

Guideline relating to

Solactive 1-5 Year Laddered Canadian Government Bond TR Index
Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index

Version 1.4 dated 21 January 2021



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This document contains the underlying principles and regulations regarding the structure and the operating of the Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond 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 Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index 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 indices 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 these indices.

Introduction

This document is to be used as a guideline with regard to the composition, calculation and management of the Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index. Any changes made to the guideline are initiated by the Committee specified in section 1.6. The Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index are the sole property of Solactive AG. The Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index are owned, calculated, administered and published by Solactive AG (“**Solactive**”) assuming the role as administrator (the “**Index Administrator**”) under the Regulation (EU) 2016/1011 (the “**Benchmark Regulation**” or “**BMR**”). The name “Solactive” is copyrighted.

1 Index specifications

The Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index measure the return of a 1-5-year bond ladder in investment-grade Government bonds and Corporate Bonds, respectively. Maturity Buckets are 1-1.99 years, 2-2.99 years, 3-3.99 years, 4-4.99 years and 5-5.99 years.

1.1 Name and ISIN

The indices are distributed under the following identifier:

Name	ISIN	WKN	Reuters RIC	Bloomberg Ticker
Solactive 1-5 Year Laddered Canadian Government Bond TR Index	DE000SLA2522	SLA252	.SOLCAGTR	SOLCAGTR Index
Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index	DE000SLA2530	SLA253	.SOLCACTR	SOLCACTR Index

1.2 Initial value

The indices will be calculated every Business Day starting on 10th of March on 2017. The indices were based on 1000 as at the close of trading on the 22nd of March 2017.

1.3 Distribution

The Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index are published on the website of the Index Administrator (www.solactive.com) and are, in addition, available via the price marketing services of Boerse Stuttgart GmbH and may be distributed to all affiliated vendors.

1.4 Prices and calculation frequency

The Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index are calculated based on the Last Evaluated Mid Price (see 4.2 Further Definitions) of the respective Index Components. The index is calculated and distributed once every Business Day. In the event that data cannot be provided or that there are troubles regarding the price marketing of Solactive AG the index cannot be distributed.

1.5 Weighting

The following weighting constraints are applied on the **Launch Day**:

Each Bucket will have a fixed weighting of 20% at the launch date, whereas the bonds within each Bucket are weighted according to its Market Value in proportion to the aggregated Market Value of other index components from the same Bucket.

The following weighting constraints are tested on the **Annual Review Date**, the Day before the **Selection Day** in February: If the weight of one Bucket will be higher than 22.5% or lower than 17.5%, the weight will be adjusted in order to reflect the 20% weighting per Bucket. For the avoidance of doubt the adjustment will be effective after the subsequent Adjustment Day, whereas the Capping Factors are calculated based on the information available on the Selection Day. The bonds within each Bucket are weighted according to its Market Value in proportion to the aggregated Market Value of other index components from the same Bucket.

Applicable to Solactive 1-5 Year Laddered Canadian Government Bond TR Index only:

In case a new bond will be added to the index on the quarterly Adjustment Day, it will take the weight of the bond leaving the respective Bucket. A Capping Factor is calculated in order to receive a direct replacement of one bond by another.

Applicable to Solactive 1-5 Year Laddered Canadian Corporates Bond TR Index only:

In case a new bond will be added to the index on the quarterly Adjustment Day, the process is described under point 2.1

The weighting methodology may be amended by the Committee if required due to legal framework.

1.6 Index Committee

The Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index are rules-based indices. Solactive AG is responsible for applying the rules as described in this index guideline.

Only in case of an Extraordinary Event a Committee composed of Solactive AG employees (hereinafter referred to as the "**Committee**" or the "**Index Committee**") will decide about the future composition of the Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond Index. The Committee will meet and decide on how to treat the Extraordinary Event in the index based on the information available. An extraordinary adjustment will only be implemented if the majority of the Committee supports the suggested treatment. As soon as a decision has been taken all parties related to the index are informed about the Extraordinary Event as well as the decided treatment and date of implementation. For further information on the treatment of Extraordinary Events see chapter 2.3.

The Committee can also make amendments to the index rules if required. As an example, if the index does not meet legal or regulatory requirements (for the index itself or related financial products) anymore the Committee reserves the right to adjust the rules to meet these requirements. This may affect selection criteria or weighting rules. If there are any changes to the rules, all parties related to the index are informed and the new rulebook will be published on the company website www.solactive.com.

1.7 Publication

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

1.8 Historical data

Historical data will be maintained from the 3rd of January 2012.

