



ICE Data Indices, LLC

Fixed Income Index Overview

October 2020



About ICE Data Indices, LLC

ICE Data Indices, LLC (“IDI”) is a U.S. subsidiary of Intercontinental Exchange, Inc. (“ICE”) and is the administrator under the ICE Data Services® business unit for over 6,000 indices, collectively referred to as the ICE Indices, across the following markets:

- Fixed Income Indices: A wide range of indices, branded under the ICE® and ICE BofA® names, covering the global bond markets, including broad investment grade, high-yield and emerging markets, as well as convertible and preferred securities.
- Volatility Indices: The ICE BofA MOVE index family tracks implied volatility in the USD treasury option and swaption markets.
- Equity Indices: A diverse set of indices, branded under the ICE and NYSE® names, that include blue chip, national and regional indices as well as sector, smart beta, and thematic indices.
- Sustainability Indices: A range of fixed income and equity indices, branded under the ICE name, that account for Environmental, Social and Governance (ESG) factors in addition to other criteria.
- Currency Indices: A series of individual spot currency and currency basket indices, branded under the ICE, ICE BofA and NYSE names, including the ICE U.S. Dollar Index (DXY), the leading FX index benchmark for the U.S. Dollar.
- Futures Indices: A series of indices, branded under the ICE and ICE BofA names, that track production weighted baskets of the most liquid commodity futures contracts and Carbon Futures (“the Commodity Indices”) and the ICE U.S. Treasury Futures Indices.

Index Governance

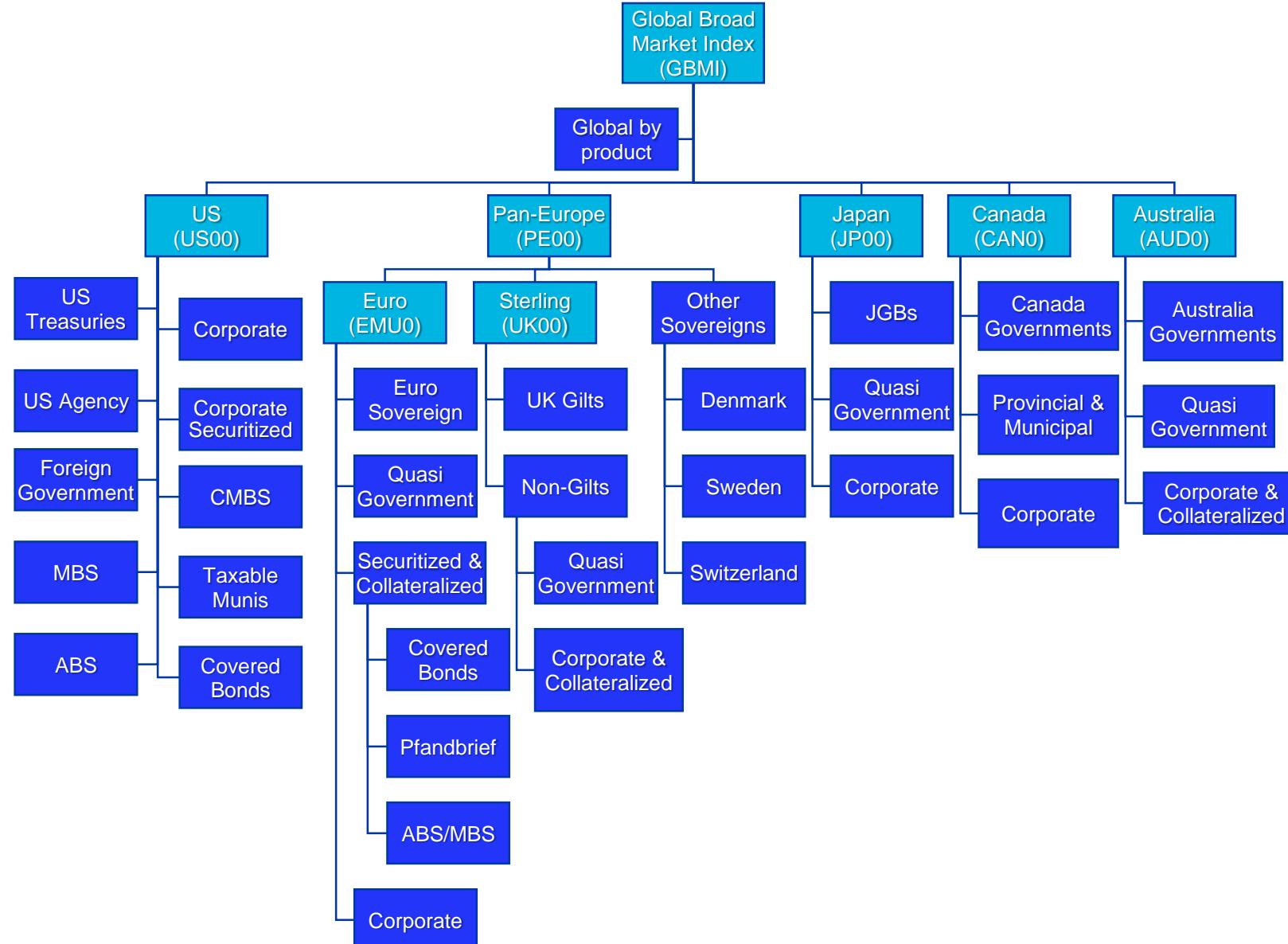
- IDI is a Benchmark Administrator for the purposes of IOSCO's Principles for Financial Benchmarks ("IOSCO Principles"). IDI's IOSCO Compliance Statements which outline key policies and procedures can be found here: <https://www.theice.com/market-data/indices/regulation/iosco-reports>.
- IDI has been recognized as a third country benchmark administrator under the European Union's Benchmark Regulation by the UK Financial Conduct Authority (FCA). Its approved benchmarks are included in the ESMA Register. See Press Release here: <https://ir.theice.com/press/press-releases/all-categories/2019/06-17-2019-065928490>
- IDI has sole responsibility for all aspects of the development, determination, operation and dissemination of the ICE Indices. The IDI Index Governance Committee ("IGC"), reviews and approves all aspects of the determination and development of the benchmark, including the methodology, and oversees and manages the conflicts of interest framework, the control framework and the operations of the determination process.

