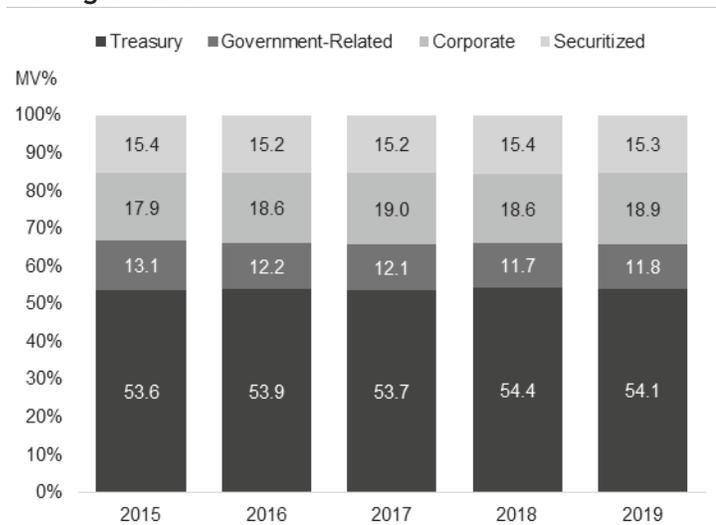


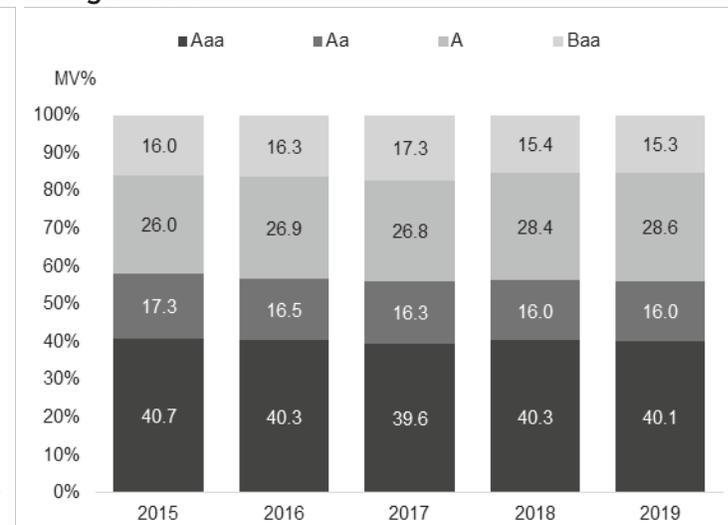
Global Aggregate Index

The Bloomberg Barclays Global Aggregate Index is a flagship measure of global investment grade debt from twenty-five local currency markets. This multi-currency benchmark includes treasury, government-related, corporate and securitized fixed-rate bonds from both developed and emerging markets issuers. There are four regional aggregate benchmarks that largely comprise the Global Aggregate Index: the US Aggregate, the Pan-European Aggregate, the Asian-Pacific Aggregate, and the Canadian Aggregate Indices. The Global Aggregate Index also includes Eurodollar, Euro-Yen, and 144A Index-eligible securities, and debt from three local currency markets not tracked by the regional aggregate benchmarks (CLP, MXN, and ILS). A component of the Multiverse Index, the Global Aggregate Index was created in 2000, with index history backfilled to January 1, 1990.

Historical Composition by Sector (MV%) - Trailing 5 Years



Historical Composition by Quality (MV%) - Trailing 5 Years



*2019 data is as of March 28, 2019

Rules for Inclusion

Eligible Currencies

- Principal and coupon must be denominated in one of the following eligible currencies:
 Americas: CAD, CLP, MXN, USD
 EMEA: CHF, CZK, DKK, EUR, GBP, HUF, ILS, NOK, PLN, RUB, SEK
 Asian-Pacific: AUD, CNY*, HKD, IDR, JPY, KRW, MYR, NZD, SGD, THB
- Eligible currencies will not necessarily have debt included in the index if no securities satisfy the inclusion rules.
- New currency inclusion is reviewed annually through the index governance process. To be considered for inclusion, new currency candidates must be rated investment grade and sufficiently tradable, convertible and hedgeable for international investors.

*CNY-denominated bonds are eligible for the index as of April 1, 2019.

