

CIBC Multifactor U.S. Equity Index Methodology

Last Updated January 7th, 2019

Table of Contents

Introduction

1 Index Overview

- 1.1** Index Details
- 1.2** Initial Value
- 1.3** Distribution
- 1.4** Prices and Calculation Frequency
- 1.5** Publication
- 1.6** Licensing

2 Index Construction Methodology

- 2.1** Index Universe
- 2.2** Ordinary adjustment
- 2.3** Extraordinary adjustment

3 Index Rebalancing

4 Index Calculation and On-going Maintenance

- 4.1** Index Formula
- 4.2** Accuracy
- 4.3** Adjustments
- 4.4** Dividends and other distributions
- 4.5** Corporate actions
- 4.6** Calculation of the Index in the event of a market disruption

5 Amendments and Exceptions to this Methodology

6 Definitions

Introduction

This document is to be used as a guideline with regard to the composition, calculation, and management of the CIBC Multifactor U.S. Equity Index. Any changes made to the guideline are initiated by the Committee specified in section 5. The CIBC Multifactor U.S. Equity Index is calculated and published by Solactive AG (the Index Calculator).

1 Index Overview

The CIBC Multifactor U.S. Equity Index (the “Index”) is comprised of an equally weighted portfolio of equity securities of U.S. companies that exhibit low volatility (low sensitivity to market fluctuations), high quality (high profitability and low financial leverage), value (low price to earnings and price to book), and momentum characteristics. The CIBC Multifactor U.S. Equity Index uses a proprietary rules-based methodology defined in section 2.1., which has been developed by CIBC World Markets Inc. based on research on equity factors, to select its constituent securities. The CIBC Multifactor U.S. Equity Index is reconstituted and rebalanced semi-annually to equal weight.

The Index is calculated and distributed by the Index Calculator.

The Index is calculated and published in USD.

1.1 Index Details

The gross total return version of the Index is distributed under ISIN DE000SLA6069; the WKN is SLA606. The Index is published in Reuters under the code .CIBCMUET. and in Bloomberg under the ticker CIBCMUET Index.

The net total return version of the Index is distributed under ISIN DE000SLA6051; the WKN is SLA605. The Index is published in Reuters under the code .CIBCMUEN. and in Bloomberg under the ticker CIBCMUEN Index.

The price return version of the Index is distributed under ISIN DE000SLA6044; the WKN is SLA604. The Index is published in Reuters under the code . CIBCMUEP. and in Bloomberg under the ticker CIBCMUEP Index.

1.2 Initial Value

The Index is calculated since January 7, 2019. Backtested data is available since Jan 7, 2000, where the index is based on with a value of 100.

1.3 Distribution

The Index is published via the price marketing services of Boerse Stuttgart AG and is distributed to all affiliated vendors. Each vendor decides on an individual basis as to whether the vendor will distribute/display the CIBC Multifactor U.S. Equity Index via the vendor’s information systems.

1.4 Prices and Calculation Frequency

The value of the index is calculated on each Business Day based on the prices on the respective Exchanges on which the Index Components are listed. The most recent prices of all Index Components are used.

The Index is calculated once every Business Day at 4:50pm, EST. In the event that data cannot be provided to Reuters or to the pricing services of Boerse Stuttgart AG the Index cannot be distributed.

Any incorrect calculation is adjusted on a retrospective basis.

1.5 Publication

All specific information relevant for calculating the Index are made available on the webpage of the Index Calculator (<http://www.solactive.com>)

1.6 Licensing

Licenses, if any, to use the Index as the underlying value/index for index funds, ETFs, or derivative instruments are issued to stock exchanges, banks, financial services providers, and investment houses by CIBC World Markets Inc.

2 Index Construction Methodology

2.1 Index Universe

On Rescreening Dates (the last Trading Day of June and December each year), the “Index Universe” consists of all current members of the Solactive US Large Cap Index.

The Index Universe will also exclude any shares where, in the determination of the Index Calculation Agent, there is a reasonable expectation that there may be a material reduction in the liquidity of a share in the period ending on the last Index Rebalancing Date following the next Rescreening Date (i.e., the last Index Rebalancing Date on which the share would exit the Index) as a consequence of an impending corporate action, regulatory action, delisting or other material event affecting a share (“Qualifying Shares”).

