INDEX RULES & METHODOLOGY | August 21, 2019

ANNUAL INDEX RULE REVIEW

Phil Galdi, Head of Indices
ICE Data Services │ ICE Data Indices

Preston Peacock, Senior Research Analyst
ICE Data Services | ICE Data Indices

ICE Index Hotline:
New York: +1 212-497-3008
London: +44 (0) 20-7429-7128
Email: ICEIndices@theice.com

ICE BofAML index rule changes

Following our annual rule survey, several changes to ICE BofAML indices are being adopted. All proposals that were under consideration are reviewed in this report along with details of all adopted changes and their impact on affected indices.

Changes will take effect on September 30, 2019

Unless otherwise noted, the adopted changes will take effect on September 30, 2019, and new selection criteria will be incorporated in the indices beginning with the October 2019 constituent lists. Custom indices that are based off indices affected by these rule changes will automatically pick up the new rules unless the sponsor of the index notifies us in advance of their desire to modify the rules for their custom index. ICE Data Indices, at its sole discretion, reserves the right to issue rule changes apart from this annual cycle in the event that such a change is deemed necessary in order to deal with extraordinary circumstances including, but not limited to, changes in data availability.

Annual review of index-qualifying countries

All changes below will take effect with the October 2019 constituency.

Table 1: Country qualification changes affecting key indices

Index	Additions	Removals
World Sovereign Bond Index (WSOV)	None	None
Global Government Index (W0G1)	None	None
Eastern Europe Government Index (EE00)	None	None
All Maturity Emerging Markets Sovereign Bond Index (WALE)	None	None
Diversified Emerging Markets Sovereign Bond Index (WALD)	None	None
Local Debt Markets Plus Index (LDMP)	None	None
World Inflation-Linked Sovereign Bond Index (WILS)	None	None
Global Inflation-Linked Government Index (W0GI)	None	None
Global Diversified Inflation-Linked Index (W0DI)	None	None
All Maturity Emerging Markets Inflation-Linked Sovereign Bond Index (WILE)	None	None
Diversified Emerging Markets Inflation-Linked Sovereign Bond Index (WILD)	None	None
Local currency non-sovereign indices (LCCB, LCCD, LOCM, LOCL)	None	None

Adopted rule and methodology changes

1. A new “Senior Non-Preferred” subordination type will be added and it will be applied to senior debt specifically issued with bail-in provisions as well as senior debt issued by bank holding companies.
2. Called securities will be removed from the indices only after the effective date of the call.
3. Overnight deposit rates for currencies currently using LIBOR will switch to alternative reference rates:
    a. SOFR (USD)
    b. SONIA (GBP)
    c. SARON (CHF)
    d. TONAR (JPY)

Feedback on Chinese domestic bond market

Our follow-up to the 2018 survey questions regarding inclusion of China domestic market debt in global indices indicates that most respondents still do not consider China as having sufficient access for foreign investors and liquidity to meet global index inclusion criteria. Accordingly, we will not add China to any of the existing indices. Instead we have introduced a set of new indices that combine our Global Broad Market Index (GBMI) with one or more segments of the China domestic bond market.

Detailed results of survey feedback

Addition of new Subordination Type

Question 1: Should a new "Senior Non-Preferred" subordination type be created and applied to all senior bank securities that can be specifically bailed-in during a regulatory capital breach?

Question 2: If an additional "Senior Non-Preferred" subordination type is created, should it also be applied to all senior bank securities issued from a holding company?

Rule decision

Rule change adopted. A clear majority of responding investors supported the addition of a new subordination type identifying senior bank securities that could be "bailed in" if the issuer faces a capital adequacy event. A similar majority favored extending the scope of the new subordination type to include all senior securities issued by a bank holding company.

Impact

This change will alter the designated subordination type for certain securities and will require index constituent data recipients to map the new type in their internal processes. The change will have no impact on index constituencies, as the new subordination type will be considered senior for purposes of index qualification rules. An updated table of subordination types, including the new Senior Non-Preferred category, is provided in Table 2.

Table 2: Subordination type classifications

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

Timing of called bond removal

Question 1: Should called securities be removed only after the effective date of the call?

Rule decision

Rule change adopted. Though respondents were split, a majority favored the proposal, which will keep called securities in the index until the rebalancing following the actual effective date of the call. We agree that this change will improve the index by avoiding situations where security re-enters the index after a call is rescinded.

