S&P Dow Jones Indices

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iBoxx ALBI Index Guide April 2024

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1 iBoxx ALBI Indices

The iBoxx Asian Local Bond Index family ("iBoxx ALBI") is designed to reflect the performance of local currency bonds from 11 Asian local currency bond markets. The index offers a broad coverage of the universe of internationally accessible bonds from China's on- and offshore markets, Hong Kong, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand, whilst upholding minimum standards of investability and liquidity. The indices are an integral part of the global S&P DJI iBoxx index families, which provide the marketplace with accurate and objective benchmarks by which to assess the performance of bond markets and investments.

The iBoxx ALBI Index family comprises an overall index and indices for each currency. Sovereign and non-sovereign sub-indices are calculated for those markets where the index includes non-sovereign bonds. All iBoxx indices are priced based on multiple data inputs. The iBoxx ALBI indices use multi-source prices as described in the document "iBoxx Pricing Methodology" publicly available on the Methodology page of https://www.spglobal.com/spdji/en/.

This document covers the index family structure, rules and calculation methodology.

1.1 Index family structure

The table below provides an overview of the index family structure.

Government	Non-Government	
 China Onshore China Offshore (IG, HY & unrated)* Hong Kong India Indonesia Malaysia Philippines (Liquid & Money Market) Singapore South Korea Taiwan 	Sovereigns & Sub-sovereigns China Onshore China Offshore Hong Kong Malaysia Singapore	Corporates China Offshore Hong Kong Malaysia Singapore
Thailand *Available sub-indices Country, Sector & Maturity Indices (1-3, 3-5, 5-7, 7-10 and 10+)		

1.2 Publication of the index

For all indices, end-of-day closing values are calculated and distributed once daily after the close of trading in the market. The indices are calculated every day except on holidays common to all Asian markets. In addition, the indices are calculated with the previous trading day's close on the last calendar day of each month if that day is not a trading day. S&P DJI publishes an index calculation calendar which is available in the indices section at https://www.spglobal.com/spdji/en/ under Calendar. The iBoxx Asian Local Bond Index Family follows the 'Asia' holiday calendar.

Bond and index analytical values are calculated each trading day using the daily closing prices. Closing index values and key statistics are published at the end of each business day at https://www.spglobal.com/spdji/en/ for registered users.

Index data is also available from the main information vendors.

2 Bonds selection rules

Bond selection criteria are applied consistently across all 11 currencies and markets. The constituents of the local currency indices are the basis for the aggregate Pan-Asia index.

The following selection criteria are used to determine the index constituents:

- Bond Type
- Issuer Type
- Credit Rating
- · Time to Maturity
- · Amount outstanding

2.1 Bond type

Only fixed coupon bonds whose cash flows can be determined in advance are eligible for the indices. In particular, the following bond types are eligible:

- Fixed coupon bonds ("plain vanilla bonds")
- · Zero coupon bonds

Exceptions:

- Fixed coupon certificates of deposit (Fixed coupon CDs) are only eligible for the china offshore and Hong Kong segments and are not eligible for the other 9 markets
- **Zero coupon certificates of deposit (Zero coupon CDs)** are only eligible for the China offshore market and are not eligible for the other 10 markets
- Retail bonds are only eligible for the Philippines segment and are not eligible for the other 10 market
- Senior bank bonds with call options where the first call date is 25 months or less prior to final maturity

All other bond types are excluded from the ALBI Index including:

- Bonds with embedded call or put options (except make-whole, tax changes calls and poison puts which remain eligible)
- Other Certificates of Deposit
- Floating rate notes and other fixed-to-floater bonds
- Step-up coupon bonds
- Sinking funds and amortizing bonds
- Bonds with warrants
- Convertibles
- Undated bonds
- Inflation, Index-Linked and Credit-Linked Notes
- Dual-Currency Bonds: Bonds that are denominated in one currency but pay either the coupon or the principal in a different currency
- Loan Participation Notes
- Retail bonds. The list of retail bonds is updated every month and published on https://www.spglobal.com/spdji/en/ under Indices News
- Private placements. The list of private placements is updated every month and published on https://www.spglobal.com/spdji/en/ under Indices News
- Extended bonds as defined under section 'Maturity extension' in this document

For retail bonds and private placements, publicly available information is not always conclusive and the classification of a bond as a retail bond or a private placement will be made at S&P DJI's discretion based on the information available at the time of determination. Any bond classified as retail or private placement is added to the list of excluded private placements and retail bonds. The list is published on https://www.spglobal.com/spdji/en/ under *Indices News* for future reference and to ensure decision's consistency.

In instances where a new bond type is not specifically excluded or included according to the published index rules, S&P DJI will analyse the features of such securities in line with the principles set out in 2.1 of this guide. S&P DJI may consult specific Index Committees. Any decision as to the eligibility or ineligibility of a new bond type will be published and the index rules will be updated accordingly.

2.2 Time to Maturity

All bonds must have a remaining time to maturity of at least one year at rebalancing date. The time to maturity is calculated from the rebalancing date to the final maturity date of the bond by using the day count convention of the bond.

Newly issued bonds must meet the minimum initial time to maturity rule. The minimum initial time to maturity as measured from the first settlement date to the maturity date of the bond, must be 18 months or more.

2.3 Credit Rating

Domestic central government debt does not require a rating. Requirements for other bond issues vary depending on the currency.

For those markets with a credit rating requirement, the rating approach considers international and domestic rating agencies separately. The iBoxx rating is the corresponding iBoxx international rating, or in the absence of an international rating the iBoxx domestic rating.

iBoxx international rating:Ratings from the following three credit rating agencies are considered for the calculation of the iBoxx Rating:

- Fitch Ratings
- Moody's Investor Service
- S&P Global Ratings

The rating process is predominately based on bond ratings. If no rating agency provides a bond rating then issuer ratings are considered for otherwise unrated senior bonds. Subordinated bonds without bond ratings or senior bonds without any bond or issuer rating are considered unrated.

Bonds are considered to be split-rated if one or more of the agency ratings is A-/A3 or higher **AND** one or more of the agency rating is BBB+/Baa1 or lower.