2.2 Ordinary Adjustment

On Rescreening Dates, all companies from the Index Universe are ranked on the basis of

1. Low volatility
 - Calculated as the 3 year weekly historical raw beta against the S&P 500 Index
 - Firms are ranked from lowest to highest
2. Quality
 - Calculate the average score of
 - i. Return on common equity (ROE) rank, where $ROE = (\text{Trailing 12 months net income available for common shareholders} / \text{average total common equity}) * 100$
 - Where the average total common equity is the average of the beginning balance and ending balance of total common equity
 - Firms are ranked from highest to lowest
 - ii. Debt to equity (D/E) rank, where $D/E = (\text{short and long term debt} / \text{shareholder's equity}) * 100$
 - Firms are ranked from lowest to highest
 - Quality rank = ranking of the average score
3. Value
 - Calculate the average score of
 - i. Price to earnings (P/E) rank, where $P/E = \text{last price} / \text{trailing 12 months diluted EPS From continuing operations}$
 - Firms are ranked from lowest to highest
 - ii. Price to book (P/B) rank, where $P/B = \text{last price} / \text{book value per share}$
 - Firms are ranked from lowest to highest
 - Value rank = ranking of the average score
4. Momentum
 - Calculated as $(1 \text{ month ago price} / 13 \text{ months ago price} - 1) / 200 \text{ day historical volatility}$
 - Firms are ranked from highest to lowest
5. An overall ranking score is calculated as the average of the ranking results from #1, #2, #3, and #4
 - Overall ranking score = $25\% * \text{low volatility rank} + 25\% * \text{quality rank} + 25\% * \text{value rank} + 25\% * \text{momentum rank}$
6. Firms are ranked from best to worst on the overall ranking score calculated in #5

Initially the index portfolio consists of 100 highest ranked stocks subject to Sector Exposure Constraint (index portfolio sector exposure cannot deviate by more than 10% from the Solactive US Large Cap Index sector weights). Subsequently if the overall ranking for any index constituent drops below the exclusion threshold of 120 it is replaced with the highest ranking stock not currently in the index subject to meeting the Sector Exposure Constraint. The market is divided into 11 industry sectors listed below based on the Sector Classification rules outlined in the definitions section.

Sector Classification

Basic Materials	Communications	Consumer Products	Consumer Services
Energy	Finance	Healthcare	Industrials
REITs	Technology	Utilities	

If data is unavailable for calculating any of the low volatility, quality, value, or momentum scores of a stock, a default ranking score equal to the Index Universe size is assigned.

If a company's P/E or P/B ratio is negative a default Value ranking score equal to the Index Universe size is assigned.

If two firms have the same overall ranking score, the stock with lower 200 day historical volatility is assigned priority.

2.3 Extraordinary Adjustment

If an index member included in the index is removed from the Index between two Index Rebalancing Dates due to an Extraordinary Event, if necessary, the Calculation Agent shall designate a successor. This is announced by the Index Calculator after the close of business on the day on which the new composition of the Index was determined by the Calculation Agent. The Index is adjusted in such a case with 2 days' notice if possible.

3 Index Rebalancing

The Index is rebalanced semi-annually on the 5th trading day of January and July each year. The Index Rebalancing Dates are 5 trading days after the corresponding index Rescreening Dates.

4 Index Calculation and On-going Maintenance

The Index Calculator (Solactive AG or any other appropriately appointed successor in this function) is responsible for calculating index levels based on the methodology specified in this document.

4.1 Index formula

The Index Value on a Business Day at the relevant time is calculated in accordance with the following formula:

$$Index_t = \frac{\sum_{i=1}^n x_{i,t} * p_{i,t} * f_{i,t}}{D_t}$$

with:

$x_{i,t}$ = Number of Index Shares of the Index Component i on Trading Day t

$p_{i,t}$ = Price of Index Component i on Trading Day t

$f_{i,t}$ = Foreign exchange rate to convert the Price of Index Component i on Trading Day t into the Index Currency

D_t = Divisor on Trading Day t

The initial Divisor on the Start Date is calculated according to the following formula:

$$D_t = \frac{\sum_{i=1}^n (p_{i,t} * f_{i,t} * x_{i,t})}{100}$$

After the close of trading on each Adjustment Day t the new Divisor is calculated as follows:

$$D_t = \frac{\sum_{i=1}^n (p_{i,t} * f_{i,t} * x_{i,t})}{Index_t}$$

This Divisor is valid starting the immediately following Business Day.

