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REFINITIV  
**CRB**  
COMMODITY PRODUCERS  
INDEX

**Index Rules and Methodology**

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# Refinitiv CRB Commodity Producers Index

## Official Rule Book

This document provides the rules for calculating and maintaining the Refinitiv CRB Commodity Producers Index, hereafter referred to as the “CRBQX”. Included in these rules are the following: 1) a description of the CRBQX, 2) the design specifications for the CRBQX, and 3) the index calculation and data elements.

### I. General Description

The CRBQX is an equity index designed to serve as an equity benchmark for globally traded stocks that are principally engaged in the production and distribution of commodities, including energy, metals and agricultural products. The CRBQX employs a modified capitalization weighting methodology designed to assure accurate investment exposure across the various business segments that together comprise the commodity producers industry.

The CRBQX comprises four main sectors (“the Sectors”):

- **Agriculture,**
- **Base/Industrial Metals,**
- **Energy, and**
- **Precious Metals.**

The CRBQX contains stocks selected from a universe of approximately 1500 equity securities domiciled in countries around the world.

The selection criteria include requirements for industry participation, primary exchange listing, minimum capitalization (adjusted for free float), and minimum average daily trading volume.

The CRBQX employs a weighting methodology that reflects the float adjusted market capitalization and liquidity characteristics of the different stocks. Capping procedures are applied when needed to assure that the index is in compliance with various US and European regulatory guidelines governing concentration of holdings.

In addition to the CRBQX, which is a composite index, the following sector sub-indexes are also published:

- Refinitiv CRB Commodity Producers Index (CRBQX)
- Refinitiv CRB Industrial Metals Producers Index (CRBIX)
- Refinitiv CRB Precious Metals Producers Index (CRBGX)
- Refinitiv CRB Agriculture Producers Index (CRBAX)

Additional indexes may also be published that focus on certain narrow sectors and/or geographic regions within the commodity producing sector. The Refinitiv CRB Wildcatters Index (WCATI) contains US and Canadian small-cap and small mid-cap

stocks engaged in the exploration and production of petroleum and natural gas.

## **II. Index Values at Inception**

For the official launch, index data for the CRBQX was populated with a value of 1000 at a simulated index inception date of December 31, 1999 and using the Rule Book in place as of the official launch date. CRBQX is calculated as a Price Only Index and as a Total Return Index in both USD, EUR. The Total Return Index is calculated using “net” dividends.

Data for each of the CRBQX sub-indexes is populated with a value of 1000 at its simulated index inception date of December 31, 1999 and using the Rule Book in place as of the official launch date. The sub-indexes are calculated as Price Only Indexes and as Total Return Indexes in USD, EUR. Total Return Indexes are calculated using “net” dividends.

Data for WCATI is populated with a value of 1000 at its simulated index inception date of December 31, 2003 and using the Rule Book in place as of the official launch date. WCATI is calculated as a Price Only Index and as a Total Return Index in USD, EUR. Total Return Indexes are calculated using “gross” dividends.

## **III. The Index Committee**

The CRBQX Index Committee (“The Committee”) will be composed of not less than three members. The Committee Chairman will have extensive experience in and expertise in financial markets and stock market characteristics. The other members will have experience in global commodities markets.

The Committee will be responsible for maintaining a comprehensive list of companies that are principally engaged in at least one of the business segments and the list will form the CRBQX universe of stocks.

Impartial selection criteria will then be applied to these stocks to determine whether or not they should be included in the index.

The Committee will then review the stocks to be included in the CRBQX and may reject any stock that it believes does not meet its overall standards for risk and sound business practice.

In addition, the Committee is responsible for establishing allocations among the different sectors on an annual basis. Sector allocations are announced during the first week in May and go into effect on the date of the June rebalancing. On each quarterly rebalancing the sector weights are restored to their official weights.

The Committee meets quarterly, either in person or via teleconference, to discuss index issues and organize the quarterly or special rebalancing.

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

Sector weights may change annually in connection with the June rebalancing and changes in the sector weights are publically disclosed at least two weeks prior to the rebalancing date.

#### IV. Sector Weights

At the launch date, the sector weights were as follows, and these sector weights were used to populate all data from the simulated inception date:

Agriculture	38%
Base/Industrial Metals	14%
Energy	39%
Precious Metals	9%

The sectors comprise the following sub-sectors.