Scope of fixed income index coverage

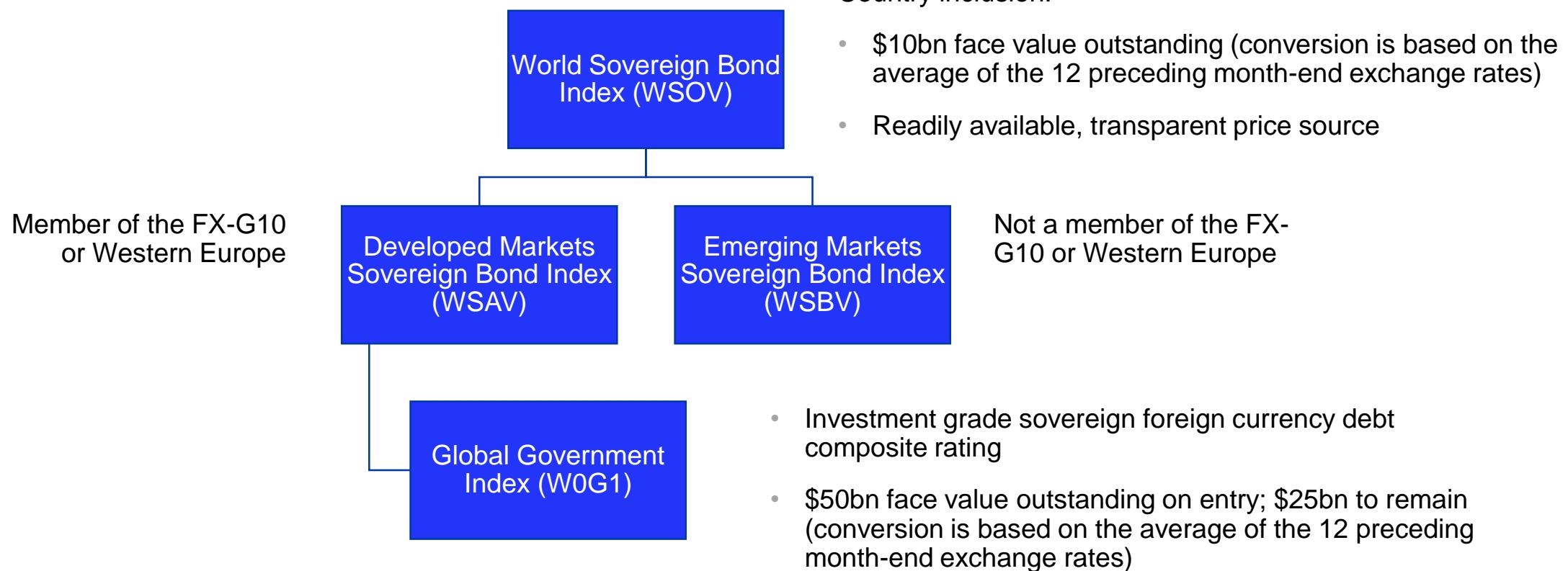
Over 5,000 standard indices tracking more than \$90 trillion in debt

