

## J.P. Morgan ESG CEMBI Broad Diversified Custom Maturity Index

### Index Methodology and Profile

#### Highlights

- The J.P. Morgan ESG CEMBI Broad Diversified Custom Maturity Index tracks liquid, US Dollar-denominated emerging market fixed and floating-rate debt instruments issued by corporates. The index applies an ESG scoring and screening methodology to tilt toward issuers ranked higher on ESG criteria and green bond issues, and to underweight and remove issuers that rank lower. The J.P. Morgan ESG CEMBI Broad Diversified Custom Maturity Index is based on the flagship J.P. Morgan CEMBI Broad Diversified Index. The returns and statistics for the J.P. Morgan ESG CEMBI Broad Diversified Custom Maturity Index are available since December 2014.

#### Baseline Index Criteria

<b>Instrument Type</b>	Includes both fixed and floating rate securities along with capitalizing/amortizing bonds. Excludes convertibles, inflation-linked instruments <sup>1</sup> .
<b>Issuer Type</b>	Corporate issuers only
<b>Issuer Country of Risk</b>	Issuers must be: <ul style="list-style-type: none"> <li>• Headquartered in an EM country or,</li> <li>• 100% of the issuer's assets are within EM economies or,</li> <li>• 100% secured by assets within EM economies.</li> </ul> <p>EM country/economy is defined as a distinct list of countries in the following regions: Asia ex Japan, Latam, Eastern Europe, Middle East/Africa</p>
<b>Remaining Maturity</b>	<b>Entry:</b> Instruments must have at least 2.5 years to maturity to be considered for inclusion. <b>Exit:</b> At each month-end rebalancing, instruments must have greater than 6 months to maturity to remain eligible for inclusion.
<b>Minimum Amount Outstanding</b>	US\$500 million.
<b>Currency</b>	Only USD denominated bonds are included. Instruments where the amount of coupon or redemption payment is linked to an exchange rate are not eligible for inclusion.
<b>Credit Rating</b>	There is no credit rating criteria for inclusion in the index. The credit rating of an instrument is determined using the middle rating from S&P, Moody's, and Fitch. When only two ratings are available, the index takes the lower of the two; and when only one agency rates a bond, that single rating is used.

<sup>1</sup> – Bonds with embedded options and warrants are eligible for inclusion if the options/warrants are attached to the instruments that would otherwise be included in the index and the prices are quoted cum options or warrants

## JESG Overlay Criteria

<b>ESG providers &amp; Green Bond certification authorities</b>	Sustainalytics RepRisk Climate Bonds Initiative
<b>JESG Scoring methodology</b>	JESG issuer scores are a 0-100 percentile rank calculated based on normalized raw ESG scores from third-party research providers Sustainalytics and RepRisk. An issuer's finalized JESG score incorporates a 3-month rolling average. See <i>Appendix: ESG Methodology</i> for more details.
<b>JESG Integration methodology</b>	The JESG scores are divided into five bands that are used to scale each issue's baseline index market value, with the band rebalance occurring with a one-month lag. See <i>Appendix: ESG Methodology</i> for more details.
<b>Green bond treatment</b>	If an instrument is categorized as a "green bond" by the Climate Bonds Initiative, the security will receive a one-band upgrade. Green bonds by issuers already in Band 1 will not receive any further upgrades. See <i>Appendix: ESG Methodology</i> for more details.
<b>JESG Ethical exclusions &amp; Negative Screening</b>	<p>Issuers are excluded based on the below criteria:</p> <ul style="list-style-type: none"> <li>• Issuers with revenue from the following sectors: <ul style="list-style-type: none"> <li>○ Thermal Coal</li> <li>○ Tobacco</li> <li>○ Weapons</li> </ul> </li> <li>• Issuers not in compliance with UN Global Compact principles as identified by both RepRisk and Sustainalytics</li> <li>• Issuers with JESG scores less than 20 are not eligible for index re-inclusion for 12 months</li> </ul>

Source: JPMorgan Chase & Co.

## Index Characteristics and Methodology

<b>Pricing</b>	Bid and Ask prices are taken from a third party pricing source, PricingDirect.
<b>Aggregate Return</b>	Weighted average of bond returns using bid side prices.
<b>Rebalancing</b>	Rebalances on the last US business day of the month.
<b>Coupon Reinvestment</b>	All coupons received are immediately reinvested into the index.
<b>FX Rates</b>	All FX rates used for hedged/unhedged returns are as of 4pm London time provided by WM/Reuters.
<b>Hedging Strategy:</b>	Assume a 1-month currency forward position that begins on rebalance day and ends on next rebalance day.
<b>Weighting:</b>	Diversified, market capitalization based weighting, with ESG adjustments.
<b>Holiday Calendar</b>	Follows US bond market calendar set by Emerging Markets Trader Association (EMTA).
<b>Bloomberg Ticker</b>	JPEIBDCM

Source: JPMorgan Chase & Co.

## Defining the universe of eligible countries

The index suite includes a specific set of emerging market countries. Currently a distinct set of countries falling in Asia ex Japan, Latam, Eastern Europe, Middle East/Africa are monitored.