Agriculture: 1) seeds, traits, chemicals and fertilizers; 2) farm machinery, equipment and irrigation; 3) agricultural producers; and 4) livestock producers and aquaculture.

Base/Industrial Metals: 1) aluminium; 2) diversified metals and mining; 3) steel; and uranium.

Energy: 1) coal & consumable fuels; 2) integrated oil and gas; 3) oil and gas exploration and production; 4) oil and gas drilling; 5) oil and gas equipment and services; 5) oil and gas refining and marketing; and 6) oil and gas storage and transportation, ex. shipping.

Precious Metals: 1) gold; and 2) precious metals and minerals.

The Composite Index is divided into the four sectors described above. Sector weights for the Composite Index are based on the use of 3-year average production data to assign the fixed aggregate weight of each sector, normalized based on the prices of the relevant commodities in US dollars. Where production data is unavailable, unreliable or insufficient, production data may be supplemented with other types of data or estimates deemed reliable. In determining sector weights, double-counting of various commodities is eliminated and precious metal weighting incorporates estimates based on the amount of gold and other precious metals in circulation and/or held as financial assets.

#### V. Eligibility Criteria.

Only companies that meet the following eligibility criteria may be considered for inclusion in the Family universe of eligible stocks.

- i) The company has been classified by the Committee as being principally engaged in the assigned sector (>50% of gross revenues derived from business directly related to the assigned sector).

A constituent of the CRBQX Index whose revenue falls below 40% of its total revenues from activities directly related to its sector on the announcement date shall be deleted from the CRBQX before the open of trade on the effective date of the next rebalancing.

ii) The company's stock must trade on a recognized stock exchange that provides a "last closing price". (National Stock Exchange, formerly NASDAQ, stocks must be "reported securities" under 11Aa3-1 of the Securities and Exchange Act, i.e., National Market System stocks, and similar criteria apply to stocks with foreign listings.) For companies with multiple share classes, the eligibility of each share class will be considered based upon the market capitalization and the overall liquidity (average daily trading volume X average daily price USD) of each share class as if each represented a separate company. In selecting the share class for inclusion in the index, market capitalization and liquidity will be the basis for selection and the company will be represented by only one share class. Should the share classes have identical market capitalizations or turnover, then the other factor shall determine which share class is selected. The constituents of all Family indexes must have a listing on an exchange that provides a last closing price. A list of approved countries is shown in Appendix A. Countries may be deleted from the approved country list based on a) tax restrictions, b) currency restrictions, c) investment restrictions and/or d) operational impediments. For stocks whose primary listings are on exchanges in a country that is not approved, then a qualified ADR or GDR will be identified and, if eligible, the ADR or GDR will be represented in all Family indexes.

iii) The minimum capitalization value for any stock will be greater than USD one billion for the energy sector; and USD 750 million for the other sectors.

**(Rule Change:** Effective at the December 2006 rebalancing the minimum market capitalization was raised from USD 500 million to USD 750 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2004 rebalancing the minimum market capitalization was raised from USD 400 million to USD 500 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2002 rebalancing the minimum market capitalization was raised from USD 300 million to USD 400 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2001 rebalancing the minimum market capitalization was raised from USD 200 million to USD 300 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2000 rebalancing the minimum market capitalization was raised from USD 75 million to USD 200 million for all sectors excluding energy.)

iv) The minimum capitalization value, adjusted for free float, for any stock will be greater than USD 800 for the energy sector; and USD 600 million for the other sectors.

**(Rule Change:** Effective at the December 2006 rebalancing the minimum market capitalization adjusted for free float was raised from USD 400 million to USD 600 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2004 rebalancing the minimum market capitalization adjusted for free float was raised from USD 320 million to USD 400 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2002 rebalancing the minimum market capitalization adjusted for free float was raised from USD 240 million to USD 320 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2001 rebalancing the minimum market capitalization adjusted for free float was raised from USD 160 million to USD 240 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2000 rebalancing the minimum market capitalization adjusted for free float was raised from USD 50 million to USD 160 million for all sectors excluding energy.)

- v) A constituent of the CRBQX Index whose market capitalization falls below USD 600 million for the energy sector and USD 400 million for the other sectors on the quarterly announcement date shall be deleted from the CRBQX before the open of trade on the effective date of the next quarterly rebalancing.