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

Solactive 1-5 Year Laddered Canadian Government Bond TR Index

At the launch of the index each bond classified as government bond in the Selection Pool is assigned a Bucket (maturity of 1-1.99 years, 2-2.99 years, 3-3.99 years, 4-4.99 years and 5-5.99). For each Bucket the eight bonds with the highest Effective Time to Maturity (within each Bucket) are chosen as index components.

On each subsequent Selection Day, any Index Component which does not fulfil the requirements of the Selection Pool anymore (except for the maturity criteria) will be replaced with a new component, which fulfils the maturity requirements of the same Bucket. More specifically, matching the number of bonds leaving the bucket, the eligible bonds with the highest Effective Time to Maturity in the respective bucket are selected. The replacement of bonds is applied one by one; the replacement bonds are assigned so that the bond with the highest Amount Outstanding will replace the bond with the highest current weight, the bond with the second highest Amount Outstanding will replace the bond with the second highest current weight, etc. For the avoidance of doubt, if two bonds have the same Amount Outstanding, the bond with the higher Effective Time to Maturity is chosen. If no replacement bonds from the same bucket are available, a bond will be taken from the remaining bonds of the next bucket (in ascending order). The bond will be selected after all the replacements (if any) of this next bucket have been performed. If there are no bonds eligible for replacement remaining in the fifth bucket, the bond is deleted without a replacement.

On each subsequent Selection Day, any Index Component which will be excluded from the index due to the maturity criteria will be replaced by a component added to the fifth Bucket (i.e. 5 – 5.99 Time to Maturity). More specifically, matching the number of bonds leaving the bucket, the remaining bonds with the highest Effective Time to Maturity in the 5 – 5.99 bucket are selected. The replacement of bonds is applied one by one; the replacement bonds are assigned so that the bond with the highest Amount Outstanding will replace the bond with the highest current weight, the bond with the second highest Amount Outstanding will replace the bond with the second highest current weight, etc. For the avoidance of doubt, if two bonds have the same Amount Outstanding, the bond with the higher Effective Time to Maturity is chosen. If there are no bonds eligible for replacement remaining in the fifth bucket, the bonds subject to exclusion due to the maturity criteria are deleted without a replacement.

If on the Annual Review Date, the weight of one Bucket will be higher than 22.5% or lower than 17.5%, the number of bonds per bucket will be adjusted so that a bucket consists of up to ten bonds and a minimum of six bonds before the new Capping Factors are calculated as described under point 1.5 in order to reflect the 20% weighting per Bucket. A bucket with less than six bonds will be refilled to six components by including the bonds from the Selection Pool with the highest Effective Time to Maturity in the Effective Maturity range of the respective bucket. For the avoidance of doubt, if two bonds have the same Effective Time to Maturity, the bond with the higher Amount Outstanding is chosen. In case that a bucket has more than ten bonds, constituent bonds will be removed from the bucket by choosing first the bonds with the highest Effective Time to Maturity that have been added as replacements to the bucket on the Selection Day and then the bonds from the Selection Pool with the highest Effective Time to Maturity in the same bucket until there are a maximum ten bonds. Similarly, if two bonds have the same Effective Time to Maturity, the bond with the higher Amount Outstanding is chosen.

Solactive 1-5 Year Laddered Canadian Corporates Bond TR Index

At the launch of the index each bond classified as corporate bond in the Selection Pool is assigned a Bucket (maturity of 1-1.99 years, 2-2.99 years, 3-3.99 years, 4-4.99 years and 5-5.99). For each Bucket all corporate bonds are chosen as index components.

On each subsequent Selection Day, any Index Component which does not fulfil the requirements of the Selection Pool anymore (except for the maturity criteria) will be replaced with a new component, which fulfils the maturity requirements of the same Bucket, using the respective weighting of the replaced bond. More specifically, matching the number of bonds leaving the bucket, the eligible bonds with the highest Effective Time to Maturity in the respective bucket are selected. The replacement of bonds is applied one by one; the replacement bonds are assigned so that the bond with the highest Amount Outstanding will replace the bond with the highest current weight, the bond with the second highest

Amount Outstanding will replace the bond with the second highest current weight, etc. For the avoidance of doubt, if two bonds have the same Amount Outstanding, the bond with the higher Effective Time to Maturity is chosen. If no replacement bonds from the same bucket are available, a bond will be taken from the remaining bonds of the next bucket (in ascending order). The bond will be selected after all the replacements (if any) of this next bucket have been performed. If there are no bonds eligible for replacement remaining in the fifth bucket, the bond is deleted without a replacement.

