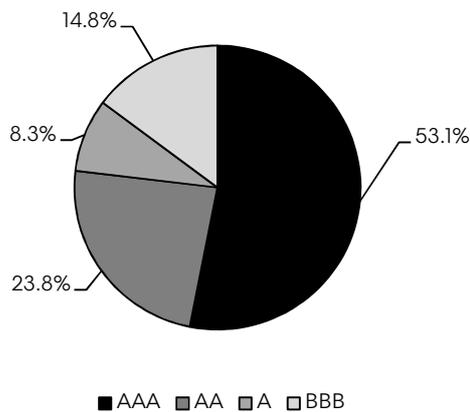


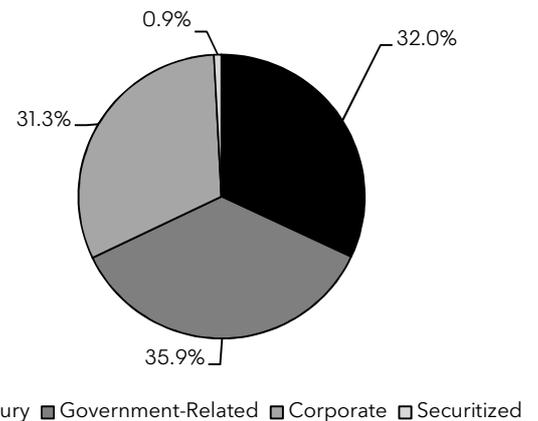
## Bloomberg Barclays MSCI 1-5 year Canadian Aggregate ESG Focus Index

The Bloomberg Barclays MSCI 1-5 year Canadian Aggregate ESG Focus Index measures investment grade, fixed-rate, taxable CAD-denominated bonds eligible for the Bloomberg Barclays 1-5 year Canada Aggregate Bond Index, and is optimized to maximize exposure to positive environmental, social and governance (ESG) factors. The index aims to preserve the overall risk characteristics of the Bloomberg Barclays 1-5 year Canada Aggregate Index by minimizing per annum TEV, while targeting issuers with the highest MSCI ESG Ratings in each sector. The index was launched in February 2019.

Composition by Credit Quality (MV %) - February 28, 2019



Composition by Sector (MV %) - February 28, 2019



### Rules for Inclusion

<b>Sector</b>	Treasury, government-related, corporate, and securitized bonds are included.
<b>ESG Rating</b>	Only corporate, government-related, and covered issuers with MSCI ESG Ratings are eligible.
<b>ESG Controversies</b>	Excludes all issuers involved in one or more very severe ESG Controversies (MSCI ESG Controversy Score < 1).
<b>Business Involvement Screening</b>	<ul style="list-style-type: none"> <li>Excludes all issuers classified as tobacco producers or distributors, retailers, or suppliers that derive 15% or more of their revenue from tobacco-related products.</li> <li>Excludes all issuers classified as cluster bomb, landmine, depleted uranium, or chemical/biological weapons systems or components manufacturers.</li> <li>Excludes all issuers classified as civilian firearms producers or retailers that derive 5% or more of their revenue, or more than \$20 million in revenue, from civilian firearms-related products.</li> </ul>
<b>Eligible Currencies</b>	Principal and coupon must be denominated in CAD.
<b>Quality</b>	<p>Securities must be rated investment grade (Baa3/BBB-/BBB-or higher) using the lower of the two middle ratings of Moody's, S&amp;P, Fitch and DBRS; when ratings from only three agencies are available, the middle is used; when a rating from only two agencies is available, the lower is used; when only one agency rates a bond, that rating is used. In cases where explicit bond level ratings may not be available, other sources may be used to classify securities by credit quality:</p> <ul style="list-style-type: none"> <li>Local currency treasury and hard currency sovereign issues are classified using the middle issuer-level local currency and hard currency debt ratings from each agency for all outstanding bonds, even if bond-level ratings are available.</li> <li>Expected ratings at issuance may be used to ensure timely index inclusion or to properly classify split-rated is</li> <li>Unrated securities may use an issuer rating for index classification purposes if available. Unrated subordinated securities are included if a subordinated issuer rating is available.</li> </ul>