**(Rule Change:** Effective at the December 2004 rebalancing the minimum market capitalization was raised from USD 300 million to USD 400 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2002 rebalancing the minimum market capitalization was raised from USD 200 million to USD 300 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2001 rebalancing the minimum market capitalization was raised from USD 100 million to USD 200 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2000 rebalancing the minimum market capitalization was raised from USD 50 million to USD 100 million for all sectors excluding energy.)

- vi) A constituent of the CRBQX Index whose market capitalization, adjusted for free float, falls below USD 400 million for the energy sector and USD 300 million for the other sectors on the quarterly announcement date shall be deleted from the CRBQX before the open of trade on the effective date of the next quarterly rebalancing.

**(Rule Change:** Effective at the December 2004 rebalancing the minimum market capitalization adjusted for free float was raised from USD 250 million to USD 300 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2002 rebalancing the minimum market capitalization adjusted for free float was raised from USD 150 million to USD 250 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2001 rebalancing the minimum market capitalization adjusted for free float was raised from USD 75 million to USD 150 million for all sectors excluding energy.)

**(Rule Change:** Effective at the December 2000 rebalancing the minimum market capitalization adjusted for free float was raised from USD 35 million to USD 75 million for all sectors excluding energy.)

- vii) Companies must have an average daily turnover (shares traded X share price) of more than USD 1 million per day for the three months prior to a rebalancing date to be eligible for inclusion in the Family universe. A constituent whose average daily turnover falls below USD 800 thousand shall be deleted from the CRBQX before the open of trade on the effective date of the next quarterly rebalancing.

**(Rule Change:** Effective at the December 2004 rebalancing the minimum ADTV was raised from USD 200 thousand to USD 1 million and the hurdle for deletion was raised from USD 150 thousand to USD 800 thousand.)

If a company has been trading for fewer than three calendar months (“Recent IPO”) but more than 22 trading days, the company’s average daily turnover for its entire trading history, less its first five trading days, shall be used to calculate average daily turnover. Such companies may be added to the Composite on any rebalancing date at the discretion of the Committee. Recent IPOs in non-US jurisdictions will be added only after meeting relevant US regulations with respect qualifications for US ownership.

- viii) At each reconstitution the constituent turnover of the various Indexes will be smoothed using the following methodology. For the all indexes excluding energy, no stock will be added to the index unless it statistically ranks among the top 30 candidate stocks and no stock will be deleted from the index unless it ranks lower than the 40<sup>th</sup> most liquid stock. For the Energy index, a stock must rank among the top 42 candidate stocks to be added and will not be deleted from the index unless it ranks lower than the 58<sup>th</sup> most liquid candidate.

## VI. Stock Selection

- i) The number of stocks contained in the CRBQX is fixed at a total of 150, based on fixed constituent counts for each of the four sectors. The number of stocks in the energy sector is fixed at 50; the number of stocks in the agricultural sector is fixed at 35; the number of stocks in the base/industrial metals sector is fixed at 35; and the number of stocks in the precious metals sector is fixed at 30.
- ii) The eligible stocks in each of the four sectors are chosen based on their average of two rankings: total market capitalization (company specific and unadjusted for float) on the last trading date of the second month of each



calendar quarter and average daily trading volume (security specific) for the ninety calendar days prior to the last trading date of the second month of each calendar quarter.

## **VII. Composite Constituent Weightings**

- i) Stocks contained in each sector are weighted based upon their float adjusted market capitalization within each sector
- ii) The weights of the stocks within each sector are then modified by a factor equal to the sector weight.
- iii) Any stock with a weight greater than 8% of CRBQX will be capped at 8% and the remaining weight shall be redistributed on a proportional basis to the remaining stocks in the grouping.
- iv) The total weight of all the stocks contained in the index with weights greater than 5%, following the capping described in Section VII(iii), shall be capped at 40%. The weights of the stocks with weights over 5% shall be reduced on a proportional basis and added to the weights of the stocks with weights under 5% on a proportional basis. Certain smoothing procedures may be applied to assure weighting consistency.

## **VIII. Sector Constituent Weightings**

The sector indexes are derived from the CRBQX index. Each sector index uses the weights established for the CRBQX before being modified by the respective sector weights and before capping methodologies are applied to the CRBQX Index.

