

## Guideline relating to

Solactive USD Investment Grade Corporate Select TR Index

Solactive USD Investment Grade Corporate Select PR Index

Solactive USD Investment Grade Corporate Select in CAD TR Index

Solactive USD Investment Grade Corporate Select Hedged to CAD TR Index

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This document contains the underlying principles and regulations regarding the structure and operation of the Solactive USD Investment Grade Corporate Select Indices. Solactive AG shall make every effort to implement the relevant 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 given point in time nor in any other respect. The Solactive USD Investment Grade Corporate Select Indices are the sole property of Solactive AG. Solactive AG 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 calculation and publication of the index by Solactive AG is not a 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 USD Investment Grade Corporate Select TR Index, Solactive USD Investment Grade Corporate Select PR Index, Solactive USD Investment Grade Corporate Select in CAD PR Index and the Solactive USD Investment Grade Corporate Select Hedged to CAD PR Index. Any changes made to the guideline are initiated by the Committee specified in section 1.6. The Solactive USD Investment Grade Corporate Select Indices are the sole property of Solactive AG. The Solactive USD Investment Grade Corporate Select Indices are calculated and published by Solactive AG. The name “Solactive” is copyrighted.

## 1 Index specifications

The Solactive USD Investment Grade Corporate Select Indices are rules-based, market value weighted indices engineered to mirror the worldwide performance of investment grade corporate bonds issued in USD. The Solactive USD Investment Grade Corporate Select Index will be distributed both as a Total Return Index (i.e. coupon payments will be reinvested in the index on each Adjustment day) and a Price Return Index (i.e. coupon payments will not be considered in the index). The Solactive USD Investment Grade Select in CAD PR Index is a version of the Solactive USD investment Grade Corporate Select PR Index where the index currency is CAD. The Solactive USD Investment Grade Select Hedged to CAD PR Index is a currency hedged version of the Solactive USD Investment Grade Select in CAD PR Index.

The Solactive USD Investment Grade Corporate Select Indices select a representative subset of the Solactive USD Investment Grade Corporate Index targeting a similar performance.

### 1.1 Name and ISIN

The Solactive USD Investment Grade Corporate Select Indices are distributed under the following symbols:

Name	ISIN	Reuters RIC	Bloomberg Ticker
Solactive USD Investment Grade Corporate Select TR Index	DE000SLA44J3	.SOLUSSTR	n/a
Solactive USD Investment Grade Corporate Select PR Index	DE000SLA44K1	.SOLUSSPR	n/a
Solactive USD Investment Grade Corporate Select in CAD TR Index	DE000SLA4536	.SOLUSCAD	n/a
Solactive USD Investment Grade Corporate Select Hedged to CAD TR Index	DE000SLA4544	.SOLUSSCH	SOLUSSCH Index

### 1.2 Initial value

The indices will be calculated every Business Day starting on 2<sup>nd</sup> of January 2018. Before this date the index values are backfilled until 30<sup>th</sup> of December 2011, with the index value based on 1000 as at the close of trading on 29<sup>th</sup> of December 2017.

### 1.3 Distribution

The Solactive USD Investment Grade Corporate Select Indices are published via the price marketing services of Boerse Stuttgart AG and is distributed to all affiliated vendors.

## 1.4 Prices and calculation frequency

The Solactive USD Investment Grade Corporate Select Indices are calculated based on the Evaluated Bid Price (see 4.2 Further Definitions) of the respective Index Components, whereas newly added bonds are added at the Evaluated Ask Price. The index is calculated and distributed once every Business Day. Bond and index analytical values are calculated each Business Days using the Last Evaluated Price.

Updated index values and other statistics will not be distributed. In the event that the data required for index calculation purposes is not available or that there are troubles regarding the price marketing of Solactive AG or Stuttgart Stock exchange the index cannot be distributed.

## 1.5 Weighting

The Index Components are weighted according to the weighting scheme described under chapter 2.1 Selection of the Index Components.

## 1.6 Decision-making bodies

A Committee composed of staff from Solactive AG is responsible for decisions regarding the composition of the Solactive USD Investment Grade Corporate Select Indices, as well as any amendments to the rules (hereinafter referred to as the "**Committee**" or the "**Index Committee**"). The Committee will also determine the future composition of the Solactive USD Investment Grade Corporate Select Indices if any Extraordinary Event (see chapter 2.3) occurs, as well as the implementation of any necessary adjustments.

Members of the Committee can recommend at any time changes to the composition of the Index or to the guideline and submit them to the Committee for approval. Any change of the guideline will be announced on the web page <https://www.solactive.com>

## 1.7 Publication

All specifications and information relevant for calculating the index are made available on the <https://www.solactive.com> web page and sub-pages.