March 20, 2019

## Rules for Inclusion

<b>Amount Outstanding</b>	CAD 150mn minimum par amount outstanding.	
<b>Coupon</b>	<ul style="list-style-type: none"><li>• Fixed-rate coupon.</li><li>• Original zero coupon bonds are included.</li><li>• Callable fixed-to-floating rate bonds are eligible during their fixed-rate term only.</li><li>• Bonds with a step-up coupon that changes according to a predetermined schedule are eligible.</li></ul>	
<b>Maturity</b>	<ul style="list-style-type: none"><li>• At least one year until final maturity and less than, but not equal to, 5 years, regardless of optionality.</li><li>• Bonds that convert from fixed to floating rate, including fixed-to-float perpetual, will exit the index one year prior to conversion to floating-rate. Fixed-rate perpetual bonds are not included.</li></ul>	
<b>Taxability</b>	<ul style="list-style-type: none"><li>• Only fully taxable issues are eligible.</li><li>• Dividend Received Deduction (DRD) and Qualified Dividend Income (QDI) eligible securities are excluded.</li></ul>	
<b>Market of Issue</b>	<ul style="list-style-type: none"><li>• Publicly issued in the global and regional markets.</li><li>• Private placements and retail issues are not eligible.</li></ul>	
<b>Seniority of Debt</b>	Senior and Subordinated issuers are included.	
<b>Security Types</b>	<b>Included</b> <ul style="list-style-type: none"><li>• Bullet, puttable, sinkable/amortizing and callable bonds</li><li>• Senior and subordinated issues</li><li>• Original issue zero coupon and underwritten MTN programs</li><li>• Enhanced equipment trust certificates (EETC)</li><li>• Certificates of deposit</li><li>• Fixed-rate and fixed-to-float (including fixed-to-variable) capital securities</li><li>• Non-Viable Contingent Capital Bonds (NVCC)</li><li>• Bail-in Bonds</li></ul>	<b>Excluded</b> <ul style="list-style-type: none"><li>• Bonds with no MSCI ESG Rating</li><li>• Bonds with very severe ESG Controversies</li><li>• Tobacco producers or companies with 15% or more of their revenue derived from tobacco products</li><li>• Civilian firearms producers or retailers that derive 5% or more of their revenue, or more than \$20 million in revenue, from civilian firearms-related products</li><li>• Cluster bomb, landmine, depleted uranium, or chemical/biological weapon systems or components manufactures</li><li>• Contingent capital securities, including traditional CoCos and contingent write-down securities, with explicit capital ratio or solvency/balance sheet-based triggers</li><li>• Bonds with equity type features (e.g., warrants, convertibles, preferreds, DRD/QDI-eligible issues)</li><li>• Inflation-linked bonds, floating-rate issues</li><li>• Fixed-rate perpetuials</li><li>• Private placements, retail bonds</li><li>• Structured notes, pass-through certificates</li><li>• Illiquid securities with no available internal or third-party pricing source</li><li>• Euro MTN and Euro Non-Dollar</li></ul>

## Optimization Constraints and Calculations

### Overview

- The Bloomberg PORT Optimizer is used to select and weight each security in the index.
  - All bonds are selected from the Bloomberg Barclays 1–5 year Canada Aggregate Index, also known as the parent index.
  - The optimizer runs once per month, selecting securities and calculating notional positions.
  - This process will not impact bond prices and other security-level analytics.
- The optimizer has three main objectives:
  - Maximize the overall MSCI ESG Score.
  - Minimize Active Total Risk versus the Bloomberg Barclays 1–5 year Canada Aggregate Index. This is the ex-ante (or predicted) tracking error based on the Bloomberg Fixed Income multi-factor risk model.
  - Minimize month-to-month index turnover.
- Each of these objectives is assigned a weight (trade-off) in order to make these goals directly comparable. Active Total Risk is assigned the highest weight, followed by ESG Score, and finally by Turnover.
- By default, only securities eligible for the Bloomberg Barclays 1–5 year Canada Aggregate Index are included.
- Index turnover does not include cash reinvestment.

### Optimization Constraints

Each of these constraints, with the exception of turnover, is a hard constraint. This means that the optimizer will only consider solutions within these bounds. Parent Index refers to the Bloomberg Barclays 1–5 year Canada Aggregate Index.

- OAD (option-adjusted duration) must be within 0.1 years of the parent index.
- DTS (duration times spread) must be within 0.2 years of the parent index. DTS is calculated by multiplying spread duration by Libor option-adjusted spread. DTS measures sensitivity to relative spread change as opposed to absolute spread change like modified duration.
- Active total risk, as calculated by the Bloomberg multi-factor fixed income risk model, must be within 0.1 or 10bps of the parent index. This is an annualized measure.
- Yield to worst must be greater than or equal to the parent index.
- Yield to worst of each Bloomberg Barclays class 1 sector must be greater than that in the parent index.
- Bloomberg Barclays Class 3 sector weights must be within 2% of the parent index.
- Individual security weights must be within 1% of their weight in the parent index.
- Small issues, those with less than or equal to 500MM CAD par amount outstanding, are capped at 25 times their weight in the parent index.
- Issuer weights are limited to 1.5 plus their weight in the parent index.
- Treasury, ABS, CMBS, and MBS bonds are kept at the parent index weight.
- Only long positions are allowed.

