Bloomberg Barclays Indices

US Corporate Index

The Bloomberg Barclays US Corporate Bond Index measures the investment grade, fixed-rate, taxable corporate bond market. It includes USD-denominated securities publicly issued by US and non-US industrial, utility and financial issuers. The US Corporate Index is a component of the US Credit and US Aggregate Indices, and provided the necessary inclusion rules are met, US Corporate Index securities also contribute to the multi-currency Global Aggregate Index. The index was launched in July 1973, with index history backfilled to January 1, 1973.

Historical Composition by Sector (MV%) - Trailing 5 Years As of June 30, 2017

<table>
<thead>
<tr>
<th>Year</th>
<th>Industrial</th>
<th>Utility</th>
<th>Financial Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>32.5</td>
<td>11.0</td>
<td>56.5</td>
</tr>
<tr>
<td>2013</td>
<td>32.8</td>
<td>11.0</td>
<td>56.2</td>
</tr>
<tr>
<td>2014</td>
<td>32.4</td>
<td>7.7</td>
<td>59.9</td>
</tr>
<tr>
<td>2015</td>
<td>32.3</td>
<td>7.4</td>
<td>60.4</td>
</tr>
<tr>
<td>2016</td>
<td>31.5</td>
<td>7.7</td>
<td>60.8</td>
</tr>
<tr>
<td>1H17</td>
<td>31.4</td>
<td>6.9</td>
<td>61.7</td>
</tr>
</tbody>
</table>

Historical Composition by Quality (MV%) - Trailing 5 Years As of July 31, 2017

<table>
<thead>
<tr>
<th>Rating</th>
<th>Year 2012</th>
<th>Year 2013</th>
<th>Year 2014</th>
<th>Year 2015</th>
<th>Year 2016</th>
<th>1H17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aaa</td>
<td>42.9</td>
<td>43.5</td>
<td>43.0</td>
<td>45.3</td>
<td>47.8</td>
<td>48.8</td>
</tr>
<tr>
<td>Aa</td>
<td>47.6</td>
<td>46.4</td>
<td>46.8</td>
<td>44.9</td>
<td>39.5</td>
<td>39.3</td>
</tr>
<tr>
<td>A</td>
<td>8.7</td>
<td>9.3</td>
<td>9.2</td>
<td>8.5</td>
<td>11.0</td>
<td>9.8</td>
</tr>
<tr>
<td>Baa</td>
<td>0.9</td>
<td>0.9</td>
<td>1.0</td>
<td>1.3</td>
<td>1.7</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Rules for Inclusion

Sector
Corporate (industrial, utility and financial institutions) issuers only.

Eligible Currencies
Principal and interest must be denominated in USD.

Quality
Securities must be rated investment grade (Baa3/BBB-/BBB− or higher) using the middle rating of Moody’s, S&P and Fitch; 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:

- Expected ratings at issuance may be used to ensure timely index inclusion or to properly classify split-rated issuers.
- 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.

Amount Outstanding
USD300mn minimum par amount outstanding.

Coupon
- Fixed-rate coupon.
- Callable fixed-to-floating rate bonds are eligible during their fixed-rate term only.
- Bonds with a step-up coupon that changes according to a predetermined schedule are eligible.

Maturity
- At least one year until final maturity, regardless of optionality.
- Bonds that convert from fixed to floating rate, including fixed-to-floating perpetual, will exit the index one year prior to conversion to floating rate. Fixed-rate perpetual bonds are not included.
- Sub-indices based on maturity are inclusive of lower bounds. Intermediate maturity bands include bonds with
**Rules for Inclusion**

maturities of 1 to 9.999 years. Long maturity bands include maturities of 10 years or greater.

**Taxability**
- Only fully taxable issues are eligible.
- Dividend Received Deduction (DRD) and Qualified Dividend Income (QDI) eligible securities are excluded.

**Seniority of Debt**
Senior and subordinated issues are included.

**Market of Issue**
- SEC-registered securities, bonds exempt from registration at the time of issuance and SEC Rule 144A securities with registration rights are eligible. A security with both SEC Regulation-S (Reg-S) and SEC Rule 144A tranches is treated as one security for index purposes. The 144A tranche is used to prevent double-counting and represents the combined amount outstanding of the 144A and Reg-S tranches.
- Global bonds are included.
- Bonds that were previously SEC-registered or 144A with registration rights but later deregistered by the issuer remain index eligible.

