

## THE INDEX

The Pacer Trendpilot US Bond Index (USD) (the “**Index**”) was created by the Index Design Group (the “Index Sponsor” or “IDG”).

### *The Index*

The Index uses an objective, rules-based methodology to implement a systematic trend-following strategy that directs the Index’s exposure to either 100% iBoxx USD Liquid High Yield Index, 50% iBoxx USD Liquid High Yield Index, and 50% iBoxx USD Treasuries 7-10 Year Index, or 100% iBoxx USD Treasuries 7-10 Year Index.

The iBoxx USD Liquid High Yield Index, is divided by the iBoxx USD Treasuries 7-10 Year Index, and this ratio (the “Risk Ratio”) is used as the signal for index exposure changes, as described below.

When the Risk Ratio is above its 100 business day simple moving average for five consecutive business days the Index will track 100% iBoxx USD Liquid High Yield Index. When the Risk Ratio falls below its 100-business day simple moving average for five consecutive business days the first signal occurs. This indicates a negative trend has been established and the Index will track 50% iBoxx USD Liquid High Yield Index and 50% iBoxx USD Treasuries 7-10 Year Index. The index’s weights will float with the market until the next signal triggers.

A second signal is established when the direction of the simple moving average changes from positive to negative. Confirmation of the second signal is determined when the most recent measure of the Risk Ratio 100 business day simple moving average falls below its closing price from 5 days prior. When the second signal is confirmed, the Index will track 100% iBoxx USD Treasuries 7-10 Year Index.

It is possible for both negative trends to occur at the same time. When this happens, the index will go from tracking 100% iBoxx USD Liquid High Yield Index to tracking 100% iBoxx USD Treasuries 7-10 Year Index.

Once the Index is tracking 100% iBoxx USD Treasuries 7-10 Year Index it will have no exposure to the iBoxx USD Liquid High Yield Index until the Risk Ratio is above its 100 business day simple moving average for 5 consecutive business days. When this positive trend is established, the Index will move directly to tracking 100% iBoxx USD Liquid High Yield Index. The Index can only move to tracking 100% iBoxx USD Liquid High Yield Index from the 100% iBoxx USD Treasuries 7-10 Year Index position.

When any trigger changes Index exposure, the exposure change may take up to five days to be fully implemented.

It is possible for one signal to override another before the five days to move into the new exposure is completed. This is only possible when the Index is moving to a 50% iBoxx USD Liquid High Yield Index, 50% iBoxx USD Treasuries 7-10 Year Index position when the second signal becomes negative. In the event of this happening, the Index will change exposures to the new target exposure over the next five days on a straight-line basis from its end-of-day exposure on the day the second negative trend signal is confirmed.

The following table demonstrates an example of a mid-move signal override occurring, where a 50%-50% allocation is signaled, and the move is interrupted by a new signal for 100% iBoxx USD Treasuries 7-10 Year Index allocation. Horizontal lines denote changes in the target exposure as a result of the signals.

DAY	PRICE SIGNAL	TREND SIGNAL	TRADING'S DAY'S INDEX EXPOSURE TO HIGH YIELD	END OF DAY INDEX EXPOSURE TO HIGH YIELD	TARGET EXPOSURE TO HIGH YIELD	MOVING DAY	STARTING EXPOSURE	5-DAY STRAIGHT LINE CHANGE TO TREASURIES
1	Below	Above	100%	100%	100%		100%	N/A
2	Below	Above	100%	100%	100%		100%	N/A
3	Below	Above	100%	100%	100%		100%	N/A
4	Below	Above	100%	100%	100%		100%	N/A
5	Below	Above	100%	100%	100%	0	100%	N/A
6	Below	Above	100%	90%	50%	1	100%	10%
7	Below	Above	90%	80%	50%	2	100%	10%
8	Below	Below	80%	70%	50%	0	100%	10%
9	Below	Below	70%	56%	0%	1	70%	14%
10	Below	Below	56%	42%	0%	2	70%	14%
11	Below	Below	42%	28%	0%	3	70%	14%
12	Below	Below	28%	14%	0%	4	70%	14%
13	Below	Below	14%	0%	0%	5	70%	14%
14	N/A	N/A	0%	0%	0%	6	N/A	N/A

The Index aims to mitigate, to some extent, the volatility of the iBoxx USD Liquid High Yield Index by tracking iBoxx USD Treasuries 7-10 Year Index (instead of the iBoxx USD Liquid High Yield Index) when the iBoxx USD Liquid High Yield Total Return Index is in a negative trend.