If more than one agency rates a bond then the iBoxx international rating is determined as follows:

- For bonds that are not split-rated, the average rating determines the index rating
- For newly issued split rated subordinated debt, and for split rated senior bonds from issuers not currently in ALBI, the minimum rating is assigned to the bond
- For split-rated bonds already included in the index and for newly issued senior bonds from issuers currently represented within ALBI the maximum rating is assigned to the bonds

iBoxx Domestic Rating:

The iBoxx domestic rating is currently only used for MYR-denominated non-sovereign bonds. Only ratings from RAM are considered. The iBoxx domestic rating is the corresponding bond rating from RAM. For senior bonds, in the absence of a bond rating, the RAM issuer rating is used as the iBoxx domestic rating.

Bonds with a rating downgrade to RD/SD will remain eligible in the iBoxx Asian Local Bond Index Family until the second rebalancing after the downgrade. If such bonds have not been upgraded by T-3 of the second rebalance following the initial downgrade, they will be removed from the indices. This means RD/SD rated bonds remain eligible in the iBoxx Asian Local Bond Index Family for the first rebalancing after their downgrade to allow for sufficient time to complete a distressed debt exchange or change of terms (assuming they meet all other criteria).

2.4 Bond selection rules for individual markets

2.4.1 iBoxx ALBI China-Onshore

Issuer Type	Sovereigns	 Eligible: Bonds Issued by the Ministry of Finance Not eligible: Bonds issued by the People's Bank of China Bonds issued by Local Governments but backed by the central government
	Non-Sovereigns	 Policy Banks: Effective April 30, 2019 bonds issued by below 3 Chinese Policy Banks are included in the index Agricultural Development Bank of China China Development Bank Export-Import Bank of China
Amount Outstanding		CNY 10bn
Listing / Clearing Venue		Bonds listed on the Interbank Market

The inclusion of policy bank bonds is made over a three month period, with one-third of their full weight added to the index in the 30 April 2019, 31 May 2019 and 30 June 2019 rebalances.

2.4.2 iBoxx ALBI China Offshore

Issuer Type	Sovereigns	Eligible
	Non-Sovereigns	Eligible
Credit Rating	None	
Amount Outstanding	CNY 500m	
Listing / Clearing Venue	 Bonds issued in Hong Kong, Macau, or outside of the People's Republic of China Bonds solely listed/registered in Taiwan are not eligible Bonds need to be clearable through one of the following venues: Clearstream Euroclear Hong Kong CMU 	

2.4.3 iBoxx ALBI Hong Kong

Issuer Type	Sovereigns	 Eligible Sukuk Bonds are not eligible
	Non-Sovereigns	EligibleSukuk Bonds are not eligible
Credit Rating A- or above		
Amount Outstanding	HKD 300m	

2.4.4 iBoxx ALBI India

Issuer Type	Sovereigns	Eligible
	Non-Sovereigns	Not Eligible
Amount Outstanding	INR 50bn	

2.4.5 iBoxx ALBI Indonesia

Issuer Type	Sovereigns	 Eligible: Conventional Indonesian Government Bonds Not eligible: Indonesian Government Sukuk
	Non-Sovereigns	Not eligible
Amount Outstanding	IDR 2trn	

2.4.6 iBoxx ALBI Malaysia

Issuer Type	Sovereigns	Conventional bonds and Sukuk are eligible
	Non-Sovereigns	Conventional bonds and Sukuk are eligible
	A- or above Bonds issued or guaranteed by Malaysian Central Government do not require a rating	
	Sovereigns: MYR 2bn Non-Sovereigns: MYR 500m	
Liquidity Criteria	The liquidity criteria only apply to non-sovereigns. Government bonds are not subject to the criteria.	
	Bonds need to be actively traded in order to become eligible for the indices. Bonds are included in the index if they show the following trading activity at the first, second or third rebalancing following their issue date.	
	For re-opened bonds the bonds are included in the index if they show the trading activity at first three month of the rebalancing following their re-opened dates.	
	5 days with trading volumes of at least MYR 5m during the rebalancing month.	
	Bonds that do not pass the trading activity rule during the initial three rebalancing not be considered for the indices at future rebalancings.	

2.4.7 iBoxx ALBI Philippines

Issuer Type	Sovereigns	 Domestic Philippine Government Bonds Retail Bonds are eligible
	Non-Sovereigns	Not eligible
Amount Outstanding	PHP 3bn	

2.4.8 iBoxx ALBI Singapore

Issuer Type	Sovereigns	Eligible
	Non-Sovereigns	Eligible
Credit Rating	None	
	Sovereigns: SGD 1.5bn Non-Sovereigns: SGD 300m	

2.4.9 iBoxx ALBI South Korea

Issuer Type		Eligible: Korean Treasury Bonds, Monetary and FX Stabilisation Bonds Not eligible: Korea National Housing Bonds
	Non-Sovereigns	Not eligible
Amount Outstanding	KRW 1 trn	

2.4.10 iBoxx ALBI Taiwan

Issuer Type	Sovereigns	Eligible
	Non-Sovereigns	Not eligible
Amount Outstanding	TWD 30bn	

2.4.11 iBoxx ALBI Thailand

Issuer Type	Sovereigns	Eligible
	Non-Sovereigns	Not eligible
Amount Outstanding	THB 20bn	

2.5 Special Philippine Government bond indices

In addition to the standard iBoxx ALBI Philippines, two additional indices covering the Philippine fixed income market are calculated.

2.5.1 iBoxx ALBI Philippines Money Market Index

The index contains all Philippine government bonds and Treasury Bills with a remaining maturity of between 3m and 1 year and a minimum notional size of PHP 3 bn. Retail bonds are eligible for the index.

2.5.2 iBoxx ALBI Philippines Liquid Index

The iBoxx ALBI Philippines Liquid Index contains only the most liquid and actively traded Philippine government bonds. The index is rebalanced quarterly on 31 March, 30 June, 30 September and 31 December each year.