Certain constituents of the sector indexes are then capped independently, using the following methodology:

- i) Any stock with a weight greater than 8% of the sector index will be capped at 8% and the remaining weight shall be redistributed on a proportional basis to the remaining stocks in the grouping.
- ii) The total weight of all the stocks contained in the sector index with weights greater than 5%, following the capping described in Section VII(i), shall be capped at 40%. The weights of the stocks with weights over 5% shall be reduced on a proportional basis and added to the weights of the stocks with weights under 5% on a proportional basis. Certain smoothing procedures may be applied to assure weighting consistency.

## **IX. WCATI Eligibility, Stock Selection and Weighting**

Only companies that meet the following eligibility criteria may be considered for inclusion in the WCATI universe of eligible stocks.

- i) The company has been classified by the Committee as being principally engaged in the Exploration and Production of Petroleum and/or Natural Gas (>50% of gross revenues derived from business directly related to the assigned sector).
- ii) The company must be domiciled in North America (US, Canada, Mexico) and the company's stock must trade on a recognized North American stock exchange that provides a "last closing price". (National Stock Exchange, formerly NASDAQ, stocks must be "reported securities" under 11Aa3-1 of the Securities and Exchange Act, i.e., National Market System stocks, and similar criteria apply to stocks with foreign listings.) For companies with multiple share classes, the eligibility of each share class will be considered based upon the market capitalization and the overall liquidity (average daily trading volume X average daily price USD) of each share class as if each represented a separate company. In selecting the share class for inclusion in the index, market capitalization and liquidity will be the basis for selection and the company will be represented by only one share class. Should the share classes have identical market capitalizations or turnover, then the other factor shall determine which share class is selected.
- iii) The minimum capitalization value for any stock will be greater than USD 200 million. The maximum capitalization for any stock will be less than USD 2 billion.
- iv) The minimum capitalization value, adjusted for free float, for any stock will be greater than USD 150 million.
- v) A constituent of the WCATI whose market capitalization falls below USD 150 million or rises above USD 2.5 billion on the quarterly announcement date shall be deleted from the WCATI before the open of trade on the effective date of the next quarterly rebalancing.
- vi) Companies representing at least 95% of the total weight of the index must have an average daily turnover (shares traded X share price) of more than USD 1 million per day for the three months prior to a rebalancing date to be eligible for inclusion in the Family universe.

If a company has been trading for fewer than three calendar months ("Recent IPO") but more than 22 trading days, the company's average daily turnover for its entire trading history, less its first five trading days, shall be used to calculate average daily turnover. Such companies may be added to the Composite on any rebalancing date at the discretion of the Committee. Recent IPOs in non-US jurisdictions will be added only after meeting relevant US regulations with respect to qualifications for US ownership.

- vii) All companies that pass the eligibility tests are included in the WCATI.
- viii) Stocks contained in WCATI are weighted based on the market capitalization, adjusted for free float.

- ix) The total weight of all the stocks contained in the index with weights greater than 5%, following the capping described in Section VII(iii), shall be capped at 40%. The weights of the stocks with weights over 5% shall be reduced on a proportional basis and added to the weights of the stocks with weights under 5% on a proportional basis. Certain smoothing procedures may be applied to assure weighting consistency.

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

The CRBQX is calculated externally by 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 Changes.** Index changes take place at each rebalancing date, except in the event of certain corporate actions, such as mergers, acquisitions, spin-offs and delistings. In such cases, the change is applied on the effective date of the action, unless otherwise determined by the Index Committee. Share increases and decreases, as well as changes in float, are reflected on the rebalancing date. Whenever possible, changes will be announced at least two business days prior to their implementation.

**Index Reconstitutions.** The Index is reconstituted annually; during which the Index Committee submits to the Calculation Agent a list of companies that are eligible for inclusion in CRBQX based upon their domicile and business content. All candidates and current constituents are screened against the CRBQX 'Eligibility Criteria', and weights are applied based on the weighting methodology described in Sections VI and VII herein.

**Additions and Deletions.** Additions and Deletions to the Indexes are made 1) at the close of trading on the annual reconstitution date (the 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, no replacement stock is added.

Deletions are made at any time, in the event a company is de-listed, files for bankruptcy, is acquired or merges with another company. Additions are made only upon the effective date of the quarterly rebalancing.

## **XI. Roles of Parties in the Annual Reconstitutions.**

- i) The Committee, or its designee, will submit to the Compilation Agent (S-Network Global Indexes, Inc.) a list of index constituents for possible inclusion in CRBQX at the close of US markets on the Monday following the third Friday of the month prior to the rebalancing month.
- ii) The Compilation Agent will use the remaining criteria in V to statistically screen the list of index constituents to confirm their eligibility for the index based on closing prices and values as of last trading date of the second month of each calendar quarter.