On each subsequent Selection Day, all Index Components which will be excluded from the index due to the maturity criteria will be replaced by all the remaining components applicable to the fifth bucket (i.e. 5 – 5.99 Time to Maturity), i.e. the NEW bond or NEW bonds. The aggregated weight of all components that will leave the 1-1.99 Bucket will be reinvested into all eligible NEW bond or NEW bonds being added to the 5 – 5.99 Bucket. Within the aggregated weight described beforehand the single bonds (part of the NEW bonds) will be weighted according to its Market Value. If there are no bonds eligible for replacement remaining in the fifth bucket, the bonds subject to exclusion due to the maturity criteria are deleted without a replacement.

Extraordinary adjustments are possible for both indices.

2.2 Ordinary adjustment

The composition of the index is ordinarily reviewed on the quarterly Selection Day. Any change to the index will be implemented on the Adjustment Day.

2.3 Extraordinary adjustment

Extraordinary Events may lead to adjustments of the index between Adjustment Days.

To standardise processes the following standard treatments for common corporate actions have been established:

Full Tender or Early Redemption: The bond proceeds will be reinvested into the index on the effective date. For the avoidance of doubt a tender must be mandatory, the pure offer to tender a bond will not lead to an adaption of the index.* On the effective date price and accrued interest are 0 and the proceeds (tender/redemption price + accrued interest/coupon) are considered as “Paid Cash” in the return formula (see 3.1.1). On the next calculation day, the bond is removed from the index and weightings are calculated according to the formula in 3.1.1. The new higher weightings of the remaining constituents imply the direct reinvestment of the redeemed bond into all other Index Components.

Exchange Offer:

- 1) optional exchange offers are not treated in the index*
- 2) mandatory exchange offers: In case less than 90% of the amount outstanding is exchanged the exchange will not be considered in the index.
- 3) mandatory exchange offers: 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.

The capping factor of the new bond is calculated based on the following formula:

$$CapFactor_{t,new} = \frac{(Price_{t,old} + ACCInt_{t,old}) * Amount_{SD,old} * Cap_{SD,old}}{(Price_{t,new} + ACCInt_{t,new}) * Amount_{t,new}}$$

Flat Trading: 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. 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 date.

Default: 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.

*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.

In case of an Extraordinary Event that is not covered by the standard treatments mentioned above the Committee will meet and decide on how to treat the Extraordinary Event in the index based on the information available. An extraordinary adjustment will only be implemented if the majority of the Committee supports the suggested treatment. As soon as a decision has been taken all parties related to the index are informed about the Extraordinary Event as well as the decided treatment and date of implementation.

3 Calculation of the Index

3.1. Index formula

The Solactive 1-5 Year Laddered Canadian Government Bond TR Index and the Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index are indices whose value reflects the relative changes in bond values.

As a formula:

$$Totalreturn_{t,i} = \frac{Price_{t,i} + ACCInt_{t,i} + PaidCash_{t,i}}{Price_{t-1,i} + ACCInt_{t-1,i}} \cdot \frac{FX_{t,i}}{FX_{t-1,i}} - 1$$

$$Weighting_{t,i} = \frac{MarketValue_{t,i} \cdot Cap_{SD,i}}{\sum_{i=1}^a MarketValue_{t,i} \cdot Cap_{SD,i}} = \frac{(Price_{t,i} + ACCInt_{t,i}) * Amount_{SD,i} * Cap_{SD,i} * FX_{t,i}}{\sum_{i=1}^a (Price_{t,i} + ACCInt_{t,i}) * Amount_{SD,i} * Cap_{SD,i} * FX_{t,i}}$$

$$Index_t = Index_{t-1} * (1 + \sum_{i=1}^a (Totalreturn_{t,i} * weighting_{t-1,i}))$$

Whereas:

<i>Totalreturn_{t,i}</i>	= Total return of the bond i on trading day t
<i>Index_t</i>	= Value of the index on trading day t
<i>Index_{t-1}</i>	= Value of the index on trading day t-1
<i>Price_{t,i}</i>	= Last Evaluated Price of the bond i on trading day t
<i>Price_{t-1,i}</i>	= Last Evaluated Price of the bond i on trading day t-1
<i>ACCInt_{t,i}</i>	= Accrued Interest of the bond i on trading day t
<i>ACCInt_{t-1,i}</i>	= Accrued Interest of the bond i on trading day t-1
<i>Weighting_{t,i}</i>	= Weighting of the bond i on trading day t
<i>Weighting_{t-1,i}</i>	= Weighting of the bond i on trading day t-1
<i>Amount_{SD,i}</i>	= Amount Outstanding of bond i on the last Selection Day SD
<i>Cap_{SD,i}</i>	= Capping Factor which helps to adjust the weights as defined under 1.5
<i>FX_{t,i}</i>	= Foreign Exchange Rate of bond i on trading day t
<i>FX_{t-1,i}</i>	= Foreign Exchange Rate of bond i on trading day t-1
<i>PaidCash_{t,i}</i>	= a) Value of the coupon payment for bond i on trading day t b) If a bond i will be removed from the index, the resulting payment of the bond will be included in the paid cash component

3.2 Accuracy

The value of the index will be rounded to four 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 into account taxes and assumes gross coupon payments.

