

J.P. Morgan ESG EMBI Global Diversified Short-term Custom Maturity Index

Index Methodology and Profile

Highlights

The J.P. Morgan ESG EMBI Global Diversified Short-term Custom Maturity Index tracks liquid, US Dollar-denominated emerging market fixed and floating-rate debt instruments issued by sovereign and quasi-sovereign entities¹. Securities with an average life greater 3 months to 5 years are eligible for inclusion. 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 EMBI Global Diversified Short-term Custom Maturity Index is based on the flagship J.P. Morgan EMBI Global Diversified Index. The returns and statistics for the J.P. Morgan ESG EMBI Global Diversified Short-term Custom Maturity Index are available since December 2014.

Baseline Index Criteria

Instrument Type	Includes both fixed and floating rate securities along with capitalizing/amortizing bonds. Excludes convertibles, inflation-linked instruments ² .
Issuer Type	Only those bonds issued by sovereign and quasi-sovereign entities are eligible for the index.
Remaining Maturity	Entry: Instruments must have between 2.5 years to 5 years of average life to be considered for inclusion. Exit: At each month-end rebalancing, instruments must have greater than 3 months to 5 years of average life to remain eligible for inclusion.
Minimum Amount Outstanding	US\$500 million.
Currency	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.
Country	Inclusion is limited to countries that satisfy the GNI per capita-based Index Income Ceiling (IIC) criterion or the PPP-based Index PPP Ratio (IPR) criterion.
Credit Rating	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.

¹ – Quasi-sovereign entities are defined as being 100% guaranteed or 100% owned by the national government.

² – 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

ESG providers & Green Bond certification authorities	Sustainalytics RepRisk Climate Bonds Initiative
JESG Scoring methodology	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.
JESG Integration methodology	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.
Green bond treatment	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.
JESG Ethical exclusions & Negative Screening	<p>Issuers are excluded based on the below criteria:</p> <ul style="list-style-type: none"> • Issuers with revenue from the following sectors: <ul style="list-style-type: none"> ○ Thermal Coal ○ Tobacco ○ Weapons • Issuers not in compliance with UN Global Compact principles as identified by both RepRisk and Sustainalytics • Issuers with JESG scores less than 20 are not eligible for index re-inclusion for 12 months

Source: JPMorgan Chase & Co.

Index Characteristics and Methodology

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

Source: JPMorgan Chase & Co.

Defining the universe of eligible countries

For sovereign and quasi-sovereign entities, following the 2018 Index Governance Review, a country will be eligible for the EM sovereign suite of indices if it either meets the GNI per capita-based Index Income Ceiling (IIC) criterion or the PPP-based Index PPP Ratio (IPR) criterion. J.P. Morgan defines the Index Income Ceiling (IIC) as the GNI per capital level that is adjusted every year by the growth rate of the World GNI per capita, Atlas method (current US\$), provided by the World Bank annually. An existing country may be considered for removal from the index if its GNI per capita is above the Index Income Ceiling (IIC) for three consecutive years and the country's long term foreign currency sovereign credit rating (the available ratings from all three agencies: S&P, Moody's & Fitch) is A- /A3/A- (inclusive) or above for three consecutive years. The 2020 IIC level is \$20,127.

For the IPR, it is calculated, as below, from the one-year lagged GDP data available in IMF's World Economic Outlook publication. The EM IPR threshold is an indexed number which mimics the changes to the World IPR. $IPR = GDP \text{ (current prices, USD)} / GDP \text{ (current prices, PPP dollars)} * 100$. IPR criterion states that a country's IPR should be below the EM threshold for three consecutive years, to be eligible. The 2020 IPR level is 59.5.

Instrument Type

The J.P. Morgan ESG EMBI Global Diversified Short-term 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

The J.P. Morgan ESG EMBI Global Diversified Short-term Custom Maturity Index contains only those bonds issued by sovereign and quasi-sovereign entities from index eligible countries. Historically, any quasi-sovereign issue was considered eligible for inclusion. As of May 31, 2002, we strengthened our definition of “quasi-sovereign” as an entity that is 100% guaranteed or 100% owned by the national government, and resides in the index eligible country.

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 EMBI Global 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 EMBI Global Diversified Short-term 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 EMBI Global 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 county'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=

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

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 EMBI Global Diversified Short-term 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.

Global Index Research

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