Index constituents are selected from the overall universe of Philippine government bonds in two steps:

- 1. **Determination of the eligible universe of bonds** In order to be eligible for the index, bonds need to fulfil the following criteria:
- Fixed Coupon bullet bonds
- Denominated in PHP
- Retail bonds are eligible for the Index
- Minimum time to maturity of 1.25 years for current index constituents and 2 years for potential inclusions
- Minimum size of PHP 3bn

2. Selection of index constituents from the eligible universe

Index constituents are selected from the universe of eligible bonds based on their quarterly trading volume. The thresholds required for inclusion in the index are set in relation to the total trading volume for all PHP denominated government bonds (excluding T-Bills) to reflect periods of high and low market liquidity. The following thresholds are used:

- Inclusion Threshold: 2% of the total guarterly trading volume
 - > Watch list Threshold:1% of the total quarterly trading volume
 - > Exclusion Threshold: 0.2% of the total quarterly trading volume

The following rules are applied to select the index constituents:

New bonds are eligible if:

- > Their adjusted trading volume is above the Inclusion Threshold and they have been issued in the current quarter; or
- > Their trading volume is above the Inclusion Threshold and they have been issued in the previous quarter; or
- > Their trading volume has been above the Inclusion Threshold for two consecutive rebalancings

• Current index constituents remain in the index if:

- > Their trading volume remains above the Watch list Threshold; or
 - > Their trading volume remains above the Exclusion Threshold and they are not on the watch list
 - Current index constituents are put on the watch list if their quarterly trading volume falls below the Watch list Threshold and remains above the Exclusion Threshold

• Current index constituents are removed from the index if:

- > They are already on the watch list and their trading volume is below the Watch list Threshold; or
 - > Their trading volume has fallen below the Exclusion Threshold

The adjusted trading volume for newly issued bonds in calculated as follows:

- > Bonds issued in the first month of the quarter: No adjustment
- > Bond issued in the second month of the quarter: Trading volume adjusted by the factor 1.5
- > Bond issued in the last month of the quarter: Trading volume adjusted by the factor 3

2.5.3 iBoxx ALBI Philippines Domestic Indices

All iBoxx ALBI Philippines indices are also published in a domestic version. The bond eligibility criteria are identical to the iBoxx ALBI Philippines indices. Prior to October 2018, the domestic indices were calculated using the PDST-R2 rates published by the Philippine Dealing & Exchange Corp. Starting November 2018, the domestic version of the indices shares the same pricing as the iBoxx ALBI Philippines indices.

3 Bond classification

All bonds are classified based on the principal activities of the issuer and the main sources of the cash flows used to pay coupons and redemptions. In addition, a bond's specific collateral type or legal provisions are evaluated. Hence, it is possible that bonds issued from different subsidiaries of the same issuer carry different classifications.

The issuer classification is reviewed regularly based on updated information received by S&P DJI, and status changes are included in the indices at the next rebalancing if necessary.

Where the sector classification of a specific entity is unclear due to the diversified business of the entity, a decision will be made at S&P DJI's discretion. S&P DJI will assign the S&P DJI classification according to its evaluation of the business risk presented in the security prospectus and annual reports, if available. S&P DJI will also compare the classification to peers in the potential sectors. Membership lists including bond classifications are published on the FTP server and in the indices section of https://www.spglobal.com/spdji/en/ for registered users.

3.1 Government

Bonds issued by a central government and denominated in the respective local currency.

3.2 Other sovereigns

Bonds issued by a central government but denominated in a foreign currency.

3.3 Sub-Sovereigns

Bonds issued by entities with explicit or implicit government backing due to legal provision, letters of comfort or the public service nature of their business. The issuer requires a strong central government ownership/relationship if its bonds are not explicitly guaranteed by the central government.

The five main sub-sovereign sectors are:

Agencies: Bonds issued by entities whose major business is to fulfill a government-sponsored role to
provide public, non-competitive services (e.g. Kreditanstalt fuer Wiederaufbau). Often, such business
scope is defined by a specific law, or the issuer is explicitly backed by the government

evel 4	Level 5	Level 6
Agencies	Financial Agencies	Development Banks
		Export-Import Banks
		Financial Agencies
		Housing & Mortgages
		Strategic Investments
	Infrastructure & Transport Agencies	Airports
		Industrial & Rural Development
		Marine
		Rail

Level 4	Level 5	Level 6
		Railroad
		Roads
	Public Utilities	Electricity
		Oil
		Water

- Supranationals: Bonds issued by supranational entities, i.e. entities that are owned by more than one central government (e.g.World Bank, EIB)
- Public Banks: Bonds issued by publicly owned and backed banks that provide regular commercial banking services (e.g. NV Bank Nederlandse Gemeenten)
- Regions: Bonds issued by local governments (e.g. Isle of Man)
- **Government Guaranteed:** All remaining bonds considered sub-sovereign. There are two main types of bonds and issuers falling into this category:
 - > Guaranteed Financials: A specific bond issued by a private sector financial institution that is irrevocably guaranteed by a government. Most of these bonds are issued under programs set-up after the 2008 financial crisis
 - > Bonds issued by unguaranteed institutions with an irrevocable and explicit guarantee by a central government that covers amount and timeliness of all interest and principal payments until the maturity of the bond

3.4 Corporates

Bonds issued by public or private corporations. Bonds secured by a 'floating charge' over some or all assets of the issuer are considered corporate bonds. Corporate bonds are further classified into Financials and Non-Financials bonds and then into their multiple-level economic sectors, according to the issuer's business scope. The category Guaranteed & Wrapped is added under Financials for corporate bonds whose timely coupon and/or principal payments are guaranteed by a non-affiliated insurer or through a letter of credit from a non-affiliated bank. The sector overview is shown in the tables below.

Table 1: Overview of Markit iBoxx Corporate Sectors

	Economic Sector	Market Sector	Market Sub-Sector
Financials	Core Financials	Banks	Banks
		Insurance	Life Insurance
			Nonlife Insurance
	Financial Services	Financial Services	General Financial
			Equity Investment Instruments
			Nonequity Investment Instruments
		Insurance wrapped	*
		Guaranteed & Wrapped	*
	Real Estate	Real Estate	Real Estate Investment & Services
			Real Estate Investment Trusts
Non-Financials	Energy	Oil & Gas	Oil & Gas Producers
			Oil Equipment / Services & Distribution

Economic Sector	Market Sector	Market Sub-Sector
	Renewable Energy	Renewable Energy
Basic Materials	Chemicals	Chemicals
	Basic Resources	Industrial Metals
		Mining
		Forestry & Paper
Industrials	Construction & Materials	Construction & Materials
	Industrial Goods & Services	Aerospace & Defense
		Electronic & Electrical Equipment
		General Industrials
		Industrial Engineering
		Industrial Transportation
		Support Services
Consumer Goods	Automobiles & Parts	Automobiles & Parts
	Food & Beverage	Beverages
		Food Producers
	Personal & Household Goods	Household Goods
		Leisure Goods
		Personal Goods
		Tobacco
Health Care	Health Care	Pharmaceuticals & Biotechnology
		Health Care Equipment & Services
Consumer Services	Education	Academic & Educational Services
	Retail	Food & Drug Retailers
		General Retailers
	Media	Media
	Travel & Leisure	Travel & Leisure
Telecommunications	Telecommunications	Integrated Telecommunications
		Wireless Telecommunications
Utilities	Utilities	Electricity
		Gas / Water & Multiutilities
Technology	Technology	Software & Computer Services
		Technology Hardware & Equipment

3.5 Green Bonds

The index leverages external independent data sources for determining whether a bond is considered 'Green'. The data is provided by Climate Bonds Initiative ("CBI"), Environmental Finance and S&P Global Market Intelligence – BRD and contains self-labelled green bonds under the International Capital Market Association's (ICMA) voluntary Green Bond Principles (GBP) as well as other eligible green bond issuances.