- iii) 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 CRBQX.
- iv) The Committee shall approve or reject the changes and notify the calculation agent of its decisions not later than the Wednesday following the first Friday of the rebalancing month.
- v) Not later than the Wednesday following the first Friday of the rebalancing month, the Index Committee or its designee will issue a press release announcing additions and deletions to CRBQX. The press release will be posted on the CRBQX web site.
- vi) The Compilation Agent will provide final share weights to the Committee or its designee on the Second Friday of the rebalancing month. Weights will be based on prices as of the close of trading on the preceding Thursday, or the Thursday prior to the second Friday of the rebalancing month.
- vii) The CRBQX Index Committee or its designee will approve the final share weights prior to the close of US markets on the same business day and will distribute this information to the Calculation Agent and all CRBQX licensees.
- viii) The effective date of the rebalancing will be on the close of business on the third Friday of the rebalancing month. 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.
- ix) CRBQX will post all rebalancing data on its website prior to the open on the next business day following the rebalancing date.

## **XII. 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 at set 15-second intervals.
- iii) The index calculations will start at 18:00 (EST - US) for the next trading day (opening price). At that time, the indexes will begin changing as new prices or exchange rates are processed.
- iv) Index calculation will cease each trading day at 17:00 (EST-US) and official summaries will be disseminated between 17:00 (EST-US) and 19:00 (EST-US) (closing price).
- v) Each week, the Indexes will be calculated starting Sunday night at 18:00 through Friday night at 17:00.

- vi) If, during periods when the indexes are calculated, one or more markets are closed, the index calculation will continue using the last closing price, adjusted for latest FX rates, for those stocks that trade on the closed exchange(s).
- vii) Stocks denominated in foreign currencies will be converted to USD with each reported price using exchange rates derived from Reuters. Official closing prices for the Indexes will be calculated using the Reuters Rates (4PM GMT).
- viii) The Indexes will be calculated and disseminated in USD and EUR.
- ix) The Calculation Agent will distribute total return index values to vendors immediately following the close of trading on US stock markets on each business day.
- x) The indexes will also be calculated and disseminated in USD and EUR using Luxembourg Dividend Tax Rates to calculate net total return.

### XIII. Dissemination

Index values are disseminated in US dollars via the New York Stock Exchange using the following tickers:

Index	Ticker
<b>TR CRB Commodity Producers Index (USD)</b>	CRBQX
In Euro	*
USD Total Return	CRBQXTR
Euro Total Return	*
<b>TR CRB Energy Producers Index (USD)</b>	CRBEX
In Euro	*
USD Total Return	*
Euro Total Return	*
<b>TR CRB Agriculture Producers Index (USD)</b>	CRBAX
In Euro	*
USD Total Return	CRBAXTR
Euro Total Return	*
<b>TR CRB Industrial Metals Producers Index (USD)</b>	CRBIX
In Euro	*
USD Total Return	CRBIXTR
Euro Total Return	*
<b>TR CRB Precious Metals Producers Index (USD)</b>	CRBGX
In Euro	*
USD Total Return	*
Euro Total Return	*
<b>TR CRB Wildcatters Index (USD)</b>	WCATI
In Euro	WCATIE
USD Total Return	WCATITR

Euro Total Return

WCATIETR

\*Confirmed tickers for the remaining indexes will be available in late 2009.

Values for the price only indexes are distributed in “real-time,” that is, in 15-second snapshots, starting at approximately 18:30PM (EST) on Sunday through approximately 16:30 PM (EST) the next day. The following day’s price calculation resumes at approximately 18:30PM (EST). Index values are not calculated from 16:30PM on each Friday through 18:30PM (EST) on each Sunday.

