Index Guideline

Solactive Select Junior Gold Miners Index

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Version: 1.02

Contents

This document contains the underlying principles and regulations regarding structure and operating of the Solactive Select Junior Gold Miners Index**.** Solactive AG shall make every effort to implement regulations. Solactive AG does not offer any explicit or tacit guarantee or assurance, neither pertaining to the results from the use of the Index nor the Index value at any certain point in time nor in any other respect. The Index is merely calculated and published by Solactive AG and it strives to the best of its ability to ensure the correctness of the calculation. There is no obligation for Solactive AG – irrespective of possible obligations to issuers – to advise third parties, including investors and/or financial intermediaries, of any errors in the Index. The publication of the Index by Solactive AG is no recommendation for capital investment and does not contain any assurance or opinion of Solactive AG regarding a possible investment in a financial instrument based on this Index.

Introduction

This document is to be used as a guideline with regard to the composition, calculation, and management of the Solactive Select Junior Gold Miners Index (the **"Index"**). Any changes made to the guideline are initiated by the Committee specified in section 1.6. The Solactive Select Junior Gold Miners Index is calculated and published by Solactive AG. The name "Solactive" is copyrighted.

1 Index specifications

The Solactive Select Junior Gold Miners Index is an Index of Solactive and is calculated and published by Solactive AG.

The Index tracks the performance of medium-sized gold and silver mining companies listed on regulated US or Canadian stock exchanges. The proportion of silver companies in the index is capped at 20% as of the Selection Day.

The index is calculated in USD as a Price Return and Gross Total Return version. No withholding tax rates apply.

The Index is rebalanced quarterly in February, May, August, and November.

1.1 Short name and ISIN

The Index is distributed under the following identifiers:

Name	ISIN	WKN	Characteristic	Reuters	Bloomberg
Solactive Select Junior Gold Miners Index GTR	DE000S LA3VS5	SLA3VS	Gross Total Return	.SOLJRGT	SOLJRGT Index
Solactive Select Junior Gold Miners Index PR	DE000S LA3VT3	SLA3VT	Price Return	.SOLJRGP	SOLJRGP Index

1.2 Initial value

The Index is calculated live since July 27th 2017. Historic values are available since May 2nd 2012. The Index is based on 1000 at the close of the start date, May 2nd 2012.

1.3 Distribution

The Solactive Select Junior Gold Miners Index is published via the price marketing services of Boerse Stuttgart AG and is distributed to all affiliated vendors.

Each vendor decides individually, if he wants to display or distribute the Index. A list of these vendors can be found under the following address:

- https://www.boerse-stuttgart.de/de/unternehmen/angebote-fuer-geschaeftspartner/informationsprodukte/revendorenliste/revendoren/
- https://www.boerse-stuttgart.de/de/unternehmen/angebote-fuer-geschaeftspartner/informationsprodukte/revendorenliste/vendoren/

1.4 Prices and calculation frequency

The index level of the Solactive Select Junior Gold Miners Index is calculated on each Business Day based on the prices of the Index Components on the respective Exchanges on which the Index Components are listed. The most recent prices of all Index Components are used. Prices of Index Components not listed in the Index Currency are translated using Reuters/WMCO closing spot rates as at 9pm London time. Should there be no current price available on Reuters, the most recent price on Reuters is used in the calculation.

The Solactive Select Junior Gold Miners Index is calculated every Business Day from 9:30am to 4:20pm EST, every 15 seconds. In the event that data cannot be provided to Reuters or to the pricing services of Boerse Stuttgart AG, the Index cannot be distributed.

In the event that the US market is closed, but the Canadian market is open, stale prices for the US market will be used – and vice versa.

Solactive AG makes the greatest possible efforts to accurately calculate and maintain its indices. However, the occurrence of errors in the index determination process cannot be ruled out. In such cases Solactive AG adheres to its publicly available Correction Policy.

1.5 Weighting

As of the close of every Selection Day, each Index Component of the Solactive Select Junior Gold Miners Index is weighted according to its Market Capitalization (no adjustment for free float), with the following modifications:

- Exposure to the RBICS Subindustry "Silver Ore Mining" is capped at 20%
- The individual Percentage Weight of each stock is capped at 20%
- The collective Percentage Weight of all Index Components whose individual weight ≥ 5% is capped at 45%, with a floor of 5% (and a maximum of 20% per stock).
- Each Index Component whose Percentage Weight ≥4.5% and <5% is capped at 4.5%
- Each Index Component whose Percentage Weight ≤4% is capped at 4%.