The following criteria are used to identify and classify green bonds:

- Bonds that are labelled green by Climate Bonds Initiative (CBI); or
- Bonds that are self-labelled and externally-reviewed as green according to the Green Bond Principles (GBP) of the International Capital Market Association (ICMA).

All bonds need to have a clear commitment for the use of proceeds. Data is further verified based on publicly available prospectuses and other relevant documents. Bonds for which the classification is pending or unlabeled are excluded from the index.

3.6 Additional classification

Corporate debt is further classified into senior and subordinated debt. Bank senior debt structure additionally differentiates between Bail-in and Preferred bonds. The Bail-in classification captures all senior notes which are subject to write-down or conversion into a subordinated instrument on the occurrence of a resolution event, as well as senior bank debt issued by bank holding companies.

Hybrid capital issued by banking and insurance institutions is further detailed into the respective tiers of subordination.

The market information on the tier of subordination for insurance capital is often less standardized and clear than the equivalent issues by banks. In these cases, the classification is based on the maturity, coupon payment and deferral provisions of the bond from the offering circulars of the bonds. Table below displays the seniority classification of debt issued by both financial and non-financial sectors.

Table 2: Overview of seniority levels for Markit iBoxx Senior & Subordinated indices

Market Sector	Seniority Level 1	Seniority Level 2	Seniority Level 3
Bank	SEN	Preferred	*
		Bail-in	*
	SUB	T2 (post-Jan '13 issuances)	T2 callable
			T2 non-callable
		T2 (pre-Jan '13 issuances)	LT2 callable
			LT2 non-callable
			UT2
		T1	T1 step
			T1 non-step
Insurance	SEN	*	*
	SUB	T1	*
		T2 perpetual	*

Market Sector	Seniority Level 1	Seniority Level 2	Seniority Level 3
		T2 dated	T2 dated callable
		T2 dated	T2 dated non-callable
Non-Financial Sectors	SEN	*	*
	SUB	Other	Hybrid ^{**}
			Non-Hybrid

^{**} Bonds will be required to fulfil the following criteria to be considered hybrids:

- Subordinated
- Deferrable coupons
- First non-call period >= 5 years
- Either perpetual or 'long-dated', where 'long-dated' is defined as > 25 years of the time to maturity at issuance

3.7 Classification review procedure

The issuer classification is reviewed regularly and status changes are included in the indices at the next rebalancing.

4 Market Weights

4.1 Background

The iBoxx ALBI indices cover a variety of markets of different sizes. Simply weighting by market capitalization would skew the index profile heavily in favour of the two biggest markets (China and Korea) and result in a very low weight of smaller debt markets (e.g. Hong Kong or Singapore), which are more developed, more liquid and accessible for investment. Therefore a pure market capitalization weighting is unsuitable for Pan-Asian local currency debt and would prevent investors from obtaining a balanced exposure to the underlying bond markets.

For the period from 31 December 2012 to 30 November 2016, the weights assigned to the 11 markets are those determined by HSBC for the calculation of the HSBC Asian Local Bond Index. As part of the 2016 Annual Index Review, S&P DJI updated the methodology to calculate the weights for each market in the iBoxx ALBI index.

In additional, with effect from 30th November 2016, the annual fundamental target weight of Taiwan has been set to 0% and the weight of Taiwan in the iBoxx ALBI Index will be gradually reduced to 0 in line with the adjustment procedure set out below to reflect the current capital control regulations affecting foreign investors into the Taiwan bonds market. The capital control and their impact on the accessibility of Taiwan will be monitored as part of the regular annual index reviews.

4.2 Market weight composition

For The indices are fundamentally weighted with the weight of each market determined from baseline weight (BW) and a number of factors:

- Local bond market size (S)
- Bond market accessibility GEMLOC Investability Indicator (G)

1. Baseline weight

The baseline for the fundamental weighting assumes an equal weight allocated to each market subject to market size considerations. The baseline weight for medium-sized markets is set at 50% of the weight allocated to large markets. For this purpose, the size of each market is defined as the size of the domestic government bond market comprising all government bonds with a remaining time to maturity of 1 year or more. Markets with a size of less than US\$ 50bn are considered medium-sized.

Туре	Baseline weight (BW) Markets as of 31st Nov 2016		
Large (8 markets)		China onshore, India, Indonesia, Malaysia, Philippines, Singapore, South Korea, Thailand	
Medium-sized (2 markets)	5.56%	China offshore, Hong Kong	
Non-investable (1 market)	0%	Taiwan	

2. Adjustment factors

Local bond market size

Local bond market size is defined as the USD market capitalization of all qualifying bonds for the respective single currency iBoxx ALBI sub-index. The annual target weights calculation uses the September iBoxx ALBI index composition with data as of 31 August. The forecasts use the data as of 28/29 February and 31 May respectively.

GEMLOC Investability Indicator

The GEMLOC Investability Indicator is a transparent measure of investability based on a methodology developed by the World Bank. The GEMLOC Investability Indicator scores markets on a set of 14 subfactors that are aggregated to the overall score. GEMLOC details can be accessed on S&P DJI website at following path

https://www.spglobal.com/spdji/en/ > Rules Benchmark > Global > Global Emerging Market.

Moody's Analytics Knowledge Services acts as a third party in this process and provides S&P DJI with the GEMLOC Investability Indicators updated guarterly every year.