Impact

The adoption of this rule change will have a noticeable impact on some indices. In some cases, called securities reach their effective dates between the announcement date and the next rebalancing, but at times that is not the case. As a result, in many cases securities with announced calls will remain in the index for another month or more. For example, it is not unusual for US municipal calls to be announced more than a month before the effective date. There will be no change to the handling of fixed-to-floating and perpetual-callable securities, both of which use the first call date as the assumed maturity. Likewise, there will be no change in the treatment of pre-refunded and crossover-refunded U.S. municipal securities, both of which use the call date associated with the refunding as the assumed maturity. Table 3 shows the pro-forma impact as of March 31, 2019 of implementation of this change on a sample of representative indices.

Table 3: Pro-forma impact of retention of securities with announced calls that have not reached their effective date at the 3/31/2019 rebalancing

Index	Ticker	# Securities	Market Cap ($MM)	% Weight
US Municipal	U0A0	36	3,471	0.35
US Corporate	C0A0	5	2,647	0.04
US High Yield	H0A0	13	8,375	0.42
Euro High Yield	HE00	3	2,371	0.12
Global High Yield	HW00	16	10,746	0.54

Change in indices with a 1-month minimum maturity criterion

Question 1: Should the minimum maturity requirement be removed from all indices that currently have a 1-month minimum maturity requirement?

Rule decision

No change. A modest majority of respondents preferred to leave the one month minimum maturity requirement intact for the indices in question as they did not want to have principal proceeds accumulating in the index during the month as that would place a drag on income. Since we have the ability to create additional indices that hold bonds right up to their maturity date for those that prefer that option, we will not change the rules for existing indices.

Unsolicited ratings in the composite rating calculation

Question 1: Should unsolicited ratings from the rating agencies be used in the composite rating algorithm?

Rule decision

No change. An overwhelming majority of respondents wished to keep unsolicited ratings included in the calculation of the composite rating.

LIBOR

Question 1: Should the Sterling Overnight Index Average (SONIA) replace the equivalent LIBOR rate in the British Pound Overnight Deposit Rate indices (L0BP and LBP0)?

Question 2: Should the Secured Overnight Financing Rate (SOFR) replace the equivalent LIBOR rate in the US Dollar Overnight Deposit Rate indices (L0US and LUS0)?

Question 3: Should the Swiss Average Rate Overnight (SARON) replace the equivalent LIBOR rate in the Swiss Franc Overnight Deposit Rate indices (L0SF and LSF0)?

Question 4: Should the Tokyo Overnight Average Rate (TONAR) replace the equivalent LIBOR rate in the Japanese Yen Overnight Deposit Rate indices (L0JY and LJY0)?

Rule decision

Rule changes adopted. A clear majority of respondents were in favor of switching the source of rates used in the overnight deposit rate indices where LIBOR is currently used to local market alternatives. Due to the nature of the replacement rates, both the bid and offer deposit rate indices will carry the same rate, and therefore both indices will produce the same returns going forward. Along with the change we will implement name changes to the affected indices (Table 5). While the previously named bid and offer indices in each currency will now carry the same name and results, they will continue to be published under separate tickers.

Table 5: Name change for overnight deposit rate indices

Index	Current Name	New Name
LBP0	ICE BofAML British Pound Overnight Deposit Offered Rate Index	ICE BofAML SONIA Overnight Rate Index
L0BP	ICE BofAML British Pound Overnight Deposit Bid Rate Index	ICE BofAML SONIA Overnight Rate Index
LSF0	ICE BofAML Swiss Franc Overnight Deposit Offered Rate Index	ICE BofAML SARON Overnight Rate Index
L0SF	ICE BofAML Swiss Franc Overnight Deposit Bid Rate Index	ICE BofAML SARON Overnight Rate Index
LJY0	ICE BofAML Japanese Yen Overnight Deposit Offered Rate Index	ICE BofAML TONAR Overnight Rate Index
L0JY	ICE BofAML Japanese Yen Overnight Deposit Bid Rate Index	ICE BofAML TONAR Overnight Rate Index
LUS0	ICE BofAML US Dollar Overnight Deposit Offered Rate Index	ICE BofAML SOFR Overnight Rate Index
L0US	ICE BofAML US Dollar Overnight Deposit Bid Rate Index	ICE BofAML SOFR Overnight Rate Index

Impact

Based on a recent three-month period, the overnight replacement rates are all slightly higher than their overnight LIBOR equivalents. A comparison of the two rates over that period can be found in Table 6 below.