4.2 Accuracy

The value of the Index will be rounded to 2 decimal places.

Trading Prices and foreign exchange rates will be rounded to six decimal places.

Divisors will be rounded to six decimal places.

4.3 Adjustments

Indices need to be adjusted for systematic changes in prices once these become effective. This requires the new Number of Index Shares of the affected Index Component and the Divisor to be calculated on an ex-ante basis.

Following the Committee's decision the Index is adjusted for distributions, capital increases and stock splits.

This procedure ensures that the first ex quote can be properly reflected in the calculation of the Index. This ex-ante procedure assumes the general acceptance of the Index calculation formula as well as open access to the parameter values used. The calculation parameters are provided by the Index Calculator.

4.4 Dividends and other distributions

Dividend payments and other distributions are included in the Index. They cause an adjustment of the Divisor. The new Divisor is calculated as follows:

$$D_{t+1} = D_t * \frac{\sum_{i=1}^n (p_{i,t} * f_{i,t} * x_{i,t}) - (x_{i,t} * y_{i,t} * g_{i,t})}{\sum_{i=1}^n (p_{i,t} * f_{i,t} * x_{i,t})}$$

with

$p_{i,t}$ = Price of Index Component i on Trading Day t

$f_{i,t}$ = Foreign exchange rate to convert the Price of Index Component i on Trading Day t into the Index Currency

$x_{i,t}$ = Number of Index Shares of the Index Component i on Trading Day t

$y_{i,t}$ = Distribution of Index Component i with ex date t+1 multiplied by the Dividend Correction Factor

$g_{i,t}$ = Foreign exchange rate to convert the amount of the distribution of Index Component i on Trading Day t into the Index Currency

D_t = Divisor on Trading Day t

D_{t+1} = Divisor on Trading Day t+1

4.5 Corporate actions

4.5.1 Principles

Following the announcement by an issuer of Index Components of the terms and conditions of a corporate action the Index Calculator determines whether such corporate action has a dilutive, concentrative or similar effect on the price of the respective Index Component.

If this should be the case the Index Calculator shall make the necessary adjustments that are deemed appropriate in order to take into account the dilutive, concentrative or similar effect and shall determine the date on which this adjustment shall come into effect.

Amongst other things the Index Calculator can take into account the adjustment made by an Affiliated Exchange as a result of the corporate action with regard to option and futures contracts on the respective share traded on this Affiliated Exchange.

4.5.2 Capital increases

In the case of capital increases with ex date t+1 the Index is adjusted as follows:

$$x_{i,t+1} = x_i * \frac{1+B}{1} \quad \text{with:}$$

$x_{i,t+1}$ = Number of Index Shares of Index Component i on Trading Day t+1
 $x_{i,t}$ = Number of Index Shares of Index Component i on Trading Day t
 B = Shares received for every share held

$$P_{i,t+1} = \frac{p_{i,t} + s * B}{1+B} \quad \text{with:}$$

$p_{i,t}$ = Price of Index Component i on Trading Day t
 $P_{i,t+1}$ = Hypothetical Price of Index Component i on Trading Day t+1
 s = Subscription Price in the Index Component currency

$$D_{t+1} = D_t * \frac{\sum_{i=1}^n (p_{i,t} * f_{i,t} * x_{i,t}) + \sum_{i=1}^n [(x_{i,t+1} * P_{i,t+1} * f_{i,t}) - (x_{i,t} * p_{i,t} * f_{i,t})]}{\sum_{i=1}^n (p_{i,t} * f_{i,t} * x_{i,t})}$$

with

$p_{i,t}$ = Price of Index Component i on Trading Day t
 $f_{i,t}$ = Foreign exchange rate to convert the Price of Index Component i on Trading Day t into the Index Currency
 $x_{i,t}$ = Number of Index Shares of the Index Component i on Trading Day t
 $P_{i,t+1}$ = Hypothetical price of Index Component i on Trading Day t+1
 $x_{i,t+1}$ = Number of Index Shares of the Index Component i on Trading Day t+1
 D_t = Divisor on Trading Day t
 D_{t+1} = Divisor on Trading Day t+1