Calculation of the adjustment

Each factor is normalized using the following method:

$$F_{i,j} = \frac{f_{i,j}}{\sum_{m=1}^{n} f_{m,j}} - \frac{1}{n}$$

Where:

 $f_{i,j}$ is the original value of factor j in market i

 $F_{i,j}$ is the normalized value of factor j in market i

n is the number of markets with a baseline weight greater than 0.

3. Combined adjustment factor

Each markets' adjustment factor (AF) is the weighted sum of the two factors:

$$AF_i = \frac{1}{3}\,S_i + \;\frac{2}{3}\,G_i$$

Where:

 $AF_{i,j}$ is the adjustment factor of market i

 S_i is the normalized value of bond market size of market i

 G_i is the normalized value of the GEMLOC Indicator i

Each market's theoretical target weight is the sum of the baseline weight and the adjustment factor:

$$W_i = BW_i + AF_i$$

Where:

 $AF_{i,j}$ is the adjustment factor of market i

 BW_i is the base market weight of market i

 W_i is the weight of market i in the index

4. Additional restrictions for markets with high access restrictions

To reflect additional constraints facing investors in local currency bond markets, markets with high capital access restrictions will be further capped. The degree of market access is measured by the GEMLOC Securities Market Access Score:

- Weight of markets with a securities market access score of 0: 0% (excluded from the indices)
- Weight of markets with a securities market access score between 1 and 50: 50% of the theoretical target weight

The excess weight from the capping is redistributed to the remaining markets in proportion to their theoretical weight, subject to a maximum of 20% in any market. The market weights are rounded to four decimal places (1 basis point). The final target weights are rounded to the fourth decimal (i.e. 1 basis point). In case that the sum of the rounded weights are above or below 100%, the weight(s) of the largest market(s) are adjusted by $\pm .01\%$ each until the sum of the weights is exactly 100%

5. Review process and Implementation of the target market weights

The review process distinguishes between regular and extraordinary reviews. In order to enhance the stability of the indices and to capture long-term trends within the 11 markets, the target market weights are reviewed annually for the 30 November re-balancing. The target market weights are not changed between review dates unless an extraordinary review is conducted.

The implementation of the new target weights starts on 30 November each year. The maximum change to the weight of a market for the target weight implementation is 0.5%. If the difference between the current weights and the new target weights is larger than 0.5% for any market, then the weights will be implemented over several quarters (30 November, 28/29 February, 31 May and 31 August) subject to a maximum change of 0.5%.

The index committee or S&P DJI may decide to undertake an extraordinary review of market weights at any monthly re-balancing, if profound changes in one or more of the eleven markets suggest that the weights of the markets would change significantly during the review. Examples of such events are a major increase in bond issuance or liquidity, or major regulatory changes that impact the GEMLOC Investability Indicators significantly.

S&P DJI will also publish a forecast for the upcoming annual review at the beginning of March and June each year. The forecast will be based on the updated index market capitalization and GEMLOC Investability Indicator for each market.

6. Current and historical weights

The file containing current and historical weights for the index is available in the indices section on the Rules Benchmark page of https://www.spglobal.com/spdji/en/.

4.3 Green-Bond Sub-indices

iBoxx ALBI Green Bonds sub-indices are market valued weighted and do not use GEMLOC Investability Indicator for determination of market weights.

5 Index calculation

5.1 Static data

Information used in the index calculation is sourced from offering circulars and checked against standard data providers.

FX spot and forward rates are sourced from WM Company. The daily index calculation uses the FX rates from 8am London time.

5.2 Bond prices

For more details, please refer to the *iBoxx Pricing Methodology* document, available in the *Methodology* section of the webpage at https://www.spglobal.com/spdji/en/.

5.3 Withholding tax treatment

Withholding taxes are not taken into account the calculation of the iBoxx ALBI indices with the exception of PHP-denominated bonds. For PHP-denominated bonds, the 20% final withholding tax is applied to the iBoxx ALBI Philippines index and the PHP-denominated component of the iBoxx ALBI Overall and other aggregate indices containing PHP denominated bonds.

5.4 Rebalancing process

All iBoxx ALBI indices are rebalanced monthly on the last calendar day of the month after the close of business.

Daily forward files are published each day shortly after the standard index files. The forward files provide a view of index composition and the weightings of each constituent security after the upcoming rebalancing.

The list of eligible index securities is reviewed three times a month in preparation for the upcoming rebalancing. These reviews occur ten (t-10), four (t-4) and (t-3) trading days before month end. The forward files reflect all anticipated changes to the index constituents that come as a result of these reviews.

The cut-off for amount outstanding and rating information is three business days before the last trading day of the month. Any changes after the index cut-off day (t-3) will not be considered in the rebalancing process, but will become effective at the end of the following month. The cut-off for the first settlement date for new bonds is the last calendar day of the month. Bonds with a first settlement date later than three days before month-end can only be included in the indices if their amount outstanding, rating and other relevant information is known on t-3.

The final index membership list for the following month is published at the close of business three trading days before the end of the month. On the last trading day of the month after the close of business, the final membership list is republished together with the closing bid and offer prices for each bond.

5.5 Index data

The calculation of the index is based on bid prices. New securities are included in the index at their respective ask prices when they enter the index family. If no price can be established for a particular

security, the index continues to be calculated based on the last available price. This might be the case in periods of market stress, or disruption as well as in illiquid or fragmented markets. If the required inputs become impossible to obtain, S&P DJI may consult market participants prior to the next rebalancing date. Decisions are made publicly available on a timely basis and S&P DJI may refer back to previous cases.

A sub-index of the iBoxx ALBI index family is calculated if at least one bond matches all inclusion criteria. If no more bonds qualify for an index, then its level will remain constant. If at least one bond becomes available again, the index calculation will be resumed and chained to the last calculated level. All bonds are assigned to sub-indices according to their classification. The assignment of a bond to a certain maturity bucket is based on its expected remaining life. All bonds remain in their maturity bucket for the entire month. Calculation occurs on a daily basis as soon as the prices become available. The indices are calculated on each trading day (Monday to Friday), unless this day is a holiday in each of the 11 markets. The indices are also calculated on the last calendar day of each month irrespective of holidays and weekends. If the indices are calculated on a day that is a non-business day in one or more of the markets, then the prices for bonds denominated in the currency of those markets will be carried forward from the previous trading day and the index will be calculated using those prices and the current accrued interest and coupon payment data.