Table 6: Difference in overnight alternatives vs LIBOR, last three months as of April 16

Currency	Index	Alternative	Average	High	Low	Median	Std.Dev
British pound	LBP0	SONIA	0.03	0.04	0.02	0.03	0.01
U.S. dollar	LUS0	SOFR	0.04	0.27	-0.02	0.02	0.05
Swiss franc	LSF0	SARON	0.06	0.10	0.04	0.06	0.01
Japanese yen	LJY0	TONAR	0.03	0.07	0.00	0.03	0.02

Chinese Domestic Bond Market

The results of our survey last year suggested that, in the opinion of our stakeholders, China was not yet sufficiently accessible to foreign investors, and that there were concerns that liquidity was still inadequate to support its inclusion in global indices. Given the changes implemented by Chinese authorities in the last year we re-polled our stakeholders on their current views.

Question 1: Have sufficient barriers been lifted such that Chinese domestic debt is now accessible to foreign investors and can be included in those indices that have a foreign access criterion?

Question 2: Is there sufficient liquidity in the Chinese domestic debt markets such that they can be included in indices that have a liquidity criterion?

Question 3: Are you satisfied that foreign investors now have the ability to sufficiently hedge interest rate and currency exposure to aid in managing a portfolio containing Chinese domestic debt?

Response:

Though the results indicate that respondents do believe that access to the China domestic bond market is improving, the majority are still not comfortable having China added to the global indices. A higher percentage of respondents said they did not believe the Chinese domestic bond market was sufficiently liquid to meet index inclusion criteria. And an even higher percentage of respondents were not satisfied they could properly hedge interest rate and currency exposures if Chinese domestic debt were included in their portfolios.

Question 4: Would you prefer that we create a new series of global indices that include China as opposed to adding it to existing global indices?

Question 5: If Chinese debt were to be included in the Global Broad Market Index (GBMI) what segments should be included?

Question 6: If Chinese domestic debt were to be included in the various global and emerging markets indices it qualifies for, what is the appropriate period of time over which it should be "phased in?"

Response:

A strong majority of respondents were in favor of creating new indices that include China, rather than adding it to existing indices. Accordingly, we have launched three new indices that combine the Global Broad Market Index with one or more segments of the China domestic bond market. It is worth noting that most investors would have preferred a 12-18 month phase-in had China been added to existing indices.

Table 7: Global Broad Market Indices Including Chinese Domestic Debt

Index	Ticker	Global Broad Market Index (GBMI) plus the following China segments:
Global Broad Market Including China	GBCN	Sovereign, Policy Bank, Non-Policy Bank Quasi Government, Corporate
Global Broad Market Including China Government	GBCT	Sovereign only
Global Broad Market Including China Government & Policy Bank	GBCG	Sovereign and Policy Bank

Annual review of global index-qualifying countries

Inclusion of a country in various global sovereign and broad market indices is based on a series of criteria which are evaluated annually as of June 30. The results of the 2019 review, which take effect on September 30, 2019, are detailed below.

World Sovereign Bond Index (WSOV)

No changes.

Table 8: World Sovereign Bond Index (WSOV) country qualification criteria

1) $10bn face value outstanding to enter, $5bn face outstanding to remain
2) Readily available, transparent price source

Global Government Index (W0G1)

No changes.

Table 98: Global Government Index (W0G1) country qualification criteria

1) Developed market
2) Investment grade sovereign foreign currency debt composite rating
3) $50bn face value outstanding to enter, $25bn face outstanding to remain
4) Debt is available to foreign investors
5) Readily available, transparent price source

Euro Government Index (EG00)

No changes.

Table 10: Euro Government Index (EG00) country qualification criteria

1) Sovereign debt issued by a member country of the European Monetary Union
2) Investment grade sovereign local currency debt composite rating
5) Readily available, transparent price source

Eastern Europe Government Index (EE00)

No changes.

Table 11: Eastern Europe Government Index (EE00) country qualification criteria

1) Sovereign debt issued by an Eastern European Government
2) Investment grade sovereign foreign currency debt composite rating
3) $10bn face value outstanding to enter, $5bn face outstanding to remain
4) Debt is available to foreign investors
5) Readily available, transparent price source

All Maturity Emerging Markets Sovereign Bond Index (WALE)

No changes.