To ensure that all these weighting constraints are met, an optimizer is used to ensure that the Modified Market Cap Weighs (the final weights used for Index Components) are as close as possible to – what would be – unmodified Market Capitalization Weights. The following steps are taken:

1. Calculate Unmodified Market Capitalization Weighting (pure MCAP weighting)

2. Use optimizer (Interior Point Algorithm) to calculate Modified Market Capitalization Weights (the final weights used for the Index Components), by minimizing the absolute differences between Unmodified MCAP weights and Modified MCAP weights (final weights), while adhering to the aforementioned constraints. In other words, the optimizer finds the weights that are as close as possible to pure MCAP weights, but that still satisfy all constraints.

   The objective function that the optimizer minimizes is defined as:

   $$\min[\ abs\ (Unmodified\ MCAP\ Weight - Modified\ MCAP\ Weight)]$$

The capping methodology may be amended by the Committee from time to time to ensure appropriate index representation and index compliance with financial product regulations.

The Index Component weights are converted into number of shares that are implemented at the close of the Adjustment Day. The number of shares are adjusted for corporate actions between Selection Day and Adjustment Day. This only relates to corporate actions that have a direct impact on the price and shares (i.e. stock splits, stock dividends, rights issues).

1.6 Decision-making bodies

A Committee composed of staff from Solactive AG is responsible for decisions regarding the composition of the Solactive Select Junior Gold Miners Index as well as any amendments to the rules (in this document referred to as the **"Committee"** or the **"Index Committee"**). The future composition of the Solactive Select Junior Gold Miners Index is determined by the Committee on the Selection Day according to the procedure outlined in 2.1 of this document. The Committee shall also decide about the future composition of the Solactive Select Junior Gold Miners Index, if any Extraordinary Events should occur and the implementation of any necessary adjustments.

Members of the Committee can recommend changes to the guideline and submit them to the Committee for approval.

1.7 Publication

All specifications and information relevant for calculating the Index are made available on the http://www.solactive.de web page and sub-pages.

1.8 Historical data

Historical data will be maintained from the launch of the Index on July 27th 2017. Historic values are available since May 2nd 2012.

1.9 Licensing

Licences to use the Index as the underlying value for derivative instruments are issued to stock exchanges, banks, financial services providers and investment houses by Solactive AG*.*

2 Composition of the Index

2.1 Selection of the Index Components

The initial composition of the Index is based on the following rules:
- The stock is listed on a regulated US or Canadian stock exchange.
- The company's RBICS Industry-Group classification is "Precious Metal Mining".
- Minimum Market Capitalization (not adjusted for free float) is USD 100 million.
- Maximum Market Capitalization (not adjusted for free float) is USD 3 billion.
- Average Daily Value Traded is at least USD 1 million.
- Trading price of the stock is at least USD 1

If a stock is listed in the US and in Canada (and if both listings fulfill all of the above requirements), the US listing takes priority with one exception: if the Canadian listing is already an Index Component since a previous selection (e.g. due to the US listing not being liquid enough), the Canadian listing will stay in the index and the US listing will not be selected even if its liquidity is higher, in order to reduce index turnover.

2.2 Ordinary adjustment

The composition of the Index is ordinarily adjusted quarterly based on data pertaining to the Selection Day. The composition of the Solactive Select Junior Gold Miners Index is reviewed on the Selection Day and adjusted according to the following rules:
- Companies that are not included in the composition should fulfil the requirements stated in the paragraph 2.1.
- Current Index Components should fulfil the following adjusted requirements to remain in the index:
    o The stock is listed on a regulated US or Canadian stock exchange
    o The company's RBICS Industry-Group classification is consistent with point 2.1 of the current guideline
    o Minimum Market Capitalization (not adjusted for float) is USD 70 million
    o Maximum Market Capitalization (not adjusted for free float) is USD 3.9 billion
    o Minimum Average Daily Value Traded ≥ USD 0.7 million
    o Trading price of the stock is at least USD 0.9

The adjusted requirements serve as a buffer and are applied in order to achieve lower index turnover.

Solactive AG shall publish any changes made to the Index composition with sufficient notice before the Adjustment Day.

2.3 Extraordinary adjustment

The following table provides guidance on the treatment that will be applied following M&A activity. The changes will be effective with two days' notice if possible. For all extraordinary corporate actions not covered within this document, the Index Committee will announce the specific treatment on the Solactive webpage.

