

## J.P. Morgan Global Credit Index (GCI) ESG Investment Grade USD Short-term Custom Maturity Index

### Methodology and Factsheet

#### Highlights

The J.P. Morgan ESG Global Credit Index (JESG GCI) Investment Grade USD Short-term Custom Maturity Index tracks US Dollar-denominated investment grade corporate bonds maturing within the next 3 months to 5 years, by developed market issuers. The index uses an ESG scoring and screening methodology to tilt toward issuers with higher ESG ranking and green bond issues, and to underweight and exclude issuers that rank lower. Returns and Statistics are available since December 2012.

#### Index Criteria

<b>Instrument Type</b>	<b>Include:</b> Fixed Rate, Floating Rate, Hybrid, Step-up, PIK, Toggle, Amortizers, Perpetuals, Sukuk Bonds, and all Subordinated financial bonds except AT1 and RT1 <b>Exclude:</b> Structured Bonds and Credit Enhanced Bonds including Credit Linked, Collateral Trust and Equipment Trust Bonds, Dual Currency Bonds and bonds with non-transparent cash flows or atypical indices used to reset coupons	
<b>Issuer Type</b>	<b>Include:</b> Corporate <b>Exclude:</b> Sovereign and Quasi-Sovereign Issuers <sup>1</sup>	
<b>Collateral</b>	<b>Exclude:</b> Covered, Mortgage Backed, Asset Backed, Bank Guaranteed, Government Guaranteed	
<b>Maturity</b>	<b>Entry:</b> Minimum 24 months and Maximum 60 months till maturity	<b>Exit:</b> Minimum 3 months till maturity
<b>Minimum Amount Outstanding</b>	\$500mm	
<b>Holiday</b>	Follows US SIFMA holiday calendar	
<b>Currency</b>	USD	
<b>Country of Risk</b>	The country of risk for the instruments in the index will be determined based upon the following considerations: <ul style="list-style-type: none"> <li>• The country of risk of the guarantor, if the bond is 100% guaranteed or</li> <li>• The country where the majority of the issuing entity's assets are located or</li> <li>• The country where issuer's operating headquarters is located and where centralized decision-making power resides.</li> </ul>	
<b>Country Eligibility</b>	Countries from Developed Market are eligible for inclusion. According to our definition, countries from the following regions are considered as DM:	

#### 1 – Definitions:

- Toggles: A type of payment-in-kind bond in which the issuer has the option to defer an interest payment by agreeing to pay an increased coupon in the future. All deferred payments must be settled by the bond's maturity
- Amortizers: A type of bond in which the principal on the debt is paid down regularly, along with its interest expense over the life of the bond
- Perpetuals: A type of bond with no maturity date

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

	<ul style="list-style-type: none"> <li>North America</li> <li>Western Europe</li> <li>Asia Developed Markets (Japan, Australia, and New Zealand)</li> </ul>
<b>Credit Rating</b>	<p><b>Entry:</b> Only investment-grade instruments are eligible. An instrument is classified as investment grade if its credit rating is BBB- or above.</p> <p>According to the JPM Index Methodology, ratings from three agencies – Moody’s, S&amp;P, and Fitch are considered. The aggregated instrument credit rating is determined as follows:</p> <ul style="list-style-type: none"> <li>Middle of the three ratings, if rating from all three agencies is available or</li> <li>Lower of the two ratings, if rating from only two agencies are available or</li> <li>The single rating, if only one agency provides a rating or</li> <li>Non-rated bonds from IG issuers are not eligible.</li> </ul> <p><b>Exit:</b> Bonds downgraded from IG to HY will remain in the index for an additional six months, provided the credit rating is no worse than B-/B3/B-.</p>
<b>Defaulted Issues</b>	Defaulted instruments are excluded from the index.
<b>Registration Type</b>	SEC-registered Global, Domestic, MTN, and 144A with or without registration rights, Eurobonds, and EMTNs that trade in accordance with ISMA principals.

Source: J.P. Morgan

## JESG Overlay Criteria

The J.P. Morgan ESG Global Credit Index (JESG GCI) Investment Grade USD Short-term Custom Maturity Index applies the J.P. Morgan JESG methodology as an overlay to the baseline Global Credit Index (GCI) Investment Grade USD (GCI USD IG) Short-term Custom Maturity Index.

For details on the ESG providers, scoring methodology, green bond treatment and exclusions, please refer to the corporate methodology detailed within the [J.P. Morgan ESG Index Suite \(JESG\) Rules and Methodology](#).