#### XIV. Ongoing Maintenance

- i) In addition to the scheduled quarterly reviews, CRBQX is reviewed on an ongoing basis. Changes in index composition and related weight adjustments are necessary whenever there are extraordinary events such as delisting, bankruptcy, mergers or takeovers involving index components. In these cases, each event will be taken into account as soon as it is effective. **A rebalance of the index affected by these events will be at the discretion of the Index Committee in the event a significant component is affected.** 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 V herein, it will be removed from the index on the effective date of the next rebalancing.
- iii) Changes of Industry Classification. Companies are eligible for inclusion in the CRBQX based on the revenues received from its applicable business segment. Mergers, takeovers, and spin-offs, as well as organic growth in a company's business segments, may cause a company to lose its eligibility. In such a circumstance, the company will be deleted from the index on the effective date of the next rebalancing. A company's classification may also require an immediate change as the result of a special event such as a merger, takeover or spin-off.
- iv) Splits and Spin-offs. If an index constituent splits or spins off a portion of its business to form one or more new companies, all of the companies involved in the spin-off will be immediately included in the CRBQX Universe of candidate stocks, if they would otherwise qualify for membership.
- v) Mergers. If two index constituents merge, their component positions will be replaced by the surviving company immediately. The Calculation Agent will adjust the float-adjusted shares outstanding for the surviving company to reflect the changes in both its total shares and any float blocks, regardless of the percentage changes in the survivor. If an index constituent merges with a non-component company, its component position will be replaced by the new company, if the new company meets all eligibility criteria described in Section IV herein. In the event of mergers of equals, the combined trading history of the predecessor companies shall be used for evaluation.

- vi) Takeovers. If an index component is taken over by another component company, 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 company, it will be replaced by the acquiring company immediately, if the acquiring company meets all the eligibility criteria described in Section IV herein.
- vii) Share Offerings, Tenders and Purchases. All Share Offerings, Tenders and Purchases that result in an increase of shares will be held constant and will be implemented at the quarterly review.
- viii) Removal of Companies 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.
  - \* 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 company in the index.
  - \* The Committee may, at its discretion, remove a company it has determined to be in extreme financial distress from the CRBQX, 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.
- ix) 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 company 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 indexes 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.

## **XV. Float Adjustment**

All stock issues in the index are assigned a float factor, ranging from 0 and 1, which accounts for publicly available and freely traded shares of the company.

Three types of shareholders whose holdings are considered to be control blocks are subject to float adjustment:

1. Holdings by other publicly traded corporations, venture capital firms, private equity firms/strategic partners or leveraged buy-out groups;
2. Holdings by government entities, including all levels of government (restricted only to governments of domestic listing markets);
3. Holdings by current or former officers and directors of the company, founders of the company, or family trusts of officers, directors or founders. Secondly, holdings of trusts, foundations, pension funds, employee stock ownership plans or other investment vehicles associated with and controlled by the company.

The holdings within each group form a cumulative total. In cases where holdings in a group exceed 5% of the outstanding shares of a company, the holdings of that cumulative group will be excluded from the float-adjusted count of shares to be used in index calculations. Holdings under 5% will only be taken into account if they belong to clearly related shareholders like family members or board members.

Additionally, statutory limits on foreign ownership are recognized and applied where necessary.

Float factors are sourced through Reuters PLC. In the event Reuters PLC Indexes does not provide float data on a specific index constituent, a recognized publicly available source is used.

The Index Committee may review float data on a periodic basis and may conduct its own review of individual float factors it deems inconsistent with other publicly available float calculations and, in certain instances, may adjust the float factor used.

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



\* Float data are obtained from a variety of sources including data vendors, exchanges, regulators and the companies themselves.

- ii) Index Formula. The index is 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 indexes (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:

$$D_t = \frac{B_t}{\text{base index value}} = \text{divisor at time (t)}$$

$n$  = 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 company  $i$  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 company  $i$  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 indexes, whereas dividend payments are reinvested in the index samples of the total return indexes.

- 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.

\* 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 company i at time (t)

$q_{it}$  = number of shares of company 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 companies 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 company

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

adjusted price = closing price - dividend announced by the company

■ 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 COMPANY SECURITY

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

▼G) RETURN OF CAPITAL AND SHARE CONSOLIDATION

adjusted price = (closing price - dividend announced by company) \* A / B new number of shares = old number of shares \* B / A

▼H) REPURCHASE SHARES-SELF TENDER

adjusted price = [(price before tender \* old number of shares) - (tender price \* number of tendered shares)] / (old number of shares - number of tendered shares)

new number of shares = old number of shares - number of tendered shares

▼ I) SPIN-OFF

adjusted price = (closing price \* A - price of spun-off shares \* B) / A

▲ J) 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). adjusted price = [closing price \* A + subscription price \* C \* (1 + B / A)] / [(A + B) \* (1 + C / A)] new number of shares = old number of shares \* [(A + B) \* (1 + C / A)] / A