Event	Adjustment	Treatment
Acquisition (only Target Company is in the Index)	Yes	If the acquired constituent is delisted, the stock is removed and the proceeds are reinvested proportionally (based on the current weight) among the other constituents. This is independent as to whether the transaction has been paid for using cash, stock or a combination of both.

Event	Adjustment	Treatment
Acquisition or Merger (both Acquirer and Target Company are in the Index)	Yes	If the acquired constituent is delisted, the stock is removed and the cash received in the transaction is proportionally distributed to the remaining index components. In case the transaction is financed entirely or partly with new shares, then the shares of the acquirer in the index are increased accordingly, leading to an increased Market Capitalization and weight within the index.
Spin Off	Yes	The spun off company is added to the index on the ex-date according to the terms of the spin off. At the next ordinary rebalancing, the eligibility of the company is reviewed according to the criteria outlined in this methodology.

3 Calculation of the Index

3.1 Index formula

The Index Value on any Business Day is calculated in accordance with the following formula for all stocks i:

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

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 Business Day t

The initial Divisor on the Start Date is calculated according to the following formula (in case the Index Level at the Start Date is set to 100):

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

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

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

This Divisor is valid starting the immediately following Business Day.

3.2 Precision

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

The Number of Index Shares of the Index Components will be rounded to integers.

Divisors will be rounded to six decimal places.

3.3 Adjustments

The Indices are adjusted for systematic changes in prices due to Corporate Actions as soon as 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, i.e. based on close prices of the index components as of close prior to the respective ex-date.

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.

3.4 Dividends and other distributions

Regular Cash Distributions and Special distributions are included in the index calculation (gross of withholding tax). Distributions cause an adjustment of the Divisor. The new Divisor is calculated as follows:

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

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

3.5 Corporate actions

3.5.1 Principles

Following the announcement of an 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.

3.5.2 Capital increases

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

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

$x_{i,t+1}$ = 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

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

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

3.5.3 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

3.5.4 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

3.6 Market Disruption Event

In periods of market stress Solactive AG calculates its indices following predefined and exhaustive arrangements set out in its publicly available Disruption Policy.

4. Definitions

"Index Component" is each company currently included in the Index.

"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.

"Percentage Weight" of an Index Component is the ratio of its Market Capitalization to the sum of the Market Capitalizations of all Index Components.

"Dividend Correction Factor" is calculated as 1 minus the applicable withholding tax rate and/or other applicable tax rate currently prevalent in the respective country.

An **"Extraordinary Event"** is
  - a Merger
  - a Takeover bid
  - a delisting
  - 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.
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,

"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.

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.

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 (except for shares held and controlled by the legal person) represent in total less than 50% of the shares in circulation directly subsequent 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.

"Exchange" is, in respect of Solactive Select Junior Gold Miners Index and every Index Component, the respective exchange where the Index Component has its primary or secondary listing.

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.

A **"Trading Day"** is in relation to the Index or an Index Component a Trading Day on the Exchange (or a day that would have been such a day if a market disruption had not occurred), excluding days on which trading may be ceased prior to the normal Exchange closing time. The Index Calculator is ultimately responsible as to whether a certain day is a Trading Day with regard to the Index or an Index Component or in any other connection relating to this document.

A **"Business Day"** is any day of the week that is a regular trading day in the U.S. and Canada

"RBICS" refers to "FactSet Revere Business and Industry Classification System".

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

The **"Index Currency"** is USD.

"Adjustment Day" is the first Wednesday of February, May, August, and November respectively.

"Selection Day" is ten Business Days prior to the Adjustment Day.

5 Appendix

5.1 Contact data

Information regarding the Solactive Select Junior Gold Miners Index concept

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5.2 Calculation of the Index – change in calculation method

The application by the Index Calculator of the method described in this document is final and binding. The Index Calculator shall apply the method described above for the composition and calculation of the Index. However, it cannot be excluded that the market environment, supervisory, legal, financial or tax reasons may require changes to be made to this method. The Index Calculator may also make changes to the terms and conditions of the Index and the method applied to calculate the Index, which he deems to be necessary and desirable in order to prevent obvious or demonstrable error or to remedy, correct or supplement incorrect terms and conditions. The Index Calculator is not obliged to provide information on any such modifications or changes. Despite the modifications and changes the Index Calculator will take the appropriate steps to ensure a calculation method is applied that is consistent with the method described above.