4.5.3 Share splits

In the case of share splits with ex date on Trading Day t+1 it is assumed that the prices change in ratio of the terms of the split. The new Number of Index Shares is calculated as follows:

$$x_{i,t+1} = x_{i,t} * B$$

$x_{i,t}$ = Number of Index Shares of the affected Index Component on Trading Day t
 $x_{i,t+1}$ = Number of Index Shares of the affected Index Component on Trading Day t+1

B = Shares after the share split for every share held before the split

4.5.4 Stock distributions

In the case of stock distributions with ex date on Trading Day t+1 it is assumed that the prices change according to the terms of the distribution. The new Number of Index Shares is calculated as follows:

$$x_{i,t+1} = x_{i,t} * (1 + B)$$

$x_{i,t}$ = Number of Index Shares of the affected Index Component on Trading Day t
 $x_{i,t+1}$ = Number of Index Shares of the affected Index Component on Trading Day t+1
B = Shares received for every share held

4.6 Calculation of the Index in the event of a Market Disruption Event

The Index is not calculated in the event of a Market Disruption Event or Force Majeure Event. If the Market Disruption Event or Force Majeure Event continues over a period of eight Trading Days, then the Committee will determine the necessary action (including but not limited to taking into account the market conditions prevailing at this point in time, the last quoted Trading Price for each of the Index Components as well as any other conditions that it deems relevant for calculating the Index value) such that the affected securities resulting from the Market Disruption Event are no longer causing such disruption to occur.

5 Amendments and Exceptions to this Methodology

The Index Committee, comprised of CIBC World Markets Inc. employees, is responsible for decisions regarding the composition of the Index as well as any amendments to the rules (in this document referred to as the "Committee" or the "Index Committee").

This document is updated to reflect any changes approved by the Index Committee.

Definitions

An “**Affiliated Exchange**” is with regard to an Index Component an exchange, a trading or quotation system on which options and futures contracts on the Index Component in question are traded, as specified by the Index Calculator.

“**Business Day**” means a day on which the New York Stock Exchange is open.

An Index Component is “**Delisted**” if the Exchange announces pursuant to the Exchange regulations that the listing of, the trading in or the issuing of public quotes on the Index Component at the Exchange has ceased immediately or will cease at a later date, for whatever reason (provided delisting is not because of a Merger or a Takeover bid), and the Index Component is not immediately listed, traded or quoted again on an exchange, trading or listing system, acceptable to the Index Calculator.

“**Exchange**” means the Toronto Stock Exchange or any other appropriate successor.

In particular an “**Extraordinary Event**” is

- a Merger
- a Takeover bid
- a delisting
- a change in domiciled country
- the Nationalisation of a company
- Insolvency

The Trading Price for this Index Component on the day the event came into effect is the last available market price for this Index Component quoted on the Exchange on the day the event came into effect (or, if a market price is not available for the day the event came into effect, the last available market price quoted on the Exchange on a day specified as appropriate by the Index Calculator), as determined by the Index Calculator, and this price is used as the Trading Price of the particular Index Component until the end of the day on which the composition of the Index is next set.

In the event of the Insolvency of an issuer of an Index Component the Index Component shall remain in the Index until the next Adjustment Day. As long as a market price for the affected Index Component is available on a Business Day, this shall be applied as the Trading Price for this Index Component on the relevant Business Day, as determined in each case by the Index Calculator. If a market price is not available on a Business Day the Trading Price for this Index Component is set to zero. The Committee may also decide to eliminate the respective Index Component at an earlier point in time prior to the next Adjustment Day. The procedure in this case is identical to an elimination due to and Extraordinary Event.

The “**Index Calculator**” is Solactive AG or any other appropriately appointed successor in this function.

“**Index Component**” is each share currently included in the Index.

The “**Index Currency**” is the US dollar.

“**Index Sponsor**” means CIBC World Markets Inc.