- Sovereign debt markets
 - Local currency:
 - fixed-rate nominal debt of 60 countries
 - inflation-linked debt of 25 countries
 - External fixed-rate nominal debt of 97 countries
- Global/regional investment grade markets
 - Broad market indices: Global, US, Euro, Sterling, Japan, Canada, Australia, China
 - US municipal securities: taxable and tax-exempt
 - Other \$ indices: CMOs, floating rate ABS, preferred, convertible
- High yield
 - Fixed rate: USD, EUR, GBP, CAD
 - Floating rate: USD, EUR and GBP
- Emerging markets
 - External Debt: USD and EUR; sovereign and non-sovereign
 - Local Debt: nominal and inflation-linked sovereign; non-sovereign
- Other
 - Par coupon, zero coupon and inflation-linked swaps
 - Bid/Offer deposit rates and spot currency indices

Global Broad Market Index family

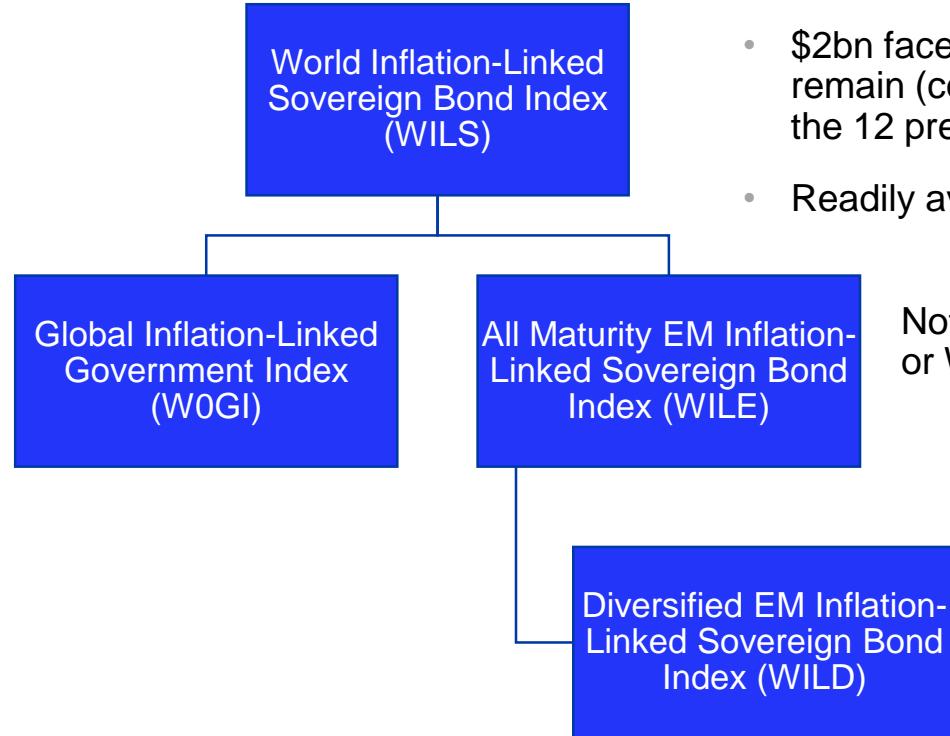


Global and Regional Nominal Government Indices



Global and Regional Inflation-Linked Government Indices

- Securities >= 1 year to maturity
- Member of the FX-G10 or Western Europe
- Investment grade foreign currency debt rating



Country inclusion:

- \$2bn face value outstanding on entry; \$1bn to remain (conversion is based on the average of the 12 preceding month-end exchange rates)
- Readily available, transparent price source