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### Turnover

- Unlike standard rules-based indices, past index holdings will directly impact which securities are chosen for index inclusion in the present and future. This is because one of the constraints and objectives of the optimization process is to limit monthly index turnover. The optimizer sets a 5% turnover soft constraint each month. This means that if a solution cannot be found satisfying the hard constraints defined above, the 5% upper bound will be breached.
  - In any instance where the parent index's monthly turnover is greater than 5%, the turnover constraint will be increased to equal the parent index monthly turnover + 2%.
  - All coupon payments and cash holdings are reinvested into the index at each month-end. These cash trades will not count towards the 5% turnover constraint.
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## Rebalancing Rules

<b>Frequency</b>	The composition of the index is rebalanced at each month-end and represents the fixed set of bonds on which index returns are calculated for the next month.
<b>Index Changes</b>	During the month, indicative changes to securities (credit rating change, sector reclassification, amount outstanding changes, corporate actions, and ticker changes) are reflected daily. These changes will affect the composition of the index on month-end only, when the index is next rebalanced.
<b>Reinvestment of Cash Flows</b>	Intra-month cash flows from interest and principal payments contribute to monthly index returns but are not reinvested at a short-term reinvestment rate between rebalance dates. At each rebalancing, cash is effectively reinvested into the Returns Universe for the following month so that index results over two or more months reflect monthly compounding.
<b>New Issues</b>	Qualifying securities issued, but not necessarily settled on or before the month-end rebalancing date, qualify for inclusion in the following month's index if the required security reference information and pricing are readily available.

## Pricing and Related Issues

<b>Sources &amp; Frequency</b>	Index eligible bonds are priced on a daily basis by Bloomberg's evaluated pricing service, BVAL.
<b>Pricing Quotes</b>	Bonds can be quoted in a variety of ways, including nominal spreads over benchmark securities/treasuries, spreads over swap curves, or direct price quotes as a percentage of par. For securities quoted on a spread basis, daily security price changes will result from movements in the underlying curve (swap or treasury) and/or changes in the quoted spread.
<b>Timing</b>	4pm (Toronto time)
<b>Bid or Offer Side</b>	Bonds in the index are priced on the bid side.
<b>Settlement Assumptions</b>	T+1 calendar day settlement basis for all bonds. At month-end, settlement is assumed to be the first calendar day of the following month, even if the last business day is not the last day of the month, to allow for one full month of accrued interest to be calculated.
<b>Verification</b>	Daily price moves for each security are analyzed by the index pricing team to identify outliers. Index users may also challenge price levels, which are then reviewed and updated as needed using input from various sources.
<b>Currency Hedging</b>	Returns hedged to various currencies are published for the 1-5 year Canadian Aggregate ESG Focus Index. The indices' FX hedging methodology takes rolling one-month forward contracts that are reset at the end of each month and hedges each non-reporting currency-denominated bond in the index into the reporting currency terms. No adjustment is made to the hedge during the month to account for price movements of constituent securities in the Returns Universe of the index.
<b>Calendar</b>	The 1-5 year Canadian Aggregate ESG Focus Index follows the Canada bond market calendar.

## Accessing Index Data

Bloomberg Terminal®	<p>Bloomberg benchmarks are the global standard for capital markets investors.</p> <ul style="list-style-type: none"> <li>INDEX&lt;Go&gt; - The Bloomberg Indices landing page is a dashboard for index-related information on the terminal. Find daily and monthly index returns for key indices from each index family as well as index publications including methodologies, factsheets, monthly reports, updates and alerts.</li> <li>IN&lt;Go&gt; - The Bloomberg Index Browser displays the latest performance results and statistics for the indices as well as history. IN presents the indices that make up Bloomberg's global, multi-asset class index families into a hierarchical view, facilitating navigation and comparisons. The "My Indices" tab allows a user to focus on a set of favorite indices.</li> <li>PORT&lt;Go&gt; - Bloomberg's Portfolio &amp; Risk Analytics solution includes tools to analyze the risk, return, and current structure of indices. Analyze the performance of a portfolio versus a benchmark or use models for performance attribution, tracking error analysis, value-at-risk, scenario analysis, and optimization.</li> <li>DES&lt;Go&gt; - The index description page provides transparency into an individual index including membership information, aggregated characteristics and returns, and historical performance.</li> </ul>
Bloomberg Indices Website (www.bloomberg.com/professional/product/indices)	<p>The index website makes available limited index information including:</p> <ul style="list-style-type: none"> <li>Index methodology and factsheets</li> <li>Current performance numbers for select indices</li> </ul>
Data Distribution	<p>Index subscribers may choose to receive index data in files. Files may include:</p> <ul style="list-style-type: none"> <li>Index level and/or constituent level returns and characteristics for any indices</li> <li>Automatic delivery of files via email or SFTP following the completion of the index production process after market close</li> <li>Clients may receive standard files or may customize file contents</li> <li>Index data is also available via authorized redistributors</li> </ul>

## Bloomberg Total Return Index Value Tickers: 1-5 year Canadian Aggregate ESG Focus Index and Related Indices

Ticker (CAD Unhedged)	Index	Ticker (CAD Unhedged)	Index
I34589CA	1-5 year Canadian Aggregate ESG Focus Index	I34588CA	Canadian Aggregate ESG Focus Index
I34175CA	Canada Aggregate ESG-Weighted Index	I34217CA	Canada Aggregate Sustainability Index
I34224CA	Canada Aggregate SRI Index	I05486CA	Canada Aggregate

Total Return Index Values are available in other currencies and on a hedged basis. Attributes such as yield and duration, are also available. Please refer to Accessing Bloomberg Barclays Index Data Using Bloomberg Tickers for a full list of tickers and attributes that are available.

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Bloomberg requires index data licenses for services and products linked to the Indices

- |  |   |  |
|--|---|--|
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