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:

Rules for Inclusion

- 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.
- Expected ratings at issuance may be used to ensure timely index inclusion or to classify split-rated issuers properly.
- 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.
- German Pfandbriefe are assigned ratings that are one full rating category above the issuer's unsecured debt.
- For the Canadian Dollar market, DBRS is considered in addition to Moody's, S&P and Fitch. When all four ratings agencies are available, the highest and lowest rating are removed and the lower of the two remaining is used.

Coupon

- Fixed-rate coupon (including zero 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.

Amount Outstanding

Fixed minimum issue sizes are set for all local currency markets:

- 150mn: CAD
- 300mn: USD, EUR, CHF, AUD
- 200mn: GBP
- 35bn: JPY
- 2bn: DKK, NOK, PLN, ILS, HKD, MYR
- 2.5bn: SEK
- 5bn: CNY*
- 10bn: MXN, CZK, THB
- 20bn: RUB
- 500mn: NZD, SGD
- 100bn: CLP
- 200bn: HUF
- 500bn: KRW
- 2trn: IDR

*The minimum amount outstanding required for CNY-denominated treasury and policy bank debt is CNY 5bn. The total amount of index-eligible CNY debt will be phased into the Global Aggregate Index at 5% increments over a 20 month period starting April 1, 2019 until November 2020 when 100% of index-eligible debt will be reflected in the index.

Maturity

- At least one year until final maturity, regardless of optionality.
- MBS must have a weighted average maturity of at least one year. CMBS and ABS must have a remaining average life of at least one year.
- Bonds that convert from fixed to floating rate, including fixed-to-float perpetuals, will exit the index one year prior to conversion to floating rate. Fixed-rate perpetuals are not included.
- Sub-indices based on maturity are inclusive of lower bounds. Intermediate maturity bands include bonds with maturities of 1 to 9.999 years. Long maturity bands include maturities of 10 years or greater.

Market of Issue

Fully taxable, publicly issued in the global and regional markets.

Seniority of Debt

Senior and subordinated issues are included.

Taxability

- Only fully taxable issues are eligible.
 - Build America Bonds (BABs) with the tax credit to the issuer are eligible; those with tax credits issued to investors are considered tax exempt.
 - Dividend Received Deduction (DRD) and Qualified Dividend Income (QDI) eligible securities are excluded.
-

Rules for Inclusion

Security Types	Included	Excluded
	<ul style="list-style-type: none"> Bullet, puttable, sinkable/amortizing and callable bonds Taxable municipal securities, including Build America Bonds (BABs) Original issue zero coupon bonds Bonds issued through underwritten MTN programs Enhanced equipment trust certificates (EETC) Certificates of deposit Fixed-rate and fixed-to-float (including fixed-to-variable) capital securities Loan participation notes (as of April 1, 2013) US agency CMBS (as of July 1, 2014) Malaysian government Sukuk (as of April 1, 2015) 	<ul style="list-style-type: none"> 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 (eg, warrants, convertibles, preferreds, DRD/QDI-eligible issues) Tax-exempt municipal securities Inflation-linked bonds, floating-rate issues Fixed-rate perpetuals Private placements, retail bonds Sinkable Russian OFZ bonds issued prior to 2009 USD 25/USD 50 par bonds Structured notes, pass-through certificates Non-ERISA eligible CMBS, US agency MBS hybrid ARMs Illiquid securities where reliable pricing is unavailable Formosa bonds

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	All index-eligible bonds are priced on a daily basis by Bloomberg's evaluated pricing service, BVAL, except CHF-denominated bonds, which are priced by SIX.
Timing	Prices are snapped at the following times: <ul style="list-style-type: none"> North American currency bonds: 3pm (New York time); 4pm (Toronto time) for CAD-denominated securities. Pan-European currency bonds: 4:15pm (London time); 4pm (London time) for CHF-denominated securities.

Pricing and Related Issues

- Asian currency bonds: 5pm (Sydney time) for AUD-denominated and NZD-denominated securities; 3pm (Tokyo time) for JPY-denominated securities; 5pm (Shanghai time) for CNY-denominated securities; 5pm (Tokyo time) for all other securities.

If the last business day of the month is a public holiday in a major regional market, prices from the previous business day are used to price bonds in the particular market.