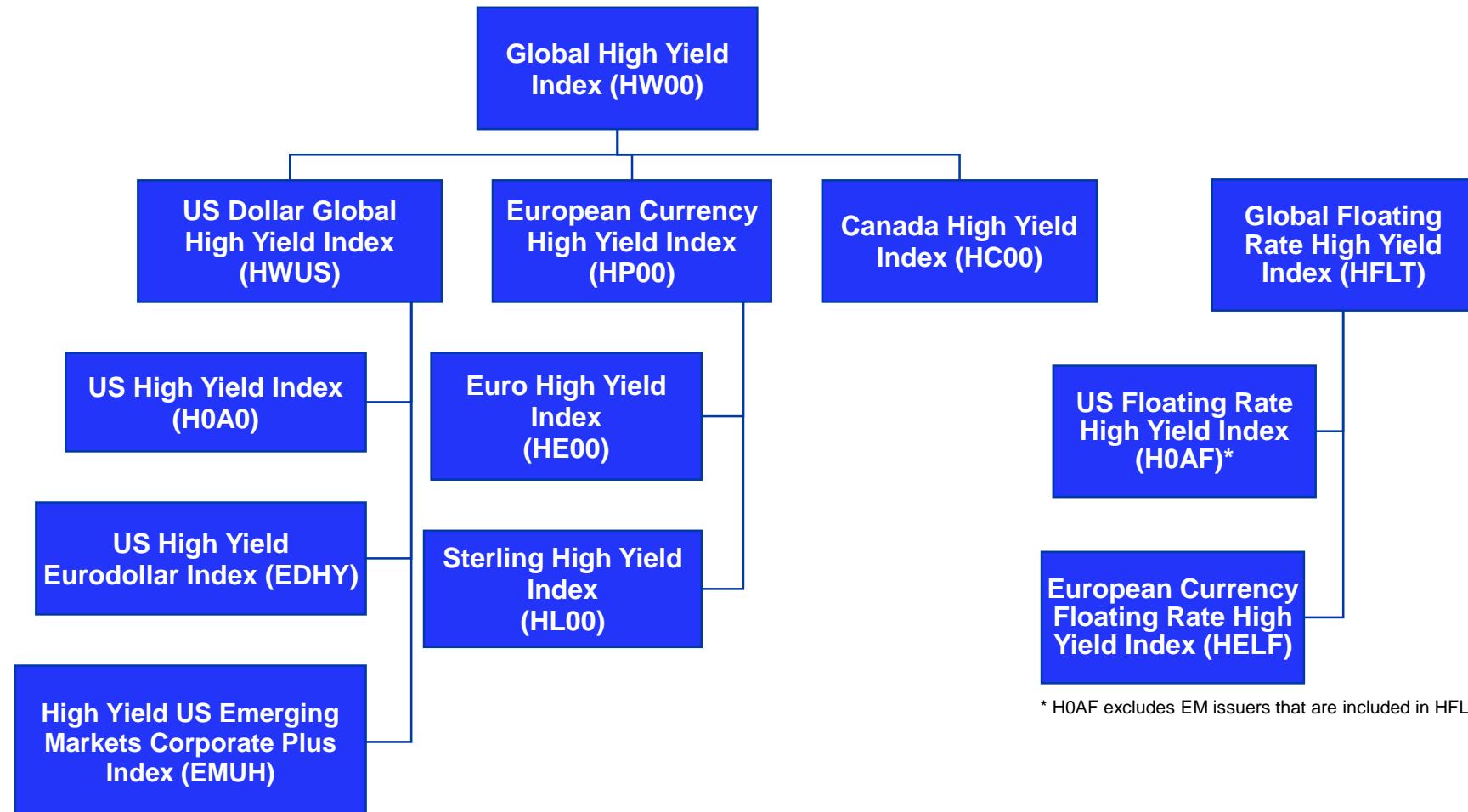
Not a member of the FX-G10 or Western Europe

