J.P.Morgan

Global Index Research

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J.P. Morgan Emerging Markets Bond Index Global Diversified – Custom Defaults

Methodology and Factsheet

Highlights

The J.P. Morgan Emerging Markets Bond Index Global Diversified – Custom Defaults (EMBIGD CD) tracks liquid, US Dollar denominated emerging market fixed and floating rate debt instruments issued by sovereign and quasi-sovereign entities[1]. The EMBIGD CD is based on the long-established flagship J.P. Morgan EMBI Global Diversified (EMBIGD) and follows its methodology closely, while offering a more accessible universe by limiting the eligibility of non-performing issuers. The diversification methodology limits the weights of the larger index countries by only including a specified portion of those countries' eligible current face amounts of debt outstanding, thus providing a more even distribution of weights across the countries in the index. The returns and statistics are available from Dec 2010.

Index Criteria

Instrument Type:	Includes both fixed and floating rate securities along with capitalizing/amortizing bonds. Excludes convertibles and inflation-linked instruments[2].
Issuer Type:	Only bonds issued by sovereign and 100% government owned/guaranteed quasi-sovereign entities are eligible for inclusion.
Remaining Maturity:	Only bonds with at least 2.5 years until maturity are considered for inclusion. Once added, a bond may remain in the index until 6 months before it matures.
Amount Outstanding:	Only bonds with a current face amount outstanding of $500 million or more are considered for inclusion[3].
Currency:	Only USD-denominated bonds are included. Bonds where the amount of coupon or redemption payment is linked to an exchange rate are not eligible for inclusion.
Country:	**Eligibility criteria:** A country is eligible for the EMBIGD CD if either: a. The GNI per capita of the country's economy is below the Index Income Ceiling (IIC) threshold for three consecutive years, or b. The nation's cost of living (purchasing power) is below the EM IPR[4] threshold for three consecutive years.

[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

[3] A bond is removed from the index when its current outstanding amount falls below $500 million

[4] Index PPP Ratio - an indexed number which mimics the changes to the World IPR, calculated from the one-year lagged Gross Domestic Product (GDP) figures published in USD (current) and purchasing power parity (PPP) for each economy (source: IMF's World Economic Outlook publication)

	Exclusion criteria ("3 for 3" rule): An existing country in the EMBIGD CD will no longer be eligible for the index if **ALL** of the following three criteria are met for three consecutive years: 1. GNI per capita should be above the IIC threshold, 2. Cost of living of the country, as defined by IPR (relative to that of the US), should be above the EM threshold, and 3. Sovereign credit rating should be at or above A3/A-/A-.
Eligibility of Defaulted Issuers:	• An issuer currently included in the EMBIGD CD[5] that has defaulted on its debt obligations[6] will remain in the index, provided the issuer's debt securities satisfy all other Index eligibility criteria. • A new issuer[7] will be reviewed for index inclusion (or re-inclusion) only if the issuer is current on debt obligations (i.e. performing debt).

Index Characteristics and Methodology

Pricing:	Bid and offer prices are taken from a third-party pricing source[8].
Aggregate Return:	Index/Country level total return is calculated as a market-weighted average of bond returns using bid prices.
Rebalancing:	Rebalances on the last US business day of the month, as determined by EMTA.
Coupon Treatment:	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:	Assumes a 1-month currency forward position that begins on rebalance day and ends on the next rebalance day.
Weighting:	Market capitalization-based weighting.
Holiday Calendar:	Follows US bond market calendar set by the Emerging Markets Traders Association (EMTA).
Bloomberg Ticker:	JPEIDCDT Index

Source: JPMorgan Chase & Co.

[5] With non-zero weight
[6] As determined by the Emerging Markets Traders Association (EMTA)
[7] Includes issuers currently not included in the benchmark, as well as issuers with zero weight in the EMBIGD CD
[8] Vendor is currently an independent source, PricingDirect Inc.

Appendix

Defining the universe of eligible countries

J.P. Morgan defines the Index Income Ceiling (IIC) as the GNI per capita 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. The Index PPP Ratio (IPR) was introduced with the 2018 Index Governance Review as a complimentary metric to determine the eligibility of a country in the EM sovereign index suite. The IPR of a country represents the cost-of-living for a given economy relative to that of the United States.

A country is eligible for inclusion to the EMBIGD CD if either:

a. The GNI per capita of the country's economy is below the Index Income Ceiling (IIC) for three consecutive years, or
b. The nation's cost of living (purchasing power) is below the Index PPP Ratio (IPR) for three consecutive years.

An existing country in the EMBIGD CD series will no longer be eligible if ALL the following three criteria are met for three consecutive years:

1. GNI per capita is above the IIC threshold,
2. Cost of living of the country (relative to that of the US) is above the EM threshold, and
3. Sovereign credit rating is at or above A3/A-/A-.

The 2024 IIC and IPR levels are $23,287 and 58.0, respectively.

Instrument Type

The EMBIGD CD 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 EMBIGD CD 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.

Eligibility of Defaulted Issuers

- An issuer currently included in the EMBIGD CD with non-zero weight that is in default on its debt obligations (as determined by EMTA) will remain in the index, provided the securities in question satisfy all other instrument eligibility criteria (including, but not limited to, regular pricing and liquidity).
- A new issuer not included in the EMBIGD CD that is current on its debt obligations (i.e. performing debt) is eligible for index inclusion (or re-inclusion).
- A new issuer not included in the EMBIGD CD that is in default on its debt obligations (as determined by EMTA) is ineligible for index inclusion.

Weighting Methodology

The EMBIGD CD 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 EMBIGD allocation to calculate the market capitalization of each issue in the index. The weight of each instrument in the EMBIGD CD is then determined by dividing its market capitalization by the total market capitalization for all of the EMBIGD CD's instrument allocations. The result represents the weight of each issue expressed as a percentage of the EMBIGD CD. By allocating their portfolios according to these exact instrument weights, and accounting for coupon reinvestments and index instrument allocation changes, investors can replicate the performance of the EMBIGD CD.

The underlying EMBIGD 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)** = Σ(Ctry Face Amount) / (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.

The below formula summarizes the calculation of diversified country face amount:

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

where Ctry FA represents the non-diversified country face amount and FAmax represents the face amount outstanding of the largest country.

New Issue Timing

A new issue that meets the EMBIGD CD instrument eligibility criteria is added to the index on the next "Rebalance Day", immediately following its issuance, provided the settlement date of the new issue falls on or before "Rebalance Day". The Rebalance Day (i.e. reconstitution of the Index, reset of weights if appropriate) falls on the last business day of the month (as determined by EMTA). There are two exceptions to this rule.

The first exception applies to a new issue released as part of a debt exchange program. At the month-end rebalancing date immediately following this event, the amount of debt retired in this exchange is removed from the index, and the new issue is added to the index (provided official exchange results are made available in a timely manner AND the issue settles by Rebalance Day).

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 "settlement" date.

If an announcement is made for a bond to be called, it is removed on the Rebalance Day 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.

For any questions or for additional information, please contact index.research@jpmorgan.com

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