<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.		
<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.		
<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.		
<b>Ethical exclusions &amp; Negative Screening</b>	Issuers are excluded based on the below criteria:		
	<ul style="list-style-type: none"> <li>Issuers with JESG scores less than 20</li> <li>Issuers not in compliance with UN Global Compact principles as identified by Sustainalytics</li> <li>Issuers with revenue from the following harmful activities as identified by Sustainalytics^:</li> </ul>		
	<b>Category</b>	<b>Involvement</b>	<b>Threshold</b>
	Controversial Weapons	Tailor-made and essential	0%
		The company is involved in the core weapon system, or components/services of the core weapon system that are considered tailor-made and essential for the lethal use of the weapon.	

		Non-tailor-made or non-essential	The company provides components/services for the core weapon system, which are either not considered tailor-made or not essential to the lethal use of the weapon.	0%
	Military Contracting	Weapons	The company manufactures military weapon systems and/or integral, tailor-made components for these weapons.	10%
		Weapon-related products and/or services	The company provides tailor-made products and/or services that support military weapons.	10%
		Non-weapon related products and/or services	The company provides non-weapons related tailor-made products and/or services to the military or defence industry.	10%
	Oil Sands*	Extraction	The company extracts oil sands.	0%
	Small Arms	Civilian customers (assault weapons)	The company manufactures and sells assault weapons to civilian customers.	0%
		Civilian customers (non-assault weapons)	The company manufactures and sells small arms (non-assault weapons) to civilian customers.	0%
		Key components	The company manufactures and sells key components of small arms.	0%
		Military/law enforcement customers	The company manufactures and sells small arms to military/law enforcement.	10%
		Retail/distribution (assault weapons)	The company is involved in the retail and/or distribution of assault weapons.	10%
		Retail/distribution (non-assault weapons)	The company is involved in the retail and/or distribution of small arms (non-assault weapons).	10%
	Thermal Coal*	Extraction	The company extracts thermal coal.	0%
		Power Generation	The company generates electricity from thermal coal (revenue).	0%
	Tobacco	Production	The company manufactures tobacco products.	0%
	<p>An issuer that is excluded from the JESG indices will not be eligible to re-enter the benchmark for at least 12 months after the time of its initial exclusion.</p> <p>^Please note that the exclusions applied are a custom version of those captured in the <a href="#">JESG rules and methodology</a>.</p> <p>*Green bonds from issuers involved in thermal coal or oil sands remain eligible for JESG inclusion to incentivize transition to less pollutive revenue streams.</p>			

Source: J.P. Morgan

## Index Characteristics and Methodology

<b>Pricing:</b>	Mid prices are taken from a third party pricing source, PricingDirect
<b>Aggregate Return</b>	Index level total return is calculated as an ESG adjusted-weighted average of bond returns using mid prices
<b>Rebalancing</b>	Rebalances on the last US business day of the month
<b>Coupon Treatment</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>	Market capitalization based weighting, renormalized based on JESG Band scalar
<b>Bloomberg Ticker</b>	JPEIIGUS

Source: J.P. Morgan

## New Issues Eligibility

Eligibility for the index will be determined on a continuous basis by monitoring the index criteria. Any changes to the composition or eligibility will be announced prior to rebalance with an estimated schedule, to provide full transparency to the investor base.

A new issue that meets the index inclusion criteria is added to the index on the same month-end rebalance after its issuance, provided its first settlement date falls on or before month-end rebalance date. A new issue whose first settlement date falls after month-end will be eligible for inclusion the following month-end rebalancing.

Instruments issued purely under Regulation S or “Reg-S” (without an accompanying 144A or registered tranche) or as private placements (unregistered instruments) are eligible for inclusion after a 40-calendar day seasoning period, provided they meet other index criteria. The date when the seasoning restriction is lifted will effectively be the new “settlement” date.