- 20% country cap
- Foreign access
- Adequate liquidity

Developed Markets Nominal, Inflation-Linked and Bill Country Indices

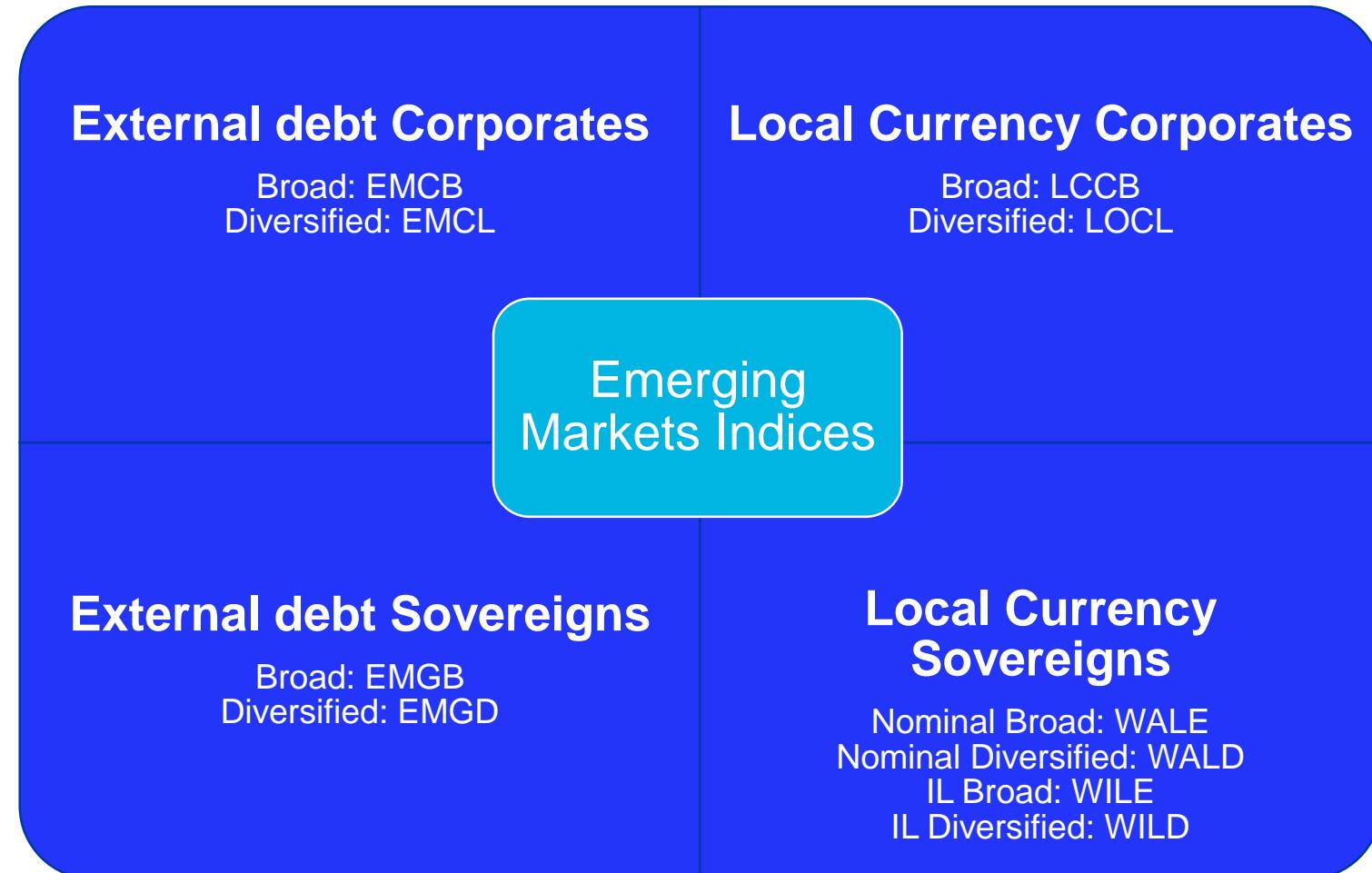
Country	Nominal		Inflation-linked		Bills
	1mo+	1yr+	1mo+	1yr+	
Australia	GJT0	G0T0	GJTI	G0TI	
Austria	GJH0	G0H0			
Belgium	GJG0	G0G0			G0GB
Canada	GJC0	G0C0	GJCI	G0CI	
Cyprus	GJCY	G0CY			
Denmark	GJM0	G0M0	GJMI	G0MI	
Finland	GJK0	G0K0			G0KB
France	GJF0	G0F0	GJFI	G0FI	G0FB
Germany	GJD0	G0D0	GJDI	G0DI	G0DB
Greece	GJGR	G0GR	GJGI	GGRI	GGRB
Ireland	GJR0	G0R0			G0RB
Italy	GJI0	G0I0	GJII	G0II	G0IB
Japan	GJY0	G0Y0	GJYI	G0YI	G0YB
Luxembourg	GJLU	G0LU			
Netherlands	GJN0	G0N0			G0NB
New Zealand	GJZ0	G0Z0	GJZI	G0ZI	
Norway	GJJ0	G0J0			
Portugal	GJU0	G0U0			G0UB
Slovakia	GJSL	G0SL			GSLB
Slovenia	GJSV	G0SV			
Spain	GJE0	G0E0			G0EB
Sweden	GJW0	G0W0	GJWI	G0WI	
Switzerland	GJS0	G0S0			
United Kingdom	GJL0	G0L0	GJLI	G0LI	
United States	G0QJ	G0Q0	GJQI	G0QI	G0BA

Global High Yield Index Family



* HOAF excludes EM issuers that are included in HFLT.