“**Insolvency**” occurs with regard to an Index Component if (A) all shares of the respective issuer must be transferred to a trustee, liquidator, insolvency administrator or a similar public officer as result of a voluntary or compulsory liquidation, insolvency or winding-up proceedings or comparable proceedings affecting the issuer of the Index Components or (B) the holders of the shares of this issuer are legally enjoined from transferring the shares.

“**Market Capitalization**” is with regard to each of the shares in the Index on a Rescreening Day or Ordinary Adjustment Day the value published as the Market Capitalization for this day. As at the date of

this document Market Capitalization is defined as the value of a company calculated by multiplying the number of shares outstanding of the company by its share price.

A “**Market Disruption Event**” is defined as a Business Day where the Index Component is not published.

With regard to an Index Component a “**Merger**” is

- (i) a change in the security class or a conversion of this share class that results in a transfer or an ultimate definite obligation to transfer all the shares in circulation to another legal person,
- (ii) a merger (either by acquisition or through forming a new structure) or a binding obligation on the part of the issuer to exchange shares with another legal person (except in a merger or share exchange under which the issuer of this Index Component is the acquiring or remaining company and which does not involve a change in security class or a conversion of all the shares in circulation),
- (iii) a takeover offer, exchange offer, other offer or another act of a legal person for the purposes of acquiring or otherwise obtaining from the issuer 100% of the shares issued that entails a transfer or the irrevocable obligation to transfer all shares (with the exception of shares which are held and controlled by the legal person), or
- (iv) a merger (either by acquisition or through forming a new structure) or a binding obligation on the part of the issuer of the share or its subsidiaries to exchange shares with another legal person, whereby the issuer of the share is the acquiring or remaining company and it does not involve a change in the class or a conversion of the all shares issued, but the shares in circulation directly prior to such an event.

The “**Merger Date**” is the date on which a Merger is concluded or the date specified by the Index Calculator if such a date cannot be determined under the law applicable to the Merger.

“**Nationalisation**” is a process whereby all shares or the majority of the assets of the issuer of the shares are nationalised or are expropriated or otherwise must be transferred to public bodies, authorities or institutions.

“**Number of Shares**” is in respect of an Index Component and any given Business Day the number or fraction of shares included in the Index. It is calculated for any Index Component as the ratio of (A) the Percentage Weight of an Index Component multiplied by the Index value and (B) its Trading Price.

“**Index Rebalancing Date**” is the 5th Trading Day of January and July in each year.

“**Percentage Weight**” of an Index Component is the ratio of its Trading Price multiplied by its Number of Shares divided by the Index value.

“**Rescreening Date**” is the last Trading Day of June and December in each year.

Company “**Sector Classification**” uses Factset level 1 industry definition (Economy level) subject to the following adjustments

Industry Data	If Equal to	Revise Classification to
Level 3 (Industry)	Real Estate Investment Trusts	Real Estate Investment Trusts
Level 2 (Sector)	Communications	Communications
Level 1 (Economy)	Consumer Non-Durables Consumer Durables	Consumer Products
Level 3 (Industry)	Chemicals: Agricultural Chemicals: Major Diversified Chemicals: Specialty	Basic Materials
Level 3 (Industry)	Oil & Gas Pipelines	Energy
Level 3 (Industry)	Financial Publishing/Services	Finance

Level 3 (Industry)	Cable/Satellite TV	Communications
Level 3 (Industry)	Aerospace & Defense	Industrials

“**Stock Substitute**” includes in particular American Depository Receipts (ADR) and Global Depository Receipts (GDR).

A “**Takeover bid**” is a bid to acquire, an exchange offer or any other offer or act of a legal person that results in the related legal person acquiring as part of an exchange or otherwise more than 10% and less than 100% of the voting shares in circulation from the issuer of the Index Component or the right to acquire these shares, as determined by the Index Calculator based on notices submitted to public or self-regulatory authorities or other information considered by the Index Calculator to be relevant.

“**Trading Day**” means a day on which the New York Stock Exchange is open.

With regard to an Index component (subject to the provisions given above under “**Extraordinary Events**”) the “**Trading Price**” in respect of a Trading Day is the closing price on this Trading Day determined in accordance with the Exchange regulations. If the Exchange has no closing price for an Index Component, the Index Calculator shall determine the Trading Price and the time of the quote for the share in question in a manner that appears reasonable to him.

“**Withholding Tax Rate**” is 15%.