The rebalancing takes place after close of market on the last trading day of a rebalancing month.

5.6 Index calculus

For specific index formulas please refer to the *iBoxx Bond Index Calculus* document available on https://www.spglobal.com/spdji/en/ under *Methodology*.

5.7 Treatment of the special intra-month events

Data for the application of corporate actions in the index may not be fully or timely available at all times, e.g. the final call prices for make-whole calls or the actual pay-in-kind percentage for PIK-payment options. In such cases, S&P DJI will estimate the approximate value based on the available data at the time of calculation.

5.8 Index and analytics weightings

The individual single currency iBoxx ALBI indices are volume-weighted indices, with a bond's base market value as the weighting factor. The base market value and amount outstanding of a bond are only adjusted within the monthly re-balancing process at the end of each month. However, scheduled redemption payments for amortizing bonds and sinking funds are taken into account when they occur, as they are affecting the index return and analytical values. In addition, bonds that are fully redeemed intra-month are also taken into account immediately. Therefore, the indices are calculated using the amount outstanding adjusted for increases as well as repurchases that took place during the month.

All calculations are based on the adjusted amount outstanding that reflects the outstanding bond notional at the last rebalancing.

5.9 Scheduled partial redemptions: sinking funds and amortizing bonds

Amortizing bonds are bonds whose face value is redeemed according to a schedule at more than one redemption date. Interest payments are made on the basis of the remaining outstanding amount of the bond. Sinking funds are bonds, where money is applied periodically to redeem part of the outstanding before maturity. At the redemption dates, the appropriate amount of bonds may either be retired randomly from the outstanding bonds, or may be purchased on the open market and thus retired. Interest payments are made on the remaining outstanding bonds.

For the two bond types above, price and accrued interest are quoted and calculated to the actual amount outstanding (par). Scheduled redemptions within the period are taken into account immediately. Coupon payments, however, refer to the scheduled amount outstanding over the last coupon period; scheduled redemptions within the month are not taken into account.

5.10 Full redemptions: exercised calls, puts and buybacks

If a bond is fully redeemed intra-month, the bond effectively ceases to exist. In all calculations, the redeemed bond is treated as cash based on the last price, the call price or repurchase price, as applicable. The redemption factor, redemption and the redemption price are used to treat these events in the index and analytics calculation. In addition, the clean price of the bond is set to the redemption price, and the interest accrued until the redemption date is treated as an irregular coupon payment.

5.11 Bonds trading flat of accrued

If a bond is identified as trading flat of accrued, the accrued interest of the bond is set to 0 in the total return index calculation and is excluded from the calculation of all bond and index analytical values.

Bonds will be considered trading flat of accrued in any of the following situations:

- a bond has been assigned a default rating and/or
- issuer has announced a failure to pay a coupon and/or
- issuer has announced an intention not to make a payment on an upcoming coupon (grace period).

5.12 Maturity extension

5.12.1 Maturity extension for perpetual bonds without a reset date

Maturity	Coupon/call structure		Updated Workout date if not called
Perpetual		workout date	Extend workout date until the assumed next call date - 5 years from first call date*.

^{*}Assumes the terms allow for a redemption at the new assumed maturity date.

5.12.2 Maturity extension for perpetuals & dated fixed-to-fixed bonds with a reset date

Maturity	Coupon/Call structure	Workout Date at issuance	Updated Workout date if not called
Perpetual	Reset*/Callable	Assume first call date as workout date	Extend workout date until the end of the next reset date*
Dated	Reset/Callable	Assume reset date as workout date	Extend workout date until the end of the next reset date or final maturity date*

^{*}Assumes the bond terms allow for a redemption at the new assumed maturity date

5.13 Multi-coupon bonds

Some bonds have pre-defined coupon changes that lead to a change in the annual coupon over the life of the bond. In all instances, the coupon change must be a fixed amount on top of a fixed coupon, i.e. floating coupon bonds are not eligible for the indices. The two main categories of bonds are step-up bonds and event-driven bonds.

- **Step-up bonds:** These are bonds with a pre-defined coupon schedule that cannot change during the life of the bond. The coupon schedule is used in all bond calculations.
- Event-driven bonds: These are bonds whose coupon may change upon occurrence (or non-occurrence) of pre-specified events, such as rating changes, e.g. rating-driven bonds, failure to register (register-driven bonds), or failure to complete a merger (merger-driven bonds). In the calculation of the indices and the analytics, the coupon schedule as of the calculation date is used. That is to say, any events occurring after the calculation date are ignored in the determination of the applicable coupon schedule. Example of an event-driven bond: A bond's rating changes on 31 December 2003 from A- to BBB+ and the coupon steps up from 6% to 6.25% from 1 March 2004 onward. The coupon dates are 1 October and 1 April each year. The correct coupon schedule for the bond and index calculations is date dependent. The index calculation on 20 December 2003 uses the 6% coupon for the whole life of the bond, while the calculation on 31 January 2004 uses a 6% coupon for the current coupon period to 29 February 2004, and a 6.25% coupon for all later interest payments. The index calculation on 20 March uses a 6% coupon until 29 February, a 6.25% coupon for the remainder of the current coupon period and a 6.25% coupon for all future coupon payments. The index calculation after 1 April uses a 6.25% coupon.

5.14 Ex-dividend conventions

Some markets have ex-dividend conventions. Ex-dividend means that the next coupon is detached from the bond several days in advance of the coupon payment date. The date on which the next coupon is detached is the ex-dividend date and the period between the ex-dividend date and the coupon payment date is the ex-dividend period. If a bond is in the ex-dividend period, the next coupon payment will not be paid to a buyer of this bond, but will be paid to the original bond holder.

The indices and analytics calculations take ex-dividend conventions into account. During the ex-dividend period, the accrued interest of the bond is negative, while the next coupon payment is held separate in the variable coupon adjustment. If the bond enters the index during the ex-dividend period, then the next coupon payment and the coupon adjustment will not accrue to the index. However, if the bond was already in the index, the next coupon payment needs to be included in the total return calculations. This is controlled via the ex-dividend indicator which is 0 if the bond enters the index during the current ex-dividend period and 1 if not. The same treatment is also applied to all analytics calculation, i.e. the first cash flow is excluded from the calculations if the bond enters during the current ex-dividend period.

5.15 Index history

The Index history starts on 31 December 2012. The index has a base value of 100 on that date.