## Appendix

### Index Total Return

The total return calculation for a single instrument is a means of representing the economic benefit of holding the specific security. For the calculation of individual instrument total returns, this cash is reinvested in the instrument when received. Total return for an individual bond between days (t-1) and (t) is calculated as shown below, using daily local market clean prices and accrued interest:

$$TR_t = \frac{P_t + A_{v(t)}}{P_{t-1} + A_{v(t-1)}} \times \frac{FX_{i,t}}{FX_{i,t-1}} - 1$$

Where:

$TR_t$  = Bond level total return from day (t-1) to day (t) including both principal and interest

$P_t$  = Local market closing clean mid prices of a bond on day t

$A_{v(t)}$  = Accrued interest for a bond on v(t) where the function v(t) are the value dates associated with trade date t and t-1 following market conventions

At initialization, an index is given a base value of 100 and then daily returns are applied as shown below:

Bond specific information is aggregated to the portfolio level using market capitalization-based weights. At the portfolio level, the total return of the index is the sum product of the individual bond returns and the individual bond weights of the previous day:

$$R_t = \sum_{j=1}^n TR_{j,t} \times wt_{j,t-1}$$

Where:

$R_t$  = Index level return on day t

$TR_{j,t}$  = Bond total return on day t

$wt_{j,t-1}$  = Bond weight on day t-1

This weighted return is then applied to the previous day's index value as shown below:

$$I_t = I_{t-1} + (1 + R_t)$$

Where:

$I_t$  = Index level on day t

$R_t$  = Index total return on day t

### Disintegrating the Index Total Return

The index total return of a multi-currency portfolio can also be explained by five components: price return, interest return, treasury return, spread return, and spot return.

The rate of return for any day can be attributed in one of two ways:

1. Using the clean and coupon returns:

$$Total\ Rate\ of\ Return = (1 + Price\ Rtn)(1 + Interest\ Rtn)(1 + Spot\ Rtn) - 1$$

2. Or, alternatively, using the treasury and excess returns:

$$Total\ Rate\ of\ Return = (1 + Treasury\ Rtn)(1 + Spread\ Rtn)(1 + Spot\ Rtn) - 1$$

<b>Analytic</b>	<b>Description</b>
<b>Return Analytics</b>	
Total Return	The total daily return is calculated from $ESV_t / ESV_{t-1}$ . It can be attributed to principal, interest and FX returns, or government, excess and FX returns.
Price Return	The component of the total return resulting from the change in clean price
Interest Return	The component of the total return arising from the accrued interest
Spread Return	The component of the total return in excess of the government return, i.e. arising from the spread over the matched treasury
Treasury Return	The component of the total return arising from a term matched government treasury bond return
Spot/FX Return	The component of the total return arising from the daily change in FX rates
<b>ESG Analytics</b>	
ESG JPM Rank	Proprietary J.P. Morgan computed ESG score
ESG Band	ESG band designation
<b>To Worst Analytics</b>	
Yield (to worst)	The lowest potential Yield on a callable security or the highest potential yield on a puttable security. The corresponding date at which this Yield is realized is referred to as the Worst Date, and is the driver for all other To Worst analytics.
Spread (to worst)	The Spread Over the Treasury Zero Curve corresponding to the Worst Date. This is the basis point spread over the Treasury Zero Curve that will discount cash flows such that the Present Value will equal the Settlement Price, reflective of the Worst Date.
Modified Duration (to worst)	A measure of the change in settlement price for a 100 bps shift in the underlying government bond Cash Coupon Curve and reflective of all cash flows to the Worst Date. It is calculated by shifting the government bond Cash Coupon Curve by 100bps up and down and calculating settlement price under each scenario.
Spread Duration (to worst)	A measure of the change in settlement price for a 100 bps shift in the underlying government bond Zero Coupon Curve and reflective of all cash flows to the Worst Date. It is calculated by shifting the government bond Zero Curves by 100bps up and down and calculating settlement price under each scenario.
Spread Convexity (to worst)	A measure of the sensitivity of Spread Duration to a 100 bps shift in the underlying government bond Zero Coupon Curve and reflective of all cash flows to the Worst Date. It is calculated by shifting the government bond Zero Curves by 100 bps up and down and calculating settlement price under each scenario.
Average Life (to worst)	Average length of remaining time before the bond's principal is repaid (or when optionality is executed) as measured at the To Worst Date.
<b>Base Analytics</b>	
Index Dirty Price (mid)	Dirty mid price including adjustments for amortization and capitalization
Market Value (ESG adj.)	Market Value (ESG methodology adjusted)
Face Amount	Amount outstanding
Coupon	Current coupon rate
Accrued interest	Accumulated interest since last payout
Amortization amount	Aggregated amortized principal amount
Remaining Maturity (days)	Number of business days from trade date to maturity date
Current Yield	Current yield
Number of bonds	Number of bonds in the index

Source: J.P. Morgan

For any questions or for additional information, please contact [index.research@jpmorgan.com](mailto:index.research@jpmorgan.com).

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**Global Index Research**

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