## 1.8 Historical data

Historical data will be maintained from 31<sup>th</sup> of December 2011.

## 1.9 Licencing

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 Solactive USD Investment Grade Corporate Index serves as a starting universe for all Solactive USD Investment Grade Corporate Select Indices. All index members of the Solactive USD Investment Grade Corporate Index are potentially eligible for inclusion in the indices. From this starting universe the approximately 500 securities which are most likely to represent the entire Solactive USD Investment Grade Corporate Bond Index best, are included in the indices. This involves a 4-step selection process.

1. Each security in the selection pool will be assigned to a specific bucket according to the securities' rating and modified duration. There are 10 rating buckets and 11 modified duration buckets (exact definitions of buckets can be found under 4.1. Index Specific Definitions).
2. Market weights of each bucket, relative to the entire selection pool, are calculated. According to the weight of each bucket the number of bonds which represent the specific bucket is determined. This is done by applying the following formula:

$$\text{Number of Bonds Per Bucket}_j = \text{Bucket Weight}_j * \text{Target Number of Bonds}$$

Please note that *Number of Bonds Per Bucket<sub>j</sub>* has to be integer number. This is ensured by cutting off all decimals. This will lead to a lower number of bonds in the index than initially set by the target. To compensate for this the buckets with the largest difference between the exact number of bonds and the integer number of bonds will receive one extra security. This step is performed for each bucket until the index reaches the target number of constituents.

3. Once the target number of bonds per bucket is defined. The appropriate number of bonds are selected which display the largest amount outstanding of the respective bucket and which are not classified as securities registered under 144a registration rights.
4. After this step bond weights will be assigned. Securities are weighted according to market capitalisation within their buckets. The bucket weights were determined in step 2.

Formally the weight of each security is derived in the following way:

$$\text{Final Bond Weight}_i = (\text{Bucket Weight}_j + \frac{\text{Bucket Weight}_j}{\text{Sum of Bucket Weights}} * \text{Bucket Sum}_{\text{Bond}=0}) * \frac{\text{Initial Bond Weight}_i}{\text{Sum of Initial Weights of Bucket}_j}$$

Where:

*Bucket Weight<sub>j</sub>* = Weight of respective Bucket j relative to entire selection pool

*Sum of Bucket Weights* = Sum of all Bucket Target Weights.

*Bucket Sum<sub>Bond=0</sub>* = Sum of all Buckets with a target number of bonds = 0. These buckets may exist due to the integer constraint of target number of bonds per bucket.

*Initial Bond Weight<sub>i</sub>* = Market Weight relative to entire selection pool.

*Sum of Initial Weights of Bucket<sub>j</sub>* = Sum of Initial Bond Weights of respective bucket j.

*Target Number of Bonds* = Number of index constituents fixed by Guideline

Extraordinary adjustments are possible as described under 2.3.

## **2.2 Ordinary adjustment**

The composition of the index is ordinarily reviewed on the monthly Selection Day. Any change to the index will be announced on the Announcement Day and implemented on the Adjustment Day.

## **2.3 Extraordinary adjustment**

The Index Committee will decide about the future composition and the implementation of any necessary adjustments of the Solactive USD Investment Grade Corporate Select Indices if an Extraordinary Event (early redemption, credit event etc.) regarding one or more index constituents occurs. See details under 3.3 Adjustments

The Index Committee will decide on the future composition of the Solactive USD Investment Grade Corporate Select Indices as well as the Business Day which marks the starting of the new adjusted index composition.

## 3 Calculation of the Index

### 3.1.1 Index formula

The Solactive USD Investment Grade Corporate Select Indices are indices whose value reflects the relative changes in bond values. Therefore, the composition and weighting is adjusted every month.

The total return version is calculated as followed:

$$Index_t = Index_n \frac{MarketValue_t + PaidCash_t}{BaseValue_n}$$

$$MarketValue_t = \sum_{i=1}^a (DirtyPrice_{i,t} + CPAdj_{i,t}) \cdot Amount_{i,n} \cdot Capfactor_{i,rb} * FX_{i,t}$$

$$PaidCash_t = \sum_{i=1}^a Coupon_{i,t} \cdot Amount_{i,n} \cdot Capfactor_{i,rb} * FX_{i,t}$$

$$BaseValue_n = \sum_{i=1}^a (DirtyPrice_{i,n} + CPAdj_{i,n}) \cdot Amount_{i,n} \cdot Capfactor_{i,rb} * FX_{i,n}$$

The price return index is calculated as followed:

$$Index_t = Index_n \frac{MarketValue_t}{BaseValue_n}$$

$$MarketValue_t = \sum_{i=1}^a CleanPrice_{i,t} \cdot Amount_{i,n} \cdot Capfactor_{i,rb} * FX_{i,t}$$

$$BaseValue_n = \sum_{i=1}^a CleanPrice_{i,n} \cdot Amount_{i,n} \cdot Capfactor_{i,rb} * FX_{i,n}$$

Whereas:

$Index_t$  = Value of the index on Business Day t.