Emerging Markets Index family



Index rules and methodology

- Methodology publications provide details on calculation formulas, classification schemas, etc.
 - Bond Index Methodologies
 - ESG Bond Index Family Guide
- Individual index rules define:
 - Criteria for selecting constituent securities
 - Constituent weighting and rebalancing procedures
- All rules and methodologies are reviewed annually:
 - Proposed rule changes published in April
 - Followed by a public commentary period
 - Final rule changes published in August
 - Effective date for adopted changes is September 30
 - Changes can be implemented outside of the standard cycle to address special situations and market events

Rebalancing occurs monthly

- Qualifying bonds are selected on the “lock-out” date (three business days prior to the last business day of the month)
 - Bonds issued/auctioned on or before the lock-out date and that settle on or before calendar month end are included
 - Calls are reflected at the upcoming rebalancing if they are announced on or before the lock-out date
 - Increases (taps) to existing securities that are issued or auctioned on or before the rebalancing lock-out date are included
 - Repurchases that occur on or before the lock-out date are reflected at the upcoming rebalancing
 - Tenders are reflected at the upcoming rebalancing if the results are announced on or before the lock-out date
 - Rating changes occurring on or before lock-out are included at the upcoming rebalancing, while those occurring after that date wait until the following rebalancing
- Projected changes in index characteristics and projected constituent lists are published starting on the first business day of the month and continue each business day thereafter until the month-end rebalancing date.
- The rebalancing occurs on the last calendar day of the month

When month-end falls on a weekend or global holiday

- Weekdays on which WM Company/Reuters does not publish closing FX rates are treated as bond index global holidays.
- No indices are published on global holidays unless the holiday falls on the last calendar day of the month.
- All indices are published on global business days and the last calendar day of every month.
- If the last calendar day of a month falls on a global holiday, prices are updated in all local markets that are open. All FX rates, as well as prices in all markets that are closed, are rolled from the prior business day and accrued interest is calculated for the new settlement date.
- If the last calendar day of the month falls on a weekend, prices are rolled from the last business day and accrued interest is calculated for the new settlement date. If the preceding Friday is a global holiday, prices in all markets that are open on that date are used to value the indices on the last calendar day of the month.

Pricing sources/timing

Market	Price type	Price source	Timing
US and Canada			
US agency, foreign government, corporate, ABS, CMBS, CMO, high yield	Evaluated bid	ICE Data Services	3:00pm ET (4pm ET close also available for select indices)
US Treasury	Evaluated bid	ICE Data Services	3:00pm ET (4pm ET close also available for select indices)
US mortgages	Evaluated bid; weighted average of all pools comprising each generic cohort	ICE Data Services	3:00pm ET
US preferred	Closing exchange price; evaluated bid if exchange price is unavailable	ICE Data Services	4:00pm ET
US municipals (taxable and tax-exempt)	Evaluated bid	ICE Data Services	4:00pm ET
Canada sovereign	Evaluated bid	Statpro	3:00pm ET
C\$ non-sovereign high grade and high yield	Evaluated bid	Statpro	3:00pm ET
Europe:			
Euro high grade and high yield	Evaluated bid	ICE Data Services	4:15pm London
Sterling high grade and high yield non-Gilt	Evaluated bid	ICE Data Services	4:15pm London
UK Gilts	Mid	Tradeweb	4:15pm London
All other Europe	Evaluated bid	ICE Data Services	4:15pm London
Japan & Australia			
JGBs	Evaluated bid	JSDA	5:00pm local
Japan credit	Evaluated JSDA Bid; evaluated ICE Data Services Bid used when evaluated JSDA Bid is unavailable	JSDA and ICE Data Services	5:00pm local
All A\$ indices	Evaluated bid	ICE Data Services	5:00pm Sydney
Other debt markets:			
Brazil	Evaluated bid	Statpro	4:15pm local
Mexico	Evaluated bid	Statpro	2:30pm local
Nigeria	Evaluated bid	Statpro	4:00pm local
Israel	Evaluated bid	Statpro	5:00pm local
Peru and Romania	Evaluated bid	Statpro	3:00pm local
Chile, Colombia, Egypt	Evaluated bid	ICE Data Services	3:00pm local
Morocco	Evaluated bid	ICE Data Services	4:00pm local
All other local debt markets	Evaluated bid	ICE Data Services	local market close
External (USD and EUR) emerging market sovereign and credit	Evaluated bid	ICE Data Services	USD 3pm ET

Pricing sources/timing (cont.)

Market	Price type	Price source	Timing
Convertibles			
All Convertibles	Evaluated mid; closing exchange price used when evaluated mid is unavailable	ICE Data Services	Local market close
Swaps and FX:			
All nominal and IL swaps	Mid	ICE Data Services	USD 3:00pm ET; EUR/GBP 4:00pm London
Deposit rates	Rate dependent: bid, offer or mid	ICE Data Services	Local market close; 11:00am London (ICE)
Spot and forward FX rates	Mid	The WM Company	4:00pm London

Accrued interest & cash

- Accrued interest is calculated assuming next-day settlement with the exception of US securitized products (MBS, CMBS, ABS and CMO), which assumes same-day settlement.
- Cash flows from bond payments that are received during the month are retained in the index until the end of the month and then are removed as part of the rebalancing.
- Cash does not earn any reinvestment income while it is held in the index.