Table 12: All Maturity Emerging Markets Sovereign Bond Index (WALE) country qualification criteria

1) Emerging market
2) $10bn face value outstanding to enter, $5bn face outstanding to remain
3) Readily available, transparent price source

Diversified Emerging Markets Sovereign Bond Index (WALD)

No changes. China, India, Taiwan, Sri Lanka, Morocco and Nigeria meet the quantitative criteria but will not be included as they do not meet the foreign access and/or liquidity criteria.

Table 13: Diversified Emerging Markets Sovereign Bond Index (WALD) country qualification criteria

1) Emerging market
2) $10bn face value outstanding to enter, $5bn face outstanding to remain
3) Debt is available to foreign investors
4) Readily available, transparent price source
5) Reasonable liquidity

Local Debt Markets Plus Index (LDMP)

No changes. China, India, Taiwan, Sri Lanka, Morocco and Nigeria meet the quantitative criteria but will not be included as they do not meet the foreign access and/or liquidity criteria.

Table 14: Local Debt Markets Plus Index (LDMP) country qualification criteria

1) Emerging market
2) A1 or lower foreign currency long-term sovereign debt rating
3) $10bn face value outstanding to enter, $5bn face outstanding to remain
4) Debt is available to foreign investors
5) Readily available, transparent price source
6) Reasonable liquidity

World Inflation-Linked Sovereign Bond Index (WILS)

No changes. Hungary meets the quantitative criteria but will not be included as reliable pricing is not available.

Table 15: World Inflation-Linked Sovereign Bond Index (WILS) country qualification criteria

1) $2bn face value outstanding to enter, $1bn face outstanding to remain
2) Readily available, transparent price source

Global Diversified Inflation-Linked Index (W0DI)

No changes. Russia and Uruguay meet the quantitative criteria but will not be included as they do not meet the foreign access and/or liquidity criteria. Hungary meets the quantitative criteria but will not be included as reliable pricing is not available. Argentina meets the quantitative criteria but will not be included as it was in default in the last 10 years.

Table 16: Global Diversified Inflation-Linked Index (W0DI) country qualification criteria

1) $2bn face value outstanding to enter, $1bn face outstanding to remain
2) Readily available, transparent price source
3) Debt is available to foreign investors
4) Not defaulted in the last 10 years
5) Not on the U.S. Department of State's list of State Sponsors of Terrorism

Global Inflation-Linked Government Index (W0GI)

No changes.

Table 17: Global Inflation-Linked Government Index (W0GI) country qualification criteria

1) Developed market
2) Investment grade sovereign foreign currency debt composite rating
3) $10bn face value outstanding to enter, $5bn face outstanding to remain
4) Debt is available to foreign investors
5) Readily available, transparent price source

All Maturity Emerging Markets Inflation-Linked Sovereign Bond Index (WILE)

No changes. Hungary meets the quantitative criteria but will not be included due to lack of readily available transparent pricing.

Table 18: All Maturity Emerging Markets Inflation-Linked Sovereign Bond Index (WILE) country qualification criteria

1) Emerging market
2) $2bn face value outstanding to enter, $1bn face outstanding to remain
3) Readily available, transparent price source

Diversified Emerging Markets Inflation-Linked Sovereign Bond Index (WILD)

No changes. Russia and Uruguay meet the quantitative criteria but will not be included as they do not meet the foreign access and/or liquidity criteria. Hungary meets the quantitative criteria but will not be included due to lack of readily available transparent pricing.

Table 19: Diversified Emerging Markets Inflation-Linked Sovereign Bond Index (WILD) country qualification criteria

1) Emerging market
2) $2bn face value outstanding to enter, $1bn face outstanding to remain
3) Debt is available to foreign investors
4) Readily available, transparent price source
5) Reasonable liquidity

Local emerging markets non-sovereign indices (LCCB, LCCD, LOCM, LOCL)

No changes.

Table 20: Local emerging markets non-sovereign index currency criteria

1) Emerging market
2) Fixed rate local currency sovereign debt of at least $10bn face value outstanding (conversion is based on the average of the 12 preceding month-end exchange rates)
3) Fixed rate local currency sovereign debt must have a readily available, transparent price source

DISCLOSURES

This document is provided for informational purposes only. The information contained in this document is subject to change without notice and does not constitute any form of warranty, representation, or undertaking. Nothing herein should in any way be deemed to alter the legal rights and obligations contained in agreements between ICE Data Indices LLC and/or affiliates and their clients relating to any of the products or services described herein. ICE Data Indices LLC does not provide legal, tax, accounting, investment, or other professional advice. Clients should consult with an attorney, tax, or accounting professional regarding any specific legal, investment, tax, or accounting situation.