$Index_n$  = Value of the index on the last Adjustment Day n.

$CPAdj_{i,t}$  = Variable Coupon Adjustment Factor i on Business Day t is 0 if a bond enters the index during an ex-dividend period. If the bond is already in the index during the ex-dividend period, the Variable Coupon Adjustment Factor equals the coupon amount.

$DirtyPrice_{i,t}$  = Dirty Price of the bond i on Business Day t, whereas Dirty Price t is the sum of the clean price of the bond i on Business Day t and the accrued interest on Business Day t.

$DirtyPrice_{i,n}$	= Dirty Price of the bond i on the last Adjustment Day n, whereas Dirty Price is the sum of the clean price of the bond i on the last Adjustment Day n and the accrued interest on the last Adjustment Day n.
$Amount_{i,n}$	= Amount Outstanding of the respective bond as defined on the last Adjustment Day n.
$PaidCash_t$	= a) Value of the coupon payments between Adjustment Days. b) If a bond i will be removed from the index between Adjustment Days, the resulting payment of the bond will be included in the Paid Cash component of the index. On the next Adjustment Day "Paid Cash" will be reinvested in the index.
$Coupon_{i,t}$	= Coupon payment of bond i between payment date and Adjustment Day n. In case there is no coupon payment, Coupon i,t is 0.
$Capfactor_{i,rb}$	= Weighting Cap Factor of portfolio component i determined on Selection day rb, to cap the weighting as described under Index Weighting
$FX_{i,t}$	= the currency exchange rate of bond i to the target currency on day t
$FX_{i,n}$	= the currency exchange rate of bond i to the target currency on rebalancing date n

**The currency hedged version of the price return index is calculated as followed:**

$$I_t = I_{RT-1} \cdot \left( 1 + \left( \frac{UI_t}{UI_{RT-1}} - 1 \right) + HIM_t \right)$$

with

$I_t$  = Index value on Business Day t

$I_{RT-1}$  = Index value on the last Rebalancing Date immediately preceding t

$UI_t$  = Underlying Index value on Business Day t

$UI_{RT-1}$  = Underlying Index value on the last Rebalancing Date immediately preceding t

$HIM_t$  = Hedge Impact on Business Day t

The Hedge Impact is calculated using the following formula:

$$HIM_t = AF_{RT-1} \cdot \sum_{i=1}^n W_{i,ST-1} \cdot S_{i,ST-1}^m \cdot \left( \frac{1}{F_{i,RT-1}^m} - \frac{1}{IF_{i,t}^m} \right)$$

with

$AF_{RT-1}$  = Adjustment Factor on the last Rebalancing Date immediately preceding t which is calculated as follows:

$$AF_{RT-1} = \frac{I_{ST-1}}{I_{RT-1}}$$

with

$I_{ST-1}$  = Index value on the last Reference Day immediately preceding or equal to RT-1

$I_{RT-1}$  = Index value on the last Rebalancing Day immediately preceding t



n = number of different currencies in the Underlying Index (without considering the currency in which the index is calculated),  
 $W_{i,ST-1}$  = Weight of currency i on the last Reference Date immediately preceding or equal to RT-1  
 $S^m_{i,t}$  = Mid Spot of currency i on day t  
 $F^m_{i,RT-1}$  = Mid Forward of currency i on the last Rebalancing Date immediately preceding t  
 $IF^m_{i,t}$  = Interpolated Forward on day t which is calculated as follows:

$$IF^m_{i,t} = S^m_{i,t} + (F^m_{i,t} - S^m_{i,t}) \cdot \frac{D-d}{D}$$

with

D = number of calendar days between RT-1 and RT

d = number of calendar days between RT-1 and t

### 3.2 Accuracy

The values of the indices will be rounded to two decimal places.

According to the terms of the bond, the Index Calculator will take the following conventions into account:

Act/Act

Act/360

Act/365

30/360

ISMA 30/360

The index does not take taxes into account and assumes gross coupon payments.

Accrued interests are calculated with settlement convention t+0.