**Security Types**

**Included**
- Bullet, putable, sinkable/amortizing and callable bonds
- Original issue zero coupon bonds
- Underwritten MTN
- Enhanced equipment trust certificates (EETC)
- Certificates of deposit
- Fixed-rate and fixed-to-floating (including fixed-to-variable) capital securities

**Excluded**
- Contingent capital securities, including traditional CoCos and contingent write-down securities, with explicit capital ratio or solvency/balance sheet-based triggers
- Bonds with equity type features (e.g., warrants, convertibles, preferreds, DRD/QDI-eligible issues)
- Inflation-linked bonds, floating-rate issues
- Taxable and tax-exempt municipal securities, covered bonds
- Private placements, retail bonds
- USD25/USD50 par bonds
- Structured notes, pass-through certificates
- Illiquid securities with no available internal or third-party pricing source

**Rebalancing Rules**

**Frequency**
For each index, Bloomberg maintains two universes of securities: the Returns (Backward) and the Projected (Forward) Universes. The composition of the Returns Universe is rebalanced at each month-end and represents the fixed set of bonds on which index returns are calculated for the next month. The Projected Universe is a forward-looking projection that changes daily to reflect issues dropping out of and entering the index but is not used for return calculations. On the last business day of the month (the rebalancing date), the composition of the latest Projected Universe becomes the Returns Universe for the following month.

**Index Changes**
During the month, indicative changes to securities (credit rating change, sector reclassification, amount outstanding changes, corporate actions, and ticker changes) are reflected daily in the Projected and Returns Universe of the index. These changes may cause bonds to enter or fall out of the Projected Universe of the index on a daily basis, but will affect the composition of the Returns Universe at month-end only, when the index is next rebalanced.

**Reinvestment of Cash Flows**
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.

**New Issues**
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

Sources & Frequency
Bonds are priced on a daily basis by Bloomberg’s evaluated pricing service, BVAL.

Pricing Quotes
Most securities in the US Corporate Index are priced using a spread to Treasuries, though some bonds are marked on a dollar price basis.

Timing
- 3pm (New York time).
- On early market closes, prices are taken as of 1pm (New York time), unless otherwise noted.
- If the last business day of the month is a public holiday, prices from the previous business day are used.

Bid or Offer Side
Bonds in the index are priced on the bid side. The initial price for new corporate issues entering the index is the offer side; after the first month, the bid price is used.

Settlement Assumptions
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.

Verification
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.

Currency Hedging
Returns hedged to various non-USD currencies are published for the US Corporate 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.

Calendar
The US Corporate Index follows the US bond market holiday schedule.

Monthly Returns in USD, 2007-2017(%)
Index History

April 1, 2017  Liquidity constraint raised to USD300mn from USD250m for Corporate securities.

June 1, 2014  Global classification scheme modified to incorporate new sectors, sector name changes and sector retirements.

April 1, 2013  Loan Participation notes (LPNs) eligible for the index.

January 1, 2008  Fixed-to-floating rate perpetual securities without a coupon step-up on their first call date eligible for inclusion.

July 1, 2005  Fitch ratings added to Moody’s and S&P to determine index eligibility and classification.

July 1, 2004  Liquidity constraint raised to USD250mn.

October 1, 2003  Liquidity constraint raised to USD 200mn from USD150mn. Started using the most conservative rating of Moody’s and S&P to determine index eligibility instead of Moody’s only for split-rated securities.

July 1, 2000  Absorbed all Yankee corporates into their respective industry and sector classifications.

July 1, 1999  Liquidity constraint raised to USD150mn from USD100mn.

January 1, 1994  Liquidity constraint raised to USD100mn from USD50mn.

January 1, 1990  Liquidity constraint raised to USD100mn from USD25mn.

August 1, 1988  Liquidity constraint raised to USD25mn from USD1mn.