For the purpose of calculating any Index, ICE Indices has relied on publicly available sources and has not independently verified the information extracted from these sources and accepts no responsibility or liability in respect thereof. ICE Indices, its affiliates and its third-party data providers and licensors (collectively "ICE Indices Parties") do not guarantee that the Content is accurate, complete, timely or error free and it should not be relied upon as such. ICE Indices Parties are not responsible for any errors, omissions, or interruptions regardless of the cause, or for the results obtained from the use of the Content. THE CONTENT IS PROVIDED ON AN "AS IS" BASIS. ICE INDICES PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES AND CONDITIONS, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM VIRUSES, BUGS, WORMS, OTHER HARMFUL COMPONENTS OR OTHER PROGRAM LIMITATIONS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall ICE Indices Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages.

Any available index returns represent past performance and are not indicative of any specific investment. The Content (including any of the output derived from any analytic tools or models) is not intended to predict actual results, which may differ substantially from those reflected. Past performance is not necessarily indicative of future results.

Intercontinental Exchange, Inc. keeps certain activities of its business units separate from each other in order to preserve the independence and objectivity of their respective activities. As a result, certain business units of Intercontinental Exchange, Inc. may have information that is not available to other business units. ICE Indices has established policies and procedures to maintain the confidentiality of certain non-public information received in connection with each analytical process. There is no obligation on ICE Indices to disclose information held by it in relation to any Index to other parties.

The various businesses of Intercontinental Exchange, Inc. provide a wide range of products and services to a diverse group of clients and, as such, Intercontinental Exchange, Inc. faces potential conflicts of interest in the ordinary course of its business. Intercontinental Exchange, Inc. may be acting in a number of capacities in connection with Investable Products or other transactions entered into in relation to ICE indices. Intercontinental Exchange, Inc., acting in such capacities in connection with such transactions, shall have only the duties and responsibilities expressly agreed to by it in its relevant capacity and shall not, by virtue of its acting in any other capacity, be deemed to have other duties or responsibilities or be deemed to hold a standard of care other than as expressly provided with respect to each such capacity. ICE Indices has established policies and procedures designed to identify and address conflicts of interest.

In addition, Intercontinental Exchange, Inc. provides a wide range of services to, or relating to, many organizations, including issuers of securities, investment advisers, broker-dealers, investment banks, other financial institutions and financial intermediaries, and accordingly may receive fees or other economic benefits from those organizations, including organizations whose securities may form part of any index or other evaluation ICE Indices carries out.

ABOUT INTERCONTINENTAL EXCHANGE Intercontinental Exchange, Inc. (NYSE:ICE) operates a leading network of exchanges and clearing houses. ICE's exchanges and clearing houses, which include the New York Stock Exchange, serve global commodity and financial futures and equities markets. The New York Stock Exchange is the world leader in capital raising and equities trading. ICE is a leading provider of data services across global markets. Trademarks of ICE and/or its affiliates include Intercontinental Exchange, ICE, ICE block design, NYSE, and New York Stock Exchange and Interactive Data. Information regarding additional trademarks and intellectual property rights of Intercontinental Exchange, Inc. and/or its affiliates is located at https://www.intercontinentalexchange.com/terms-of-use. BofAML is a trademark of Bank of America Corporation in the United States and other countries. Other products, services or company names mentioned herein are the property of, and may be the service mark or trademark of, their respective owners.

ABOUT ICE DATA SERVICES ICE Data Services is part of Intercontinental Exchange (NYSE: ICE) and offers end-to-end solutions for information, analytics Index services and connectivity, with a range of proprietary data and tools for global markets across fixed income, equities, commodities, FX and options. ICE Data Services is the marketing name used for ICE Data Services, Inc. and its subsidiaries globally, including ICE Data Pricing & Reference Data, LLC, Interactive Data (Europe) Ltd. and ICE Data Services Australia Pty Ltd. ICE Data Services is also the marketing name used for ICE Data Derivatives, Inc. and its subsidiaries globally, ICE Data Indices, LLC and certain other data products and services offered by other subsidiaries of Intercontinental Exchange, Inc. (NYSE:ICE).