Defaults

- Defaulted securities are excluded from the indices
- Securities are considered in default based on their individual legal terms
- A rating of “D” by a major rating agency is not a consideration for default status
- Defaulted securities are removed from the indices at the next rebalancing following the default event provided this occurs on or before the rebalancing “lock-out” date, the third business day before the last business day of the month

Composite rating algorithm

Simple average of Moody's/S&P/Fitch

Convert each rating to numeric equivalent (AAA = 1; Aa1/AA+ = 2, etc.)

Calculate simple average and round to nearest integer

Convert back to alpha composite rating

For example:

$$\text{Baa2/BBB/BB+} = (9 + 9 + 11) / 3 = 9.67 = 10 = \text{BBB3}$$

$$\text{Baa2/BB+/BB+} = (9 + 11 + 11) / 3 = 10.33 = 10 = \text{BBB3}$$

$$\text{Baa3/BBB-/BB} = (10 + 10 + 12) / 3 = 10.67 = 11 = \text{BB1}$$

Rating hierarchy by issuer types

Issuer group:	ICE composite rating based on:
Sovereigns (i.e., sovereign debt denominated in the issuer's local currency)	Local currency long term debt sovereign rating
Foreign Sovereigns (i.e., sovereign debt denominated in a foreign currency)	Foreign currency long term debt sovereign rating
Quasi-Governments (i.e., Agency, Local Authority, Government Sponsored/Guaranteed, Supranational)	<ol style="list-style-type: none">1. bond rating2. senior unsecured debt issuer rating (foreign currency issuer rating is used for bonds denominated in a currency other than the local currency of the issuers country of domicile). Note: issuer rating is used only for unsubordinated debt.
US Agency MBS and CMO	<ol style="list-style-type: none">1. Ginnie Mae collateral: US Treasury local currency long term sovereign debt rating2. Fannie Mae and Freddie Mac collateral: senior unsecured debt issuer rating
ABS and CMBS	Bond rating
Covered bonds	Bond rating
Corporate bonds	Bond rating
US municipal securities	Bond rating
Preferred securities	Bond rating

Subordination types

The subordination type field indicates the relative placement in the capital structure or deal cash flow

Description	Code	Notes
Non-bank and bank holding company corporate and collateralized		
Secured	SECR	Senior secured, collateralized and covered
Senior	SECR	Senior unsecured; unsubordinated
Subordinated	SUB	Ranking below senior debt; senior subordinated
Junior Subordinated	JSUB	Ranking below other subordinated debt
Preferred	PFD	Ranking below junior subordinated debt but above common equity; preferred stock.
Bank and bank holding company corporates		
Secured	SECR	Senior secured, collateralized
Senior	SECR	Senior unsecured; unsubordinated
Tier 2	T2	Subordinated; includes legacy lower tier 2
Upper Tier 2	UT2	Includes only legacy upper tier 2 debt
Tier 1	T1	Originally issued as qualifying tier 1 capital under the issuer's regulatory regime
Alternative Tier 1	AT1	Originally issued as additional tier 1 capital under issuer's regulatory regime
Preferred	PFD	Ranking below junior subordinated debt but above common equity; preferred stock
Securitized		
Securitized Senior	SSEN	Senior tranche of a securitized deal
Securitized Subordinated	SSUB	Subordinated tranche of a securitized deal
Securitized Mezzanine	SMEZ	Mezzanine tranche of a securitized deal

Proprietary sector classifications

Four-tier sector classification schema

- Level 1 – asset class
 - Sovereign (local currency debt); Quasi-Government (incl. external Sovereign debt); Securitized/Collateralized; Corporate; US Tax Exempt Municipal Securities; Preferred Securities; Derivatives; Cash
- Level 2 – group
 - Corporate: Financial; Industrial; Utility
- Level 3 – category
 - Industrial: Automotive, Basic Industry; Cap Goods; Consumer Goods; etc.
- Level 4 – sub-category
 - Automotive: Automakers; Auto Loans; Auto Parts & Equipment

The up-to-date sector map is published on the ICE Index Platform:

Methodologies -> Fixed Income -> Sector Schema

Classifying “Quasi-Government” vs “Corporate” debt

- Government ownership – in whole or in part – is not a consideration for determining whether an issuer is a “Quasi-Government” or “Corporate”
- To receive a “Quasi-Government” Level 1 asset class designation an issuer must be one of the following:
 - Foreign currency debt issued by a central government (Foreign Sovereign)
 - Debt guaranteed by a central government (Government Guaranteed)
- Debt issued by a region, province, state, city, etc. (Local Authority)
 - Debt issued by an international government organization (Supranational)
- Debt issued by a central government agency (Agency)
- An Agency is an entity that meets the following conditions:
 - It is an entity that exclusively serves an explicit public policy purpose, where profitability is not the sole concern, though profit-maximization is not precluded ; and
 - It was created by a specific statute and at the behest of a government, even if subsequent legislation has allowed for its transformation into a stockholder owned company or other private entity.