Bid or Offer Side

Bonds in the index are priced on the bid side. The initial price for new corporate and EM local currency issues entering the index is the offer side; after the first month, the bid price is used. Japanese, Euro and Sterling treasury bonds use mid prices.

Settlement Assumptions

T+1 calendar day settlement basis for all bonds except MBS, which are priced for Public Securities Association (PSA) settlement in the following month and discounted back to same-day settlement. 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. 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 currencies are published for multi-currency indices. 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 Global Aggregate Index is a global, multi-currency index that is generated every business day of the year except for January 1, the only holiday common to all regional calendars. During holidays observed by local markets, the index will still be generated using prices from the previous business day. FX rates are updated daily using WM Reuters 4pm (London) rates. FX forwards are also sourced from WM Company.

Annual Returns, 2007-2018 (%)

	USD		EUR		JPY		GBP		CHF		CAD	
	Unhedged	Hedged										
2007	9.48	5.33	-1.27	3.89	2.64	0.23	7.62	5.76	1.50	2.09	-7.00	4.51
2008	4.79	5.58	10.22	6.04	-14.97	2.70	45.08	7.59	-1.49	4.18	31.07	5.73
2009	6.93	5.09	3.60	5.14	9.81	4.45	-4.80	5.30	3.86	4.46	-9.19	5.04
2010	5.54	4.61	12.88	4.70	-8.05	4.13	8.86	4.82	-4.83	4.18	0.04	5.04
2011	5.64	5.40	9.17	6.03	0.22	4.92	6.43	5.80	5.98	4.87	8.26	6.33
2012	4.32	5.72	2.72	5.53	17.23	5.27	-0.26	5.93	2.12	5.19	2.01	6.55
2013	-2.60	-0.14	-6.81	-0.33	18.40	-0.40	-4.41	0.04	-5.37	-0.55	3.94	0.62
2014	0.59	7.59	14.54	7.57	14.74	7.30	6.84	7.92	12.38	7.28	9.65	8.59
2015	-3.15	1.02	7.88	0.68	-2.83	0.47	2.45	1.39	-2.44	-0.52	16.15	1.61
2016	2.09	3.95	5.14	2.44	-1.02	2.25	21.77	3.66	3.65	1.78	-1.45	3.73
2017	7.39	3.04	-5.67	1.06	3.73	1.32	-1.90	1.93	2.97	0.56	0.34	2.60
2018	-1.20	1.76	3.78	-1.04	-3.77	-0.83	4.94	0.10	-0.05	-1.47	7.70	1.06

April 1, 2019

Index History

April 1, 2019	CNY-denominated debt added to the index.
June 1, 2018	Indonesia Rupiah-denominated bonds added to the index.
April 1, 2018	South African Rand-denominated bonds removed from the index.
April 1, 2017	Hungarian Forint-denominated bonds added back to the index. Formosa bonds removed from the index. US ABS and CMBS tranches between \$25-300mn entered the index.
October 1, 2016	Turkish Lira treasury debt removed from the index.
April 1, 2015	Malaysian government Sukuk added to the index.
July 1, 2014	US agency CMBS added to the index.
June 1, 2014	Global classification scheme modified to incorporate new sectors, sector name changes and sector retirements.
April 1, 2014	Russian ruble and Turkish lira treasury debt added to the index. Hungarian forint no longer an eligible currency for the Global Aggregate Index. Minimum liquidity for US MBS Index constituents raised from USD300mn to USD1bn.
April 1, 2013	Fixed local currency minimum issue sizes set for all local currency bond markets. Loan participation notes (LPNs) eligible for the index.
January 1, 2012	Israeli shekel-denominated bonds eligible for the index. Taiwan dollar-denominated debt removed from the index.
January 1, 2010	Swiss franc-denominated bonds eligible for inclusion in the index.
October 1, 2009	US ABS home equity sector removed from the index.
July 1, 2008	Thai baht debt added back to the Global Aggregate Index.
January 1, 2008	Fixed-to-floating rate perpetual securities without a coupon step-up on their first call date eligible for inclusion. US MBS fixed-rate balloons and US ABS manufactured housing removed.
March 1, 2007	Thai baht debt removed from the index.
January 1, 2006	Taiwan dollar and Malaysian ringgit eligible for the index.
July 1, 2005	Fitch ratings added to Moody's and S&P to determine index eligibility based on the middle rating from each agency.
September 1, 2004	Hong Kong dollar local currency debt included in the index.
July 1, 2004	Danish MBS without embedded optionality joined the index.
October 1, 2003	Capital and senior unsecured securities with fixed-to-variable coupons added to the index. Lower of Moody's and S&P rating used to determine index eligibility; previously Moody's was used as the primary rating with S&P rating used in cases where a Moody's rating was unavailable.
January 1, 2002	Liquidity constraint changed to multiple regional currency constraints from the sole USD300mn equivalent criteria. Local currency government debt from Thailand, South Korea and Singapore included in the index.
October 1, 2000	Asian-Pacific Aggregate Index joined the Global Aggregate Index. Liquidity constraint for all securities in the index raised to USD300mn (or currency equivalent) from USD150mn.
July 1, 2000	Eurodollar and US Investment Grade 144A Indices joined the Global Aggregate Index.
January 1, 1999	Creation of the Global Aggregate Index. At inception, the Global Aggregate included the US Aggregate Index, Pan-European Aggregate Index and Global Treasury Index (excluding US and European government securities).