### ***Constituents***

The constituents of this index are made up of the underlying indices the iBoxx USD Liquid High Yield Index and the iBoxx USD Treasuries 7-10 Year Index.

### ***Simple Moving Average***

A simple, or arithmetic, moving average that is calculated by adding the closing price of the security, index, or ratio for a number of time periods and then dividing this total by the number of time periods. Short-term averages respond quickly to changes in the price of the underlying, while long-term averages are slow to react.

### ***The iBoxx USD Liquid High Yield Index***

The iBoxx USD Liquid High Yield Index is designed to track the performance of U.S. dollar-denominated, high-yield corporate bonds issued by companies whose country of risk use official G-10 currencies, excluding those countries that are members of the United Nations Eastern European Group (EEG). Qualifying securities must have a below-investment-grade rating (based on the lowest of S&P Global Ratings, Moody's, and Fitch) and maturities of one or more months.

### ***The iBoxx USD Treasuries 7-10 Year Index***

The iBoxx USD Treasuries 7-10 Year Index is designed to measure the performance of U.S. Treasury bonds maturing in 7 to 10 years.

## ***Currency versions, calculation frequency, desired ticker, name and description.***

### **1. Price Return**

- a. Index Name = Pacer Trendpilot US Bond Index
- b. EOD or Real-time? EOD
- c. Desired Ticker (8 character max) = **PTBD**
- d. Index Description (for BBG it can only be 300 characters including spaces) = The Pacer Trendpilot US Bond Index utilizes a systematic trend-following strategy that provides exposure to either the iBoxx USD Liquid High Yield Index, the iBoxx USD Treasuries 7-10 Year Index, or 50% of each, depending on the relative performance of the ratio of the iBoxx USD Liquid High Yield Index divided by the iBoxx USD Treasuries 7-10 Year Index on a simple historical, 100-day moving average.
- e. Currency = USD
- f. Hedged PR, if so, hedged from what current into what currency (please note for hedged indices we need to know points i-iv specific for the hedged level too)? Not Hedged

### **2. Total Return**

- a. Index Name = Pacer Trendpilot US Bond Total Return Index
- b. EOD or Real-time? EOD
- c. Desired Ticker (8 character max) = **PTBDTR**
- d. Index Description (for BBG it can only be 300 characters including spaces) = The Pacer Trendpilot US Bond Index utilizes a systematic trend-following strategy that provides exposure to either the iBoxx USD Liquid High Yield Index, iBoxx USD Treasuries 7-10 Year Index, or 50% of each, depending on the relative performance of the ratio of the iBoxx USD Liquid High Yield Index divided by the iBoxx USD Treasuries 7-10 Year Index on a simple historical, 100-day moving average.
- e. Currency = USD
- f. Hedged TR, if so hedged from what current into what currency (please note for hedged indices we need to know points i-iv specific for the hedged level too)? Not Hedged

## **Index Purpose**

1. Product

## **History**

1. Length of history to be calculated by SPDJI:
  - a. PTBD: 23.46 years
  - b. PTBDTR: 23.46 years
2. Calculation Start Date:
  - a. PTBD: 12/30/1995
  - b. PTBDTRPTBDTR: 12/31/99 12/30/1995
3. Base Value: 100

## **Index Holiday Schedule**

1. The Bond Market - the index will be calculated every trading day if at least one component is open for trading. If all components' markets are closed, the index will not be calculated.

## Holiday Exception

1) In the event Thursday is a US trading holiday, the review will be conducted on the next US trading day. In the event Monday is a US trading holiday, the Index changes will become effective on the next US trading day.

## Detailed Calculation of Index Level

$$I_t = I_{t(r)} \times \left[ W_t \times \frac{HY_t}{HY_r} + (1 - W_t) \times \frac{TBond_t}{TBond_r} \right]$$

$$RRMA_t = \frac{1}{100} \times \sum_{t-99}^t RR_t$$

$$Z_t = \begin{cases} 1 & \text{if, for all } B = 4,3,2,1,0, RR_{t-2-B} > RRMA_{t-2-B} \\ 0.5 & \text{if, for all } B = 4,3,2,1,0, RR_{t-2-B} < RRMA_{t-2-B}, \text{ and } RRMA_{t-2} > RRMA_{t-7}, \text{ and } Z_t \neq 0 \\ 0 & \text{if, for all } B = 4,3,2,1,0, RR_{t-2-B} < RRMA_{t-2-B}, \text{ and } RRMA_{t-2} < RRMA_{t-7} \\ Z_{t(r)} & \text{Otherwise} \end{cases}$$

$$W_t = \begin{cases} W_{t(S=1)} + (Z_{t-2} - W_{t(S=1)}) \div 5 \times (S - 1), & \text{if } S \neq 0 \text{ and } S \neq 1 \\ \text{Float Allocation between HY and TR,} & \text{if } S = 0 \text{ or } S = 1 \end{cases}$$