\* If stock distribution is applicable after rights (one action applicable to other). adjusted price = [closing price \* A + subscription price \* C] / [(A + C) \* (1 + B / A)] new number of shares = old number of shares \* [(A + C) \* (1 + B / A)]

▲ K) STOCK DISTRIBUTION AND RIGHTS (NEITHER ACTION IS APPLICABLE TO THE OTHER) adjusted price = [closing price \* A + subscription price \* C] / [A + B + C] new number of shares = old number of shares \* [A + B + C]

- iv) 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 indexes. Corrections will be made for bad prices and incorrect or missing corporate actions as soon as possible after detection.
- ii) Since the indexes 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: Annual

Effective date: The Monday following the third Friday of December

Advance notice: Approximately 2 weeks

### Quarterly Review

Frequency: Quarterly

Effective date: The Monday following the 3rd Friday of that month

Advance notice: At least two business days

### 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.

**XIX. APPENDIX A: List of Approved Exchanges**

EXCHANGE	COUNTRY
ASE	AUSTRALIA
ASX	AUSTRALIA
Australian	AUSTRALIA
Vienna	AUSTRIA
EN Brussels	BELGIUM
Euron. Brussels	BELGIUM
Sao Paulo	BRAZIL
Toronto	CANADA
Sant. Comerc	CHILE
Sant. Elec	CHILE
SANTIAGO	CHILE
Hong Kong	CHINA
Shanghai	CHINA
Shenzen	CHINA
Shenzhen	CHINA
Singapore	CHINA
Prague	CZECH REPUBLIC
Prague-SPAD	CZECH REPUBLIC
Copenhagen	DENMARK
Reykjavik	DENMARK
Cairo	EGYPT
Egypt (EGX)	EGYPT, ARAB REP.
Tallin	ESTONIA
Tallinn	ESTONIA
Helsinki	FINLAND
EN Paris	FRANCE
Euronext Paris	FRANCE
Berlin	GERMANY
Dusseldorf	GERMANY
Frankfurt	GERMANY
Munich	GERMANY
Athens	GREECE
Hong Kong	Hong Kong
NASDAQ CM	HONG KONG
Budapest	HUNGARY
Indonesia	INDONESIA
Indonesia SE	INDONESIA
Dublin	IRELAND
Tel Aviv	ISRAEL
Brsaltaliana	ITALY
Milan	ITALY
Fukuoka	JAPAN
Jasdaq	JAPAN
Nagoya	JAPAN
Osaka	JAPAN

EXCHANGE	COUNTRY
Tokyo	JAPAN
KO	Korea, Rep.
Luxembourg	LUXEMBOURG
Bursa Malays	MALAYSIA
Bursa Malaysia	MALAYSIA
Kuala Lumpur	MALAYSIA
Malaysia ACE Mkt	MALAYSIA
Mexico	MEXICO
Mexico City	MEXICO
EN Amsterdam	NETHERLANDS
Euron. Amsterdam	NETHERLANDS
New Zealand	NEW ZEALAND
NZX	NEW ZEALAND
Oslo	NORWAY
Philippine SE	PHILIPPINES
Philippines	PHILIPPINES
Warsaw	POLAND
Warsaw Continuou	POLAND
EN Lisbon	PORTUGAL
Euronext Lisbon	PORTUGAL
Catalist	SINGAPORE
Johannesburg	SOUTH AFRICA
Lagos	SOUTH AFRICA
Korea	SOUTH KOREA
Korea SE	SOUTH KOREA
KOSDAQ	SOUTH KOREA
Continuous	SPAIN
Madrid	SPAIN
Madrid-SIBE	SPAIN
Nordic GM	SWEDEN
Stockholm	SWEDEN
SIX Swiss	SWITZERLAND
SIX Swiss Ex	SWITZERLAND
Taiwan	TAIWAN
Istanbul	TURKEY
London	UNITED KINGDOM
LONDON INTL	UNITED KINGDOM
London Plus Mkt	UNITED KINGDOM
Nasdaq	UNITED STATES
NASDAQ GM	UNITED STATES
NASDAQ GS	UNITED STATES
New York	UNITED STATES
NYSE Amex	UNITED STATES
NYSE ARCA	UNITED STATES

**CRB-EQ Indices: Full Disclaimer Language**

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