J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index

Methodology and Factsheet

The J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index tracks the performance of bonds issued by emerging market governments and denominated in the local currency of the issuer. The index is designed to be investible and is based on the methodology and composition of the established flagship J.P. Morgan GBI-EM Global Diversified Index. Compared to the flagship index, the J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index covers a subset of countries. These countries are accessible by most of the international investor base and are approved for inclusion as per exclusions list from Van Lanschot Kempen (VLK), which is updated on semi-annual basis. The index selects bonds from each of the emerging market countries set forth below that are fixed-rate, domestic currency government bonds with greater than 6 months to maturity.

The composition of the J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index only contains countries that meet our country eligibility criteria and hence classify as Emerging Market. As of October 31st, 2022, the flagship J.P. Morgan GBI-EM Global Diversified Index contains 20 countries from four regions, Asia, Europe, Latin America, and Middle East/Africa, as shown in Table 1.

Index Criteria

Instrument Type:	Local Currency denominated fixed coupon instruments
Remaining Maturity:	**Entry:** Bonds must have at least 2.5 years remaining maturity on rebalance date to be considered for inclusion
	Exit: Bonds with less than 6 months to maturity are removed from the indices at rebalance date
Amount Outstanding:	Local issues with a current face amount outstanding of $1 billion or more, as well as Global issues with $500 million or more are considered for inclusion
Currency:	All eligible currencies are available within the set of eligible countries
Country Eligibility:	**Entry:** A country's GNI per capita is below the Index Income Ceiling (IIC)[1] level for three consecutive years, or the Index Purchasing-Power-Parity Ratio (IPR)[2] is below the emerging market threshold for three consecutive years. Additionally, for inclusion in this index, new markets should not be on VLK's exclusions list
	Exit: In order to leave the EM sovereign universe, a country has to meet all of the following conditions for three consecutive years: 1) GNI per capita should be above the IIC threshold; 2) IPR should be above the EM threshold; 3) the country's long term local Currency sovereign credit rating (the available ratings from all three agencies: S&P, Moody's & Fitch) is A-/A3/A- (inclusive) or above. Countries which are flagged by VLK's exclusions list, during the semi-annual review process will leave the index through a phased approach. In addition, any country rated below B-/B3 by any of the 3 rating agencies (Fitch/Moody's/S&P), will be eligible for exclusion as well. As of Q3, 2022, VLK's exclusions include **Brazil, China, Colombia, Egypt, Philippines and Turkey**.
Capital Controls:	The J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index excludes countries with explicit capital controls or where a foreign investor faces constraints in: holdings or transacting in bonds; purchase or sale of spot FX

[1] *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.*
[2] *J.P. Morgan defines the Index Purchasing Power Parity Ratio (IPR) as GDP (current prices, USD) / GDP (current prices, PPP dollars), from the one-year lagged GDP data available in the IMF World Economic Outlook.*

Index Characteristics and Methodology

Pricing:	Mid prices are taken from a third party pricing source[3]
Aggregate Return:	Index/Country level total return is calculated as a weighted average of bond returns using mid prices
Rebalancing:	Rebalances on the last weekday of the month. If FX rates from WM Refinitiv are unavailable on the last weekday of the month (e.g. Good Friday), indices are rebalanced on the previous business day
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/Refinitiv
Credit Rating:	Rating-based statistics published using middle rating of the S&P, Moody's and Fitch ratings
Weighting:	Diversified, market capitalization based weighting subject to maximum weight of 12% (cap) per country
Holiday Calendar:	Follows local bond market calendars. Index Publication takes place on all weekdays.

Appendix

Defining the universe of eligible countries

The J.P. Morgan GBI-EM Global Diversified Index consists of regularly traded, fixed-rate, domestic currency government bonds which international investors can readily access. The index excludes countries where local market investing is subject to explicit capital controls, but eligibility consideration does not factor in regulatory/tax hurdles. The J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index tracks a subset of countries which are present in the flagship index and absent in the VLK's exclusions list.

The VLK's exclusion list aims to identify and avoid controversial countries which may have a negative impact from an ESG and reputational risk. It uses 'objective', independent and measurable ESG indicators provided by government or international institutions, universities and NGO bodies and published periodically on various websites. VLK will assess and include on the exclusion list the issuers deemed in violation of the UN Global Compact principles (international norms in relation to the environment protection, human rights & communities, labour rights & supply chains, customers and governance) as well as exposure to controversial weapons, tobacco, thermal coal and oil sands extraction.

Eligibility for local currency issues is determined using the following criteria:

Instrument type

The J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index only includes fixed coupon instruments. Floating-rate and capitalizing/amortizing bonds are not eligible for index inclusion. Additionally, bonds with callable, puttable or convertible features are not part of the indices.

Liquidity

A key feature that distinguishes our indices from other index products is the strict enforcement of liquidity criteria in the selection of instruments. Yet, while the notion of liquidity differs from market to market, J.P. Morgan indices include only securities, subject to several considerations including but not limited to:

- *Pricing:* Bonds must trade with enough frequency to prevent stale price quotations.
- *Availability:* Bonds must be regularly traded in size at acceptable bid-offer spreads and readily redeemable for cash. A reasonable two-way market must exist for the instrument to be included in the index portfolio.
- *Replication costs:* Investors should be able to replicate the index without incurring excessive transaction costs.

Table 1: GBI-EM Global Diversified Countries[4]

As of October 31st, 2022

Asia	
China	
Indonesia	
Malaysia	
Philippines	
Thailand	
Europe	
Czech Republic	
Hungary	
Poland	
Romania	
Serbia	
Turkey	
Latin America	
Brazil	
Chile	
Colombia	
Dominic Republic	
Mexico	
Peru	
Uruguay	
Africa & Middle East	
South Africa	
Egypt	
No. of Countries	20

Source: J.P. Morgan

[3] ***PricingDirect Inc***., *a market-based professional valuation service and a wholly owned subsidiary of JPMorgan Chase & Co, is utilized as the primary source for instrument level pricing ensuring transparency around pricing sourcing and consistency/accuracy of index constituent valuations.*

[4] *As of Sep 30th, 2022, the VLK's exclusions list include Brazil, China, Colombia, Egypt, Philippines, and Turkey. These countries are hence excluded by the J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index*. Russia was removed from GBI-EM Global Diversified, on Mar 31, 2022.

Country Exclusions Methodology

The J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index follows similar logic, methodology and calculations as the flagship benchmarks in the J.P. Morgan GBI-EM Global Index series. The composition of bonds, index criteria, and all surrounding governing rules of inclusion/exclusion follow the composition and rules in the flagship indices.

Countries flagged by VLK exclusion list during semi-annual review, will be phased out from the index. Phasing approach to incorporate exclusions will be finalized based upon but not limited to, factors like country weights, market activity, ease of replication. Any change in composition within the flagship J.P. Morgan GBI-EM Global Diversified will also be reflected in the J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index for index eligible countries.

Weighting Methodology

The J.P. Morgan GBI-EM Global Diversified ESG Screened LC 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. By allocating their portfolios according to these exact instrument weights, and accounting for coupon reinvestments and instrument allocation changes, investors can replicate the performance of the J.P. Morgan GBI-EM Global Diversified ESG Screened LC Index.

The underlying GBI-EM Global Diversified ESG Screened LC 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)** = 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 (12%) will be redistributed to smaller countries that are below the cap to limit concentration risk.

Diversified Country Face Amount=

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

where Ctry FA represents the non-diversified country face amount and FAmax represents the Face Amount of the Largest Country.

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