And:

S = moving day count corresponding to the days after signal hit (for any date outside the range, S=0)

	S
Day 0	0
Day 1	1
Day 2	2
Day 3	3
Day 4	4
Day 5	5
Day 6	6

$I_t$  = the Index Level on Index business day t, where on the Risk Ratio Base Date, the Index Base Value is 100.

$I_{t(r)}$  = the Index Level as of the close of the most recent rebalance date.

$Z_t$  = the value of the trend indicator for the most recent rebalance date (with a value of “1” indicating that the Risk Ratio Trend is positive for such Index business day, a value of “0.5” indicating that the Risk Ratio Trend is negative for such Index business day, a value of “0” indicating that the Risk Ratio Trend is

negative for such Index business day, and a value of “ $Z_t$ ” indicating that the Risk Ratio Trend stays the same.)

$W_t$  = Allocation factor

$HY_t$  = the High Yield Index Closing Level for Index business day t.

$HY_r$  = the High Yield Index Closing Level as of the close of the most recent rebalance date.

$RR_t$  = the Risk Ratio for Index business day t.

$RRMA_t$  = the Risk Ratio Simple Moving Average for Index business day t.

$TBond_t$  = the T Bond Index Closing Level for Index business day t.

$TBond_r$  = the T Bond Index Closing Level as of the close of the most recent rebalance date.

Risk Ratio : iBoxx USD Liquid High Yield Index/ iBoxx USD Treasuries 7-10 Year Index

High Yield Index: iBoxx USD Liquid High Yield Index

T Bond Index: iBoxx USD Treasuries 7-10 Year Index

Tracking Index: Pacer Trendpilot US Bond Index which allocates between the iBoxx USD Liquid High Yield Total Return Index and the iBoxx USD Treasuries 7-10 Year Total Return Index.

## Index Calculation Agent

S&P Dow Jones Indices or another party designated by the Index Sponsor (as defined below), will act as the calculation agent for the Index (the “**Index calculation agent**”) and will be responsible for calculating the level of the Index using the Index Methodology published by the Index Sponsor. The Index Sponsor will be the final authority on the Index and the interpretation of the Index Methodology.

The Index calculation agent will calculate the Index Level for each Index business day. The Index Level will be displayed on Bloomberg page “X” (or on any successor page) on each Index business day. Intraday Index levels will be published by the Index calculation agent under ticker symbol “PTBD” The Index Level will not be published on any day on which the Index Level is not calculated, whether because such day is a disrupted day (as defined under “—Index Disruption Events” below) or otherwise. All numerical values for the Index will be rounded to fifteen decimal places.

In the event that the Index calculation agent or the Index Sponsor determines that a material error has occurred in the calculation of the Index, the Index calculation agent, having consulted, or having been consulted by, the Index Sponsor, will endeavor to correct such error on a date agreed to by the Index Sponsor. If a material error is corrected, the Index Sponsor will apply the correction from the relevant date forward.

## Index Disruption Events

If, in the opinion of the Index Sponsor, any Index business day is a disrupted day (as defined below), the Index Level will not be published on such Index business day and will instead be calculated and published by the Index calculation agent on the next succeeding Index business day that is not a disrupted day, as determined by the Index Sponsor in good faith and subject to the index disruption fallbacks described under “—Index Disruption Fallbacks” below.

A “**disrupted day**” means any Index business day on which:

- any day the Bond Market fails to open for trading during its regular trading session.
- an index disruption event (as defined below) occurs; or

- an Index adjustment event (as defined under “—Index Adjustment Events” below) occurs.