## Instrument Type

The J.P. Morgan ESG CEMBI Broad Diversified Custom Maturity Index includes both fixed and floating rate instruments, as well as capitalizing/amortizing bonds. Bonds with embedded options and warrants are eligible for inclusion if a) the options/warrants are attached to instruments that would otherwise be included in the index and b) the quotation convention—as recommended by the Emerging Markets Traders Association (EMTA)—is for instrument prices to be quoted cumulative options or warrants. Convertible bonds are not eligible for inclusion into the index.

## Issuer Type

Bonds are eligible for inclusion in the J.P. Morgan ESG CEMBI Broad Diversified Custom Maturity Index if:

- The issuer is headquartered in an Emerging Market country or
- The issuer is 100% guaranteed by an entity within an Emerging Markets economy or,
- 100% of the issuer's operating assets are located within Emerging Markets economies.

## ESG Methodology

The index applies J.P. Morgan ESG (JESG) issuer scores to adjust the market value of index constituents from the baseline J.P. Morgan CEMBI Broad Diversified Index. JESG issuer scores are a 0-100 percentile rank calculated based on normalized raw ESG scores from third-party research providers Sustainalytics and RepRisk. An issuer's finalized JESG score incorporates a 3-month rolling average. Corporate issuers with no coverage by either third-party research provider default to their region-sector JESG score. The JESG scores are divided into five bands that are used to scale each issue's baseline index market value, with the band rebalance occurring with a one-month lag.

JESG Score Bands	Scalar
Band 1: Score > 80	1.00
Band 2: 60 < Score <= 80	0.80
Band 3: 40 < Score <= 60	0.60
Band 4: 20 < Score <= 40	0.40
Band 5: Score <= 20	0.00

Issuers in Band 5 will be excluded from the index and will not be eligible for twelve months. If an instrument is categorized as a "green bond" by the Climate Bonds Initiative, the security will receive a one-band upgrade. Green bonds by issuers already in Band 1 will not receive any further upgrades.

## Weighting Methodology

The J.P. Morgan ESG CEMBI Broad Diversified Custom Maturity Index limits the weights of those index countries with larger debt stocks by only including a specified portion of these countries' eligible current face amounts of debt outstanding. The index is geared toward managers who want maximum diversification or those who face limitations on the amount of portfolio exposure they can take to individual issuers. Once these instrument allocations are derived for each country, the current settlement price for each instrument is applied to its index allocation to calculate the market capitalization of each issue in the index. The weight of each instrument in the index is then determined by dividing its market capitalization by the total market capitalization for all of the index's instrument allocations. The result represents the weight of each issue expressed as a percentage of the index. The underlying J.P. Morgan JESG CEMBI Broad Diversified Index diversification methodology anchors on the average size of the countries in the index and the debt stock size of the largest country in the index.

We define **Index Country Average (ICA)** =  $\Sigma(\text{Ctry Face Amount}) / (\text{No. of Countries in the index})$  Based on the ICA, the diversified face amount for any country in the index is derived according to the following rules:

1. The largest country based on face amount will be capped at double the average country debt stock in the index (ICA\*2). This is the maximum threshold and sets the scale to determine the diversified face amounts of other countries in the index.
2. If a country's debt stock is below the index country average (ICA), the entire amount will be eligible for inclusion.
3. Countries whose debt stock falls between the index country average (ICA) and double the average (ICA \* 2) will be linearly interpolated.

Subsequently, the diversified (adjusted) face amount determined using the above step is then converted to a market value (based on dirty price), which is then converted to an index weight percentage based on the proportion of the total index market capitalization that the country represents. Any excess weight above the cap will be redistributed to smaller countries that are below the cap to limit concentration risk.

Diversified Country Face Amount=

$$\begin{cases} ICA * 2 & , \text{ if } FA_{max} \\ ICA + \frac{ICA}{FA_{max} - ICA} * (Ctry \text{ FA} - ICA) & , \text{ if } Ctry \text{ FA} > ICA \\ Ctry \text{ FA} & , \text{ if } Ctry \text{ FA} \leq ICA \end{cases}$$

where Ctry FA represents the non-diversified country face amount and  $FA_{max}$  represent the face amount of the largest country.

### **New Issue Timing**

A new issue that meets the J.P. Morgan ESG CEMBI Broad Diversified Custom Maturity Index admission requirements is added to the index at the first month-end rebalancing after its issuance, provided its settlement date falls before the 15th of the month. A new issue whose settlement date falls on or after the 15th of the month is added to the index at the rebalancing of the next month-end.

The first exception applies to a new issue that is released as part of a debt exchange program. For example, assume a country exchanges a portion of its outstanding debt for a new issue after the 15th of the month. At the month-end rebalancing immediately following this event, the amount of debt retired in this exchange would be removed from the index, and the new issue would be added to the index (provided official exchange results are made available in a timely manner AND the issue settles by month end).

The second exception concerns Reg S securities. An instrument that is issued purely in reliance on Regulation S of the US Securities Act of 1933 and not pursuant to Rule 144A will be ineligible for inclusion in the index until it is seasoned (that is, until the expiration of the relevant Regulation S restricted period). The date at which the seasoning restriction is lifted will effectively be the new "issue" date, at which point the 15th of the month rule will apply.

If an announcement is made for a bond to be called, it is removed the month-end prior to its call date. If an announcement is not made in time for the bond to be removed the prior month-end, it will be removed the first month-end following the announcement.

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