Sub-indices and Index Customizations

Bloomberg publishes numerous sub-indices of flagship indices and bespoke benchmarks created for specific index users. Several types of bespoke indices are available to select or customize the most appropriate benchmark for specific portfolio needs:

<table>
<thead>
<tr>
<th>Sub-Index Type</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced Constraint</td>
<td>Applies a more or less stringent set of constraints to any existing index.</td>
<td>• US Intermediate Corporate</td>
</tr>
<tr>
<td>Composites</td>
<td>Investors assign their own weights to sectors or other index sub-components</td>
<td>• 50% US Long Corporate, 50% US Long</td>
</tr>
<tr>
<td></td>
<td>within an overall index.</td>
<td>Government</td>
</tr>
<tr>
<td>Issuer Constrained</td>
<td>Indices that cap issuer exposure to a fixed percentage. Options available</td>
<td>• US Credit 2% Issuer Capped Index</td>
</tr>
<tr>
<td></td>
<td>for applying issuer caps and redistributing excess MV to other issuers.</td>
<td></td>
</tr>
<tr>
<td>ESG Screened/Weighted</td>
<td>Applies Environmental, Social and Governance filters and/or tilts to a</td>
<td>• US Corporate Socially Responsible</td>
</tr>
<tr>
<td></td>
<td>standard index.</td>
<td></td>
</tr>
<tr>
<td>Mirror Futures Index</td>
<td>An index consisting of 14 funded futures contracts weighted to match closely</td>
<td>• US Corporate Mirror Futures</td>
</tr>
<tr>
<td>(MFI)</td>
<td>the beginning-of-month OAD of the index.</td>
<td></td>
</tr>
<tr>
<td>Duration Hedged</td>
<td>Indices constructed to reflect the underlying return of an index with its</td>
<td>• US Corporate Duration Hedged</td>
</tr>
<tr>
<td></td>
<td>duration fully or partially hedged using its MFI.</td>
<td></td>
</tr>
</tbody>
</table>
Accessing Index Data

Bloomberg Professional® service

INDEX<Go> – 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.

IN<Go> – 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.

PORT<Go> – Bloomberg’s Portfolio & 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.

DES<Go> – The index description page provides transparency into an individual index including membership information, aggregated characteristics and returns, and historical performance.

Bloomberg Indices Website (www.bloombergindices.com)

The index website makes available limited index information including:

- Index methodology and factsheets
- Current performance numbers for select indices

Data Distribution

Index subscribers may choose to receive index data in files. Files may include:

- Index level and/or constituent level returns and characteristics for any indices
- Automatic delivery of files via email or SFTP following the completion of the index production process after market close
- Clients may receive standard files or may customize file contents
- Index data is also available via authorized redistributors

Bloomberg Total Return Index Value Tickers: US Corporate and Related Indices

<table>
<thead>
<tr>
<th>Ticker (USD Unhedged)</th>
<th>Index</th>
<th>Ticker (USD Unhedged)</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>LUACTRUU</td>
<td>US Corporate</td>
<td>LUAITRUU</td>
<td>US Corporate Industrials</td>
</tr>
<tr>
<td>LD06TRUU</td>
<td>US Intermediate Corporate</td>
<td>LUAUTRUU</td>
<td>US Corporate Utility</td>
</tr>
<tr>
<td>LD07TRUU</td>
<td>US Long Corporate</td>
<td>LFAITRUU</td>
<td>US Corporate Financial Institutions</td>
</tr>
<tr>
<td>LCA3TRUU</td>
<td>US Corporate Aaa</td>
<td>LC07TRUU</td>
<td>US Credit</td>
</tr>
<tr>
<td>LCA2TRUU</td>
<td>US Corporate Aa</td>
<td>BUIDTRUU</td>
<td>US Corporate Duration Hedged</td>
</tr>
<tr>
<td>LCA1TRUU</td>
<td>US Corporate A</td>
<td>MUCOTRUU</td>
<td>US Corporate Mirror Futures</td>
</tr>
<tr>
<td>LCB1TRUU</td>
<td>US Corporate Baa</td>
<td>RUCMTRUU</td>
<td>US Corporate Socially Responsible Index</td>
</tr>
</tbody>
</table>

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.

Index Licensing

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

- Index or Constituent-Level Redistribution
- Exchange Traded Notes (ETNs)
- OTC Derivative Products
- Bond Pricing Service
- Index-Linked Insurance Products
- Custom Index Solutions
- Exchange Traded Funds (ETFs)
- Mutual Funds
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