5.16 Settlement conventions

All iBoxx indices are calculated using the assumption of T+0 settlement days.

5.17 Data publication and access

The table below summarizes the publication of iBoxx Asian Local Bond Index Family in the *Indices* section of the website https://www.spglobal.com/spdji/en/ for registered users and on the FTP server.

Frequency	File Type	Access
Daily	Underlying file – Bond level	FTP Server
	Indices files – Index level	FTP Server / website / Bloomberg (index levels only)
Weekly	Preview components	FTP Server / website
Daily from T+1	Forwards	FTP Server
Monthly	End of month components	FTP Server / website
	XREF files	FTP Server

iBoxx indices are also published through number information service providers including Bloomberg and Thomson Reuters. Please contact S&P DJI for a list of current service providers that carry the iBoxx ALBI Index data. The Bloomberg ticker and Reuters RIC code for the main iBoxx ALBI indices are:

		Total Return Index		Price Index	
ISIN	Index Name	BBG Ticker	RIC Code	BBG Ticker	RIC Code
GB00BYZW8M61	iBoxx ALBI (USD Unhedged)	IBXXALBI	.IBXXALBI	IBXXALBC	.IBXXALBC
GB00BYZW7B81	iBoxx ALBI China Onshore	IBXXCNYT	.IBXXCNYT	IBXXCNYP	.IBXXCNYP
GB00BYZW7416	iBoxx ALBI China Offshore	IBXXCNHT	.IBXXCNHT	IBXXCNHP	.IBXXCNHP
GB00BYZW7C98	iBoxx ALBI Hong Kong	IBXXHKBI	.IBXXHKBI	IBXXHKBC	.IBXXHKBC
GB00BF9Q3Z92	iBoxx ALBI HKD Hedged	IBXXAHKQ	.IBXXAHKQ	IBXXAHKO	.IBXXAHKO
GB00BF9Q4126	iBoxx ALBI HKD Unhedged	IBXXAHKS	.IBXXAHKS	IBXXAHKR	.IBXXAHKR
GB00BYZW7Z26	iBoxx ALBI India	IBXXINTR	IBXXINTR	IBXXINCP	.IBXXINCP
GB00BYZW7Y19	iBoxx ALBI Indonesia	IBXXIDTR	IBXXIDTR	IBXXIDCP	.IBXXIDCP
GB00BYZW8042	iBoxx ALBI South Korea	IBXXKRTR	.IBXXKRTR	IBXXKRCP	.IBXXKRCP
GB00BYZW8158	iBoxx ALBI Malaysia	IBXXMYTR	IBXXMYTR	IBXXMYCP	.IBXXMYCP
GB00BYZW8604	iBoxx ALBI Philippines	IBXXPHTR	.IBXXPHTR	IBXXPHCP	.IBXXPHCP
GB00BYZW8B56	iBoxx ALBI Philippines Liquid	IBXXCHOF	.IBXXCHOF	IBXXCHMS	.IBXXCHMS
GB00BYZW8C63	iBoxx ALBI Philippines Money Market	IBXXCHOG	.IBXXCHOG	IBXXCHMT	.IBXXCHMT

		Total Return Index		Price Index	
	iBoxx ALBI Singapore	IBXXSGXR	.IBXXSGXR	IBXXSGXP	.IBXXSGXP
GB00BYZW8J33	iBoxx ALBI Taiwan	IBXXTWTR	.IBXXTWTR	IBXXTWCP	.IBXXTWCP
GB00BYZW8H19	iBoxx ALBI Thailand	IBXXTHTR	.IBXXTHTR	IBXXTHCP	.IBXXTHCP

5.18 Index review

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

6 Summary of key ESG factors

Explanation of how ESG factors are reflected in the key element	ents of the benchmark methodology
Item 1: Benchmark administrator	IHS Markit Benchmark Administration Ltd. ('IMBA UK')
Item 2: Type of benchmark	Fixed income
Item 3: Name of benchmark or family of benchmarks	iBoxx Asian Local Bond Index Family
Item 4: Does the benchmark methodology take into account ESG factors	Yes
Item 5a: List of Environmental factors considered	Inclusion driven by exposure to the following factors:
	Use of proceeds for Green Bonds have to be aligned with the ICMA Green Bond principles. Evidence is based on self-certification
Item 5b: List of Social factors considered	Inclusion driven by exposure to the following factors:
	Use of proceeds for Social Bonds have to be aligned with the ICMA Social Bond Principles. Evidence is based on self-certification
Item 5c: List of Governance factors considered	N/A
Item 5d: List of any other overall ESG factors	N/A
Item 6: Hyperlink to ESG factors information	iBoxx Asian Local Bond Index Family
Item 7a(i): Source of input	Data is sourced externally from Climate Bonds Initiative ("CBI"), Environmental Finance and S&P Global Market Intelligence – BRD, supplemented with professional expertise and bond prospectuses.
Item 7a(ii): Data input	Climate Bonds Initiative ("CBI"), Environmental Finance and S&P Global Market Intelligence – BRD relies on a proprietary methodology informed by a range of data sources.
	CBI track all self-labelled green bonds, subject to screening criteria explained in CBI Green Bond Database Methodology. All data is collected by the Climate Bonds Initiative and is filtered to include only:
	bonds with at least 95% use of proceeds financing or refinancing green/environmental projects - social bonds are not included
	 bonds which are broadly aligned with the Climate Bonds Taxonomy. This means that, for example, bonds financing so called "clean coal" are excluded.
	Environmental Finance's database tracks self-labelled green, social and sustainability bond. The dataset includes bonds where the issuer and/or lead manager explicitly states that they are green, social or sustainability focused.
	S&P Global Market Intelligence – BRD offers detailed reference data for bonds which enables a comprehensive view of assets from issuance to maturity. Self-labelled green, social and sustainability bonds are captured based on information provided in the bond prospectus.