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:

Sub-Index Type	Description	Examples
Enhanced Constraint	Applies a more or less stringent set of constraints to any existing index.	<ul style="list-style-type: none"> Global Aggregate ex Baa Global Aggregate 1–3 Year
Composites	Investors assign their own weights to sectors or other index sub-components within an overall index.	<ul style="list-style-type: none"> 50% Global Treasury; 50% Global Aggregate ex Treasury
Issuer Constrained	Indices that cap issuer exposure to a fixed percentage. Options available for applying issuer caps and redistributing excess MV to other issuers.	<ul style="list-style-type: none"> Global Aggregate 2% Issuer Capped
Alternative Weights	Uses other rules-based weighting schemes instead of market value weights.	<ul style="list-style-type: none"> Global Aggregate GDP Weighted Global Aggregate Fiscal Strength Weighted
ESG Screened/Weighted	Applies Environmental, Social and Governance filters and/or tilts to a standard index.	<ul style="list-style-type: none"> Global Corporate Socially Responsible Index Global Aggregate ESG Weighted
Mirror Futures Index (MFI)	An index consisting of 14 funded futures contracts weighted to match closely the beginning-of-month OAD of the index.	<ul style="list-style-type: none"> Global Aggregate Mirror Futures Index
Duration Hedged	Indices constructed to reflect the underlying return of an index with its duration fully or partially hedged using its MFI.	<ul style="list-style-type: none"> Global Aggregate Duration Hedged Index

Accessing Index Data

Bloomberg Professional® service	<p>Bloomberg benchmarks are the global standard for capital markets investors.</p> <ul style="list-style-type: none"> 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.bloomberg.com/professional/product/indices)	<p>The index website makes available limited index information including:</p> <ul style="list-style-type: none"> Index methodology and factsheets Current performance numbers for select indices

Accessing Index Data

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: Global Aggregate and Related Indices

Ticker (USD Unhedged)	Index	Ticker (USD Unhedged)	Index
LEGATRUU	Global Aggregate Index	LG01TRUU	Global Aggregate USD
LG13TRUU	Global Aggregate 1–3 Year	LG38TRUU	Global Aggregate ex USD
LG35TRUU	Global Aggregate 3–5 Year	LGA5TRUU	Global Aggregate 500mn
LG57TRUU	Global Aggregate 5–7 Year	AGDPTRUU	Global Aggregate GDP Weighted
LG71TRUU	Global Aggregate 7–10 Year	LFGATRUU	Global Aggregate Float Adjusted
LG10TRUU	Global Aggregate 10+ Year	SGAMTRUU	Global Aggregate Sustainability
LG3ATRUU	Global Aggregate Aaa	EGAMTRUU	Global Aggregate ESG Weighted
LG2ATRUU	Global Aggregate Aa	GBGLTRUU	Global Green Bond Index
LG1ATRUU	Global Aggregate A	DGLATRUU	Global Aggregate Duration Hedged
LGBATRUU	Global Aggregate Baa	MGAGTRUU	Global Aggregate Mirror Futures
I34556	Global Aggregate Ex-CNY	BCTPTRUU	Global Aggregate + China (Full Weight)

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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