### 3.3 Adjustments

Indices need to be adjusted for systematic changes in prices once these become effective. The Committee will decide from time to time if the Solactive USD Investment Grade Corporate Select Indices need to be adjusted.

The following corporate actions will result in changes or adjustments to an index as indicated below between Adjustment Days:

(a) Early Redemption or Full Call: The bond proceeds will be held as “Paid Cash” and reinvested into the index on the following Adjustment Day. For the avoidance of doubt a Tender must be mandatory, the pure offer to tender a bond will not lead to an adjustment of the index.

(b) Flat Trading: A bond is marked as flat trading if the bond issuer will not meet its coupon payment obligation. This means that the buyer of a bond is not responsible for paying the interest that has accrued since the last payment. If a bond is defined to be “flat trading” between two Adjustment Days the respective accrued interests and coupons will be set to 0. The bond will not be removed until the next Adjustment Day.

(c) Defaulted Bonds: If the status of a bond changes to “In Default”, the bond will remain as part of the index or portfolio at the last available evaluated price provided by the pricing source until the next regular index adjustment day.

(d) Exchange Offers:

1) Optional Exchange Offers: Optional Exchange Offers will not result in an adjustment of the index.

2) Mandatory Exchanges Offers:

- a. In case more than 90% of the Amount Outstanding is exchanged the exchange will be considered in the index calculation by exchanging the relevant bonds, so that the new bond will receive the weight of the old exchanged bond.
- b. In the case when less than 90% of the Amount Outstanding is exchanged the exchange will not be considered to be an event that affects the relevant bond's position in the index.

(e) Fungible Bonds:

- 1) The parent bond and the sub-tranche are both index constituents: Both bonds are kept in the index until the next Adjustment Day. On the next Adjustment Day, the new bond will be removed and the Amount Outstanding of the parent bond will be increased by the amount of the new bond issue.
- 2) The parent bond is an index constituent and the sub-tranche is not: On the next Adjustment Day, the Amount Outstanding of the parent bond will be increased by the amount of the sub-tranche.
- 3) The parent bond is not an index constituent but the sub-tranches: On the next Adjustment Day, the sub-tranche leaves the index and the parent bond enters the index including the Amount Outstanding added from the sub-tranche (assuming that it meets the requirements of the Selection Pool).

(f) Payment-in-Kind Bonds: These bonds pay interest in additional bonds rather than in cash. Assuming the additional bonds will be sold immediately and the proceeds will be reinvested in the index, payments-in-kind are therefore considered as cash in the Paid Cash component in all Total Return calculations.

(g) Ex-dividend Bonds: "Ex-dividend" means that the next coupon is detached from the bond several days in advance of the coupon payment date. Between ex-date and pay-date a buyer of the bond does not get the right to receive the next coupon. Therefore, accrued interest is negative during that period. However, the coupon will be paid to the original bondholder, i.e. if a bond is already in the index the next coupon payment is held separate in the Variable Coupon Adjustment Factor  $CPAdj_{i,t}$ . If the bond enters the index during the ex-dividend period  $CPAdj_{i,t}$  is zero as the next coupon payment will not accrue to the index.

\*For the avoidance of doubt, an optional tender or exchange offer may lead to an index adjustment after the end of the submission period. In case the tender or exchange has been successful for at least 90% of the Amount Outstanding, the bond will be removed from the index/exchanged into the relevant bond.

## 4. Definitions

### 4.1 Index-specific definitions

As a **“Selection Pool”** and therefore the starting universe for the indices serves the Solactive USD Investment Grade Corporate Index. Please find all rules regarding the index member selection process for the Solactive USD Investment Grade Corporate Index under the following link: [Solactive USD Investment Grade Corporate Index Guidelines](#)

**“Target Number of Bonds”** is 500.

**“Rating Buckets”** are defined as followed. Only Investment Grade rated debt are eligible for the index

Rating Category	Bucket
AAA	1
AA+	2
AA	3
AA-	4
A+	5
A	6
A-	7
BBB+	8
BBB	9
BBB-	10

**“Modified Duration Buckets”** are defined as followed. The lower boundary is always exclusive, while the upper boundary is always inclusive.

Modified Duration	Bucket
0-2	1
2-4	2
4-6	3
6-8	4
8-10	5
10-12	6
12-14	7
14-16	8
16-18	9
18-20	10
20+	11

**“Underlying Index”** of the Solactive USD Investment Grade Corporate Hedged to CAD PR Index is the Solactive USD Investment Grade Corporate PR Index.

The **“Weight”** of each currency is determined at the Reference Date and is calculated as the sum of the weights of each Underlying Index component denominating in the same currency.