	For further information on Environmental Finance research and methodology refer https://efdata.org/pages/methodology. The CBI Green Bond Database screening process is available at https://www.climatebonds.net/files/files/Taxonomy/CBI_Taxonomy_Tables-08A%20%281%29.pdf For further information on S&P Global Market Intelligence – BRD refer to https://www.spglobal.com/marketintelligence/en/mi/products/pricing-and-reference-data.html .
	ICMA Green Bond Principles (GBP), Social Bond Principles (SBP) and Sustainability Bond Guidelines (SBG)
Item 8a: Information updated on	9 January 2023
Item 8b: Reason for update	Regulatory Reporting Rules

7 Governance and regulatory compliance

IHS Markit Benchmark Administration Limited (IMBA UK) is the Index Administrator of iBoxx indices. Information on IMBA UK's governance and compliance approach can be found here. This document covers:

- Governance arrangements
- Input data integrity
- Conflicts of interest management
- Market disruption and Force Majeure
- Methodology changes and cessations
- Complaints
- · Errors and restatements
- Reporting of infringements and misconduct
- Methodology reviews
- · Business continuity

More details about IMBA UK can be found on the Administrator's website.

8 Changes to the iBoxx Asian Local Bond Index Family

Date	Change
30 Jun 2023	Annual Index Review 2022
	Introduction of 'Maturity extension' section
	 Index eligibility of bonds with extended workout dates
	 Creation of 'Renewable Energy Sector' within the 'Corporates' classification
	Distressed Debt Exchanges – Rule Update
30 Nov 2022	Annual Index Review 2022
	Change to the minimum initial time to maturity
	 Inclusion of senior bank bonds with call options where the first call date is 25 months or less prior to final maturity
	 Launch of Green bond sub-indices.
01 Nov 2022	Annual Index Review 2022
	iBoxx ALBI Indices - Update of 2022 Market Weights
31 Mar 2022	Annual Index Review 2021
	 Introduction of new market sector classification "Education" with market sub-sector classification "Academic & Educational Services"
31 Mar 2021	Governance and Regulatory Compliance section added
01 Nov 2021	Annual Index Review 2021
	iBoxx ALBI Indices - Update of 2021 Market Weights
01 Nov 2020	Annual Index Review 2020
	iBoxx ALBI Indices - Update of 2020 Market Weights
31 Jul 2020	Annual Index Review 2019
	Introduction of updated corporate classification schema
	Implementation of updated Tier Classification
	 Updates as part of the changes in definition and treatment of hybrid bonds
27 Feb 2020	Update to Index family structure
01 Nov 2019	Annual Index Review 2019
	iBoxx ALBI Indices - Update of 2019 Market Weights
30 Apr 2019	Inclusion of Chinese Policy Bank bonds in iBoxx ALBI China onshore index, effective 30 April 2019
07 Mar 2019	Update to pricing source of iBoxx ALBI Philippines Domestic Indices
01 Nov 2018	Annual Index Review 2018
	iBoxx ALBI Indices - Update of 2018 Market Weights
30 Nov 2017	Annual Index Review 2017
	iBoxx ALBI Indices - Update of 2017 Market Weights
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01 May 2017	Update to the Liquidity requirement and monitoring period for MYR denominated non-government bonds
30 Nov 2016	Annual Index Review 2016
	Methodology Update – ALBI annual weights assessment
	 Exclusion of Taiwan from the iBoxx ALBI Indices
	Bond selection rules change – iBoxx ALBI India
	 Launch of new sub-indices by sector and maturity for iBoxx ALBI and all single currency indices
25 Aug 2016	Update to the Sukuk eligibility for ALBI HKD
07 Jun 2016	Updates on publication timelines and preview schedules
30 Apr 2016	Launch of the iBoxx ALBI Philippines Domestic indices
03 Mar 2016	Clarification on the index holiday schedule
19 Feb 2016	Update to the rebalancing process and preview schedule
20 Jan 2016	Launch of the iBoxx ALBI index family

9 Further information

Client support

For client support please contact index_services@spglobal.com.

Formal complaints

Formal complaints should be emailed to spdji_compliance@spglobal.com.

Please note: spdji_compliance@spglobal.com should only be used to log formal complaints.

General index inquiries

For general index inquiries, please contact index_services@spglobal.com.

10 Appendix

10.1 Annotations

$f_{i,j}$	denotes the original value of factor j in market i
$\overline{F_{i,j}}$	denotes the normalized value of factor j in market i
\overline{n}	denotes the number of markets with a baseline weight greater than 0
AF_i	denotes adjustment factor of market i
S_i	denotes normalized value of bond market size of market i
G_i	denotes normalized value of the GEMLOC Indicator i
BW_i	denotes base market weight of market i
AF_i	denotes weight of market i in the iBoxx Asian Local Bond Index Family

Disclaimer

Performance Disclosure/Back-Tested Data

Where applicable, S&P Dow Jones Indices and its index-related affiliates ("S&P DJI") defines various dates to assist our clients by providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the index is set to a fixed value for calculation purposes. The Launch Date designates the date when the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P DJI defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its data feed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Information presented prior to an index's launch date is hypothetical back-tested performance, not actual performance, and is based on the index methodology in effect on the launch date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. In addition, forks have not been factored into the back-test data with respect to the S&P Cryptocurrency Indices. For the S&P Cryptocurrency Top 5 & 10 Equal Weight Indices, the custody element of the methodology was not considered; the back-test history is based on the index constituents that meet the custody element as of the Launch Date. Also, the treatment of corporate actions in back-tested performance may differ from treatment for live indices due to limitations in replicating index management decisions. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results.

Typically, when S&P DJI creates back-tested index data, S&P DJI uses actual historical constituentlevel data (e.g., historical price, market capitalization, and corporate action data) in its calculations. As ESG investing is still in early stages of development, certain datapoints used to calculate certain ESG indices may not be available for the entire desired period of back-tested history. The same data availability issue could be true for other indices as well. In cases when actual data is not available for all relevant historical periods, S&P DJI may employ a process of using "Backward Data Assumption" (or pulling back) of ESG data for the calculation of back-tested historical performance. "Backward Data Assumption" is a process that applies the earliest actual live data point available for an index constituent company to all prior historical instances in the index performance. For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as "product involvement") were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on "Backward Data Assumption" please refer to the FAQ. The methodology and factsheets of any index that employs backward assumption in the back-tested history will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used. Index returns shown do not

represent the results of actual trading of investable assets/securities. S&P DJI maintains the index and calculates the index levels and performance shown or discussed but does not manage any assets.

Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. As a simple example, if an index returned 10% on a US \$100,000 investment for a 12-month period (or US \$10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US \$1,650), the net return would be 8.35% (or US \$8,350) for the year. Over a three-year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US \$5,375, and a cumulative net return of 27.2% (or US \$27,200).

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