capitalization due to changes in the composition (additions, deletions or replacements), weighting (following quarterly reviews, corporate actions (mergers, or special cash or stock distributions of other stocks) result in a divisor change to maintain the index's continuity. By adjusting the divisor, the index value retains its continuity before and after the event. For rights offerings, the Calculation Agent will price the rights during the subscription period, not before or after. Alternatively, the Calculation Agent may start pricing the rights after the ex-date and before the subscription period, under the condition that the rights are priced daily.

\* Formulae for Divisor Adjustment. The following formulae will be used for divisor adjustments. (Note: No divisor adjustments are necessary for stock splits, since market capitalization does not change and the share number and share price are adjusted prior to the opening of trading on the split's ex-date.)

$$D_{t+1} = D_t \times \frac{\sum (P_{it} \times q_{it} \times r_{it} \times f_{it}) \pm \Delta MC_{t+1}}{\sum (P_{it} \times q_{it} \times r_{it} \times f_{it})}$$

Where:



$D_t$	= divisor at time (t)
$D_{t+1}$	= divisor at time (t+1)
$p_{it}$	= stock price of stock i at time (t)
$q_{it}$	= number of shares of stock i at time (t)
$r_{it}$	= the exchange rate from local currency to USD at time (t)
$f_{it}$	= the float factor of company i at time (t)
$\Delta MC_{t+1}$	= add new components' market capitalization and adjusted market capitalization (calculated with adjusted closing prices and shares effective at time t+1 and/or minus market capitalization of stocks to be deleted (calculated with closing prices and shares at time t)

Note: If the current trading price of an issue is unavailable, the previous trading session's closing price is used. However, if the issue is affected by any corporate action that requires an adjustment, then the adjusted price is used.

\* Adjustments for Corporate Actions. An index divisor may decrease (▼) or increase (▲) or keep constant (■) when corporate actions occur for a component stock. Assuming shareholders receive "B" new shares for every "A" share held for the following corporate actions:

▼ A) CASH DIVIDEND (applied for return index only)

adjusted price = closing price - dividend announced by the stock

▼ B) SPECIAL CASH DIVIDEND (applied for price and return index)

adjusted price = closing price - dividend announced by the stock

■ C) SPLIT AND REVERSE SPLIT

adjusted price = closing price \* A / B  
new number of shares = old number of shares \* B / A

■ D) RIGHTS OFFERING

adjusted price = (closing price \* A + subscription price \* B) / (A + B)  
new number of shares = old number of shares \* (A + B) / A

■ E) STOCK DIVIDEND

adjusted price = closing price \* A / (A + B)  
new number of shares = old number of shares \* (A + B) / A

▼ F) STOCK DIVIDEND OF A DIFFERENT STOCK SECURITY

adjusted price = (closing price \* A - price of the different stock security \* B) / A

▲ G) COMBINATION STOCK DISTRIBUTION (DIVIDEND OR SPLIT) AND RIGHTS OFFERING

Shareholders receive B new shares from the distribution and C new shares from the rights offering for every A shares held:

\* If rights are applicable after stock distribution (one action applicable to other).  

$$\text{adjusted price} = \frac{[\text{closing price} * A + \text{subscription price} * C * (1 + B / A)]}{[(A + B) * (1 + C / A)]}$$

$$\text{new number of shares} = \text{old number of shares} * \frac{[(A + B) * (1 + C / A)]}{A}$$

\* If stock distribution is applicable after rights (one action applicable to other).  

$$\text{adjusted price} = \frac{[\text{closing price} * A + \text{subscription price} * C]}{[(A + C) * (1 + B / A)]}$$

$$\text{new number of shares} = \text{old number of shares} * [(A + C) * (1 + B / A)]$$

▲ H) STOCK DISTRIBUTION AND RIGHTS (NEITHER ACTION IS APPLICABLE TO THE OTHER)  

$$\text{adjusted price} = \frac{[\text{closing price} * A + \text{subscription price} * C]}{[A + B + C]}$$

$$\text{new number of shares} = \text{old number of shares} * [A + B + C]$$

- v) Computational Precision. Index values are rounded to two decimal places and divisors are rounded to integers. Any values derived by the index calculation engine from a corporate action used for the divisor adjustments and index computations are rounded to seven decimal places.

## XVII. Data Correction Policy

To maintain a high standard of data integrity, a series of procedures have been implemented to ensure accuracy, timeliness and consistency. Input prices are monitored using a variety of computerized range-check warning systems for both ticker-plant and real-time index systems. Fault tolerant methods are employed in the collection of market and corporate action data. Various verification and audit tasks are performed to ensure the quality of the real-time data feeds and related market data. While every effort is taken to ensure the accuracy of the information used for the index calculation, an index error may occur due to incorrect or missing data, including trading prices, exchange rates, shares outstanding and corporate actions, due to operational errors or other reasons.

- i) Intraday Corrections. Reasonable efforts are employed to prevent erroneous data from affecting the indices. Corrections will be made for bad prices and incorrect or missing corporate actions as soon as possible after detection.
- ii) Since the indices are calculated on a real-time basis, an incorrect index value tick will not be fixed retroactively. Incorrect daily high/low index values will be corrected as soon as practicable.
- iii) Index-Related Data and Divisor Corrections. Incorrect pricing and corporate action data for individual issues in the database will be corrected upon detection. In addition, an incorrect divisor of an index, if discovered within five days of its occurrence, will always be fixed on the day it is discovered to prevent an error from being carried forward.
- iv) If a divisor error is discovered more than five days after occurrence, the adjustment will depend upon how significant the error is, how far back the error occurred and the feasibility of performing the adjustment.



## **XVIII. APPENDIX REVIEW SCHEDULE**

### **Constituent Changes**

Frequency: Annually

Effective date: The third Friday of December

Advance notice: Approximately 2 weeks

### **Quarterly Rebalance**

Frequency: Quarterly

Effective date: The close of trading on the 3rd Friday of that month

Advance notice: At least 1 week

### **News Notification\***

Frequency: As needed

Effective date: As announced

Advance notice: At least two business days whenever possible

\* Includes events such as de-listings, mergers, bankruptcies and other extraordinary events.

\* Based on available news.

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