**“Reference Date”** is the last business day of each month and therefore equal to the Adjustment Day.

## 4.2 Further definitions

**“Adjustment Day”** is the last Business Day of each month.

**“Announcement Day”** is the Business Day following the Selection Day.

**“Amount Outstanding”** is the face value of the respective bond.

A **“Business Day”** in relation to the index is each day, Monday to Friday, except banking holidays as defined by the New York Stock Exchange (NYSE) and SIFMA.

**“Call”** means that a bond with a callable feature will be redeemed before the actual maturity date of the bond. The callable feature allows the issuer of the bond to retain the privilege of redeeming the bond before the actual maturity date.

**“Convertible Bonds”** are bonds that can be converted into a predetermined amount of the company's equity at certain times during its life.

**“Covered Bonds”** are bonds backed by cash flows or mortgages or public sector loans.

A **“Credit Event”** is the suspension of debt service, insolvency or failure to pay on time.

**“Early Redemption”** includes every event that leads to a redemption of a bond before the actual maturity date.

**“Ex-dividend”** means that the next coupon is detached from the bond several days in advance of the coupon payment date.

**“Exchange Offer”** means that the holder of a bond is invited to exchange the existing bond to another debt security.

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

- an early redemption of the bond
- a credit event

**“Fixed Coupon Bonds”** are bonds with a fixed coupon rate, as opposed to floating rate coupons.

A bond is **“Flat Trading”** if the bond issuer will not meet its coupon payment obligation which means that the buyer of a bond is not responsible for paying the interest that has accrued since the last payment.

**“Floating Rate Bonds”** are bonds with a variable or floating interest rate, i.e. coupons fluctuate in line with the underlying level of interest rates, as opposed to fixed-rate coupons.

A **“Fungible Bond”** is a new issue that has all the same specifications as an existing issue (bonds with the same parameters can be issued in different tranches). At a specific date, the tranches will be combined into one bond. After this date, the parent tranche will include the Amount Outstanding of all new tranches.

A bond is **“In Default”** when the issuer is not able to fulfil its bond payment obligations anymore after the 30 days grace period.

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

**“Index Components”** are all bonds which have been selected using the 3 stages selection process described under 2.1 Selection of Index Components.

The **“Index Currency”** is:

Name	Index Currency
Solactive USD Investment Grade Corporate Select TR Index	USD
Solactive USD Investment Grade Corporate Select PR Index	USD
Solactive USD Investment Grade Corporate Select in CAD TR Index	CAD
Solactive USD Investment Grade Corporate Select Hedged to CAD TR Index	CAD

**“Inflation-linked Bonds”** are bonds whose principal is indexed to inflation.

**“Issuer”** is the issuing entity of the respective bond.

**“Last Evaluated Price”** generally is (aside from the rules referred to in „Extraordinary Events“) the last available Evaluated Bid Price.

**“Evaluated Ask Price”** is the last available Ask Price evaluated by the designated Pricing Provider.

**“Paid Cash”** is either the value of the coupon payments between Adjustment Days or the resulting payment when a bond is removed from the index between Adjustment Days. On the next Adjustment Day **“Paid Cash”** will be reinvested in the index.

**“Payment-In-Kind Bonds”** are a type of bonds that pay interest in additional bonds rather than in cash.

**“Preferred Securities”** combine both debt and equity characteristics.

A **“Price Return Index”** measures the performance of the index components assuming that distributions are not reinvested in the index, i.e. the index does only reflect pure price movements.

**“Securitized Bonds”** are bonds secured against specific assets or receivables (ABS), mortgages (MBS) or cash flows.

**“Selection Day”** is a Business Day 3 Business Days prior to the Adjustment Day. If the Selection Day happens to be Christmas Eve the new composition is fixed 1 Business Day in advance.

**“Sinking Fund Bonds”** are bonds that are backed by a fund that sets aside money on a regular basis. A sinkable bond issuer is required to buy a certain amount of the bond back from the purchaser at various points throughout the life of the bond.

**“Step-Up Coupon Bonds”** are bonds whose coupons increase while the bond is outstanding. The coupon amounts are determined at issuance.

**“Tender Offer”** means that a holder of a bond is invited to tender the bond for a specific price at a specific time before the actual maturity date.

A **“Total Return Index”** measures the performance of the index components by assuming that all distributions are reinvested into the index, i.e. the index does not only reflect pure price movements.

**“Zero Coupon Bonds”** do not pay interest but are issued at a discount.



## **5 Appendix**

### **5.1 Contact data**

#### **Information regarding the Solactive USD Investment Grade Corporate Select 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. The Index calculator will make announcements regarding the amendment of the index guideline. 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.