An “**index disruption event**” means the occurrence or existence of any of the following events if, as determined by the Index Sponsor, it has a material impact on the Index:

- it becomes impossible, on a certain Index business day, to obtain a closing level or any other price level for any component of, or instrument that is referenced by, the Index (a “**price disruption**”);
- any suspension of, or limitation imposed on, trading by any Market or otherwise, and whether by reason of price movements exceeding limits permitted by such Market or otherwise (a “**trading disruption**”);
- any event (other than an early closure, as defined below) during the one hour period that ends at the regularly scheduled close of trading for the securities comprising the Benchmark Index that disrupts or impairs (as determined by the Index calculation agent and/or Index Sponsor) the ability of market participants to effect transactions in, or obtain market values for, any component of or instrument that is referenced by the Index (a “**market disruption**”); or
- on any Index business day and in respect of any instrument or component referenced by the Index, the closure of any Market prior to its scheduled closing time, unless such earlier closing is announced by such Market at least one hour prior to the earlier of (a) the actual closing time for the regular trading session on such Market on such Index business day, and (b) the submission deadline for orders to be entered into the Markets’s dealing system for execution on such Index business day (an “**early closure**”).

## Index Adjustment Events

The Index Methodology may be adjusted, amended, deleted or otherwise altered by the Index Sponsor at any time, acting in good faith and with the consent of the Index calculation agent, if the Index is no longer calculable in accordance with the Index Methodology (any event or condition giving rise to the right to so adjust, amend, delete or alter the Index, an “**Index adjustment event**”). Such adjustments may include, but are not limited to, adjustments required for clarification or for minor or technical reasons (including, without limitation, to correct any manifest or proven error or to cure, correct or supplement any ambiguity or defective provision contained in the Index Methodology).

## Index Disruption Fallbacks

If (a) five consecutive Index business days are disrupted days, or (b) the Index Sponsor determines that (i) there is a discontinuation in the publication of prices for any component of or instrument referenced by the Index,

(ii) the use of any component of or instrument referenced by the Index has become prohibited, (iii) the sponsor of any component of or instrument referenced by the Index has changed the specifications of such instrument or component, (iv) any component of or instrument referenced by the Index is modified or changed in any other way (except for a previously announced modification), or (v) any component of or instrument referenced by the Index has been or is likely to become terminated, then the Index Sponsor will, in consultation with the Index calculation agent, have the right to:

- accept the closing level of any component of or instrument referenced by the Index published

on any alternative price source;

- if no alternative price source is available, select a substantially similar component for the Index or instrument to which the Index can be linked;
- if no alternative price source or similar instrument or component is available, adjust, amend or otherwise alter this description of the Index; and
- if none of the foregoing will achieve the objective of the Index as set forth above, permanently cease to calculate and/or disseminate levels for the Index.

## **Termination of the Index**

The Index Sponsor may, at any time and without notice, terminate publication of the Index and proceed to ask the Index calculation agent to cease the calculation and dissemination of the Index.

## **Change in Index Methodology**

No assurance can be given that fiscal, market, regulatory, juridical, financial or other circumstances (including, without limitation, any changes to, or any suspension or termination of any components for which values must be determined in relation to the Index) will not arise that would, in the determination of the Index Sponsor, necessitate or make desirable a modification of, or change to, the Index Methodology.

Any change to, or modification of, the Index Methodology may be outside the technology employed by the Index calculation agent, and thus the Index calculation agent may not be able to calculate the Index following such change or modification. In such event the Index Sponsor may, in its sole and absolute discretion, appoint a successor Index calculation agent.

## **Disclaimer**

Although the Index Sponsor obtains price and return data from sources that it considers reliable, for example for the Benchmark Index, the Index Sponsor will not independently verify such data, and neither does it guarantee the accuracy and/or completeness of any data included in this description of the Index, nor the accuracy of any Index Levels.

The Index Sponsor is under no obligation to advise any person or entity of any error in the Index (but may do so in its sole and absolute discretion). References to the Benchmark Index and the iBoxx USD Treasuries 7-10 Year Index are included only to describe the components upon which the Index is based. The Index is not in any way sponsored, endorsed or promoted by S&P Dow Jones Indices or any Exchange.

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## **Background on the Index Components**

## *Benchmark Index*

We have derived all information contained in this index methodology regarding The Pacer Trendpilot US Bond Index, the iBoxx USD Treasuries 7-10 Year Total Return Index, and the iBoxx USD Liquid High Yield Total Return Index (the “**Benchmark Index**”), including, without limitation, their make-up, method of calculation and changes in their components, from publicly available information. Such information reflects the policies of, and is subject to change by, S&P Dow Jones Indices.

The Benchmark Index is widely distributed under the ticker symbol SPUHYBDT.

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S&P Dow Jones Indices has entered into a non-transferable, non-exclusive license agreement granting IDG and certain of its affiliated or subsidiary companies, in exchange for a fee, the right to use the iBoxx USD Liquid High Yield Index, which is owned and published by S&P Dow Jones Indices, in connection with certain securities, including the ETFs.

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