Accrued Interest is calculated with settlement convention t+0. If a bond does not pay any coupons (e.g. zero coupon bonds or T-Bills) the Accrued Interest as well as the coupon payment will be set to 0.

4. Definitions

4.1 index-specific definitions

The “**Selection Pool**”

comprises bonds that fulfill the following conditions:

- (a) Government and Corporate Bonds Issued in the Canadian market. This includes domestic issued bonds as well as global issued bonds as well as private placements which have an ISIN beginning with the CA characters.
- (b) Denominated in CAD.
- (c) Effective Time to Maturity of not less than 12 months and not more than 6 years.
- (d) Amount Outstanding of more than 300m CAD.*
- (e) Fixed rated bonds are eligible for inclusion. For the avoidance of doubt only bonds that have a fix constant coupon over the lifetime of the bond are eligible while bonds that have a fixed coupon schedule with different coupon values are excluded (e.g. step up bonds).
- (f) Fixed-to-float/fixed-to-variable bonds are eligible provided they are at least one year from their floating/variable period.
- (g) For new eligible Corporate bonds, time since issuance should not exceed 5 years, for new eligible Government bonds time since issuance should not exceed 10 years (calculated based on the respective Adjustment Day)
- (h) Zero coupon bonds or pay-in-kind bonds are explicitly excluded.
- (i) Bond must pay coupons twice a year to be eligible for inclusion.
- (j) Callable, puttable, extendible, perpetual bonds are eligible for inclusion.
- (k) Sinkable bonds are explicitly excluded from the Selection Pool.
- (l) The securities must have an investment grade rating (i.e. at least BBB- or its equivalent) from S&P, Moody’s or DBRS. If several ratings are available the lowest rating is considered.
- (m) Repackaged bonds, convertibles, mortgage backed securities (this includes also 1st mortgages), other asset backed securities, inflation-linked securities, flat trading or defaulted securities are not eligible for inclusion. For the avoidance of doubt, bonds issued by Financial Institutions which may be converted to equity only on the decision of the Office of the Superintendent of Financial Institutions (OSFI) in the case of a non-viability of the Issuer (so called Non-Viable Contingent Capital) are explicitly included in the index.
- (n) The bond must be priced from the Bond Pricing Provider.
- (o) If two or more identical bonds qualify the following rules are considered in order to avoid double-inclusion:
 - a. Private placements are excluded
 - b. RegS issues are preferred over 144A
 - c. Series 1A issues are preferred over other series
 - d. Bonds issued with a series are preferred over bonds without a specific series

*If available net amount outstanding is used (defined as gross amount outstanding less the amount that has been stripped as per TMX monthly strip bond report). If not available, gross amount outstanding is considered.

4.2 Further definitions

“**Adjustment Day**” is the last Business Day in February, May, August and November.

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

“**Bond Price Provider**” is Interactive Data Corporation, which is part of the ICE group

A “**Business Day**” in relation to the index is any day other than a Saturday or Sunday or a day on which the Investment Industry Association of Canada recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in domestic bond and money markets.

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

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

“Bucket” refers to one of the following Maturity Buckets with an effective time to maturity of 1-1.99 years, 2-2.99 years, 3-3.99 years, 4-4.99 years or 5-5.99

“Effective Time to Maturity” is the minimum of the next call or put date and the final maturity 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

A bond is **“Flat Trading”** if the bond issuer does 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.

“Foreign Exchange Rate” is the respective WM 4pm London fixing.

A bond is **“In Default”** once 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.

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

“Index Components” are all bonds in the Selection Pool.

The **“Index Currency”** is CAD

“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 Mid price provided by the Bond Price Provider.

The **“Market Value”** of a bond is defined as the sum of the Last Evaluated Price and Accrued Interest multiplied by the Amount Outstanding.

“NEW bond or NEW bonds” are bonds that are added to the bucket 5 – 5.99 as a replacement for bonds that are excluded from bucket 1-1.99.

“Selection Day” is a Business Day 7 Business Days prior to the Adjustment Day.

“Annual Review Date” is the Day before the Selection Day in February

“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.

5 Appendix

5.1 Contact data

Information regarding the Solactive 1-5 Year Laddered Canadian Government Bond TR Index and Solactive 1-5 Year Laddered Canadian Corporate Bond TR Index

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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.