Relative value and risk metrics calculated for every bond/index

- Total return
 - Local, converted unhedged and converted hedged
 - Attributed to curve, spread and volatility factors
- Excess return vs risk-matched sovereigns and swaps
- Yield and risk measures (duration, convexity, etc.)
 - To maturity, to worst, effective (option-adjusted)
 - Conventional, semi-annual
- Spreads
 - Option-adjusted spread (vs government and swap curves)
 - Spread-to-worst (vs maturity-matched point on government curve)

Index dissemination

ICE Index Platform (<https://indices.theice.com/>)

- Unrestricted public access available free of charge:
 - Top level index data
 - Index methodologies, rules and announcements
- Additional access available to subscribers:
 - Full historical database of top level and constituent data
 - Advanced analytics
 - Custom index tool
 - Automated data feeds

Third party data vendors include: Bloomberg (Terminal and Data License), FactSet, Morningstar, Rimes, Refinitiv and many others

ICE Index Platform website

Key functionality:

- View/download current and historical index and constituent data
- Run customized bucket analyses segmenting the index by sector, rating, duration, etc.
- Create basic and complex custom indices
- Access index rules and methodology
- Announcements and index publications

To access:

- www.indices.theice.com

User guide:

- Available for download by clicking on “User Guide” on the blue menu bar

The screenshot displays the ICE Index Platform interface. At the top, there's a navigation bar with links for Home, Methodologies, Publications, Index Analysis, Download, Report Scheduler, Date Format, and User Guide. A "Log Out" link is also present. The main content area is divided into several sections:

- Index Snapshot:** Shows details for the ICE BofA Synthetic EUR 2-Year Par Coupon Swap Index (E02C) as of 10/16/2020. It includes a table for Average Characteristics and a section for Index Rules.
- Announcements:** Lists recent updates:
 - ICE Index Platform Maintenance (10/15/2020): Due to scheduled maintenance work on Saturday, 10/17/20, the ICE Index Platform will be unavailable from 8am - 2pm EST.
 - Tip: New Methodologies Menu (10/12/2020):
 - Methodologies now available on the menus bar
 - Previously under Publications, Methodologies is the new easy way to access reference documents by index family, including the sector schema map
 - Individual rule documents are now available on index Snapshot right on the homepage
 - MOVE Volatility index Series Restatement (10/08/2020)
- Index Finder:** A search tool for finding specific indices based on Family, Sector, Index, and various filters like Currency, Maturity Band, Rating, and Weighting Method.
- Real-Time Index Monitor:** Displays a table of current market values for various indices, including Last, Change, and %Chg. Categories include Fixed Income, Equity, Commodity Futures, and Currencies. Notable entries include FI Volatility, US Broad Market, US Corporate, US High Yield, EM Corporate, Euro Corporate, Euro High Yield, US 500, US 1000, US 2000, MLCX Commodity, MLCX Brent, Global Carbon, and US Dollar Index.

ICE Data Index pages on Bloomberg (IND<GO>)

Key functionality:

- View/download current and historical index and constituent data
- Run customized bucket analyses segmenting the index by sector, rating, duration, etc.
- Create blended indices
- Access index rules and methodology

To access:

- IND<go>, or
- Select an index
 - (e.g., H0A0<Index><Go>)
- Select a function from the menu
 - (e.g., #4 to see spread, yield, duration, etc.)

<Enter Index>		98) Description	99) Fact Sheet	ICE Bond Indices
No index selected				
				
Index Finder & Rules			Historical Data	
1) IND1	Index Finder		12) IND12	Index Charts/Tables
2) IND2	Index Rules & Methodology		13) IND13	Data Download
3) IND3	FX / Forward Rates			
Index Analytics			Rates of Return	
4) IND4	Index Characteristics		14) IND14	Return Summary
5) IND5	Profile Analysis		15) IND15	Monthly/Quarterly/Annual Returns
6) IND6	Correlation Matrix		17) IND17	Flexible Returns
			18) IND18	Personal Return Monitor
Constituents			Custom Index Model	
10) IND10	Index Member List/Download		19) IND19	Create Custom Index
11) IND11	Index Lookup by Security			
			General Information	
			23) IND23	Index Publications

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