

# **S&P U.S. High Yield Corporate Bond Strategy Indices** *Methodology*

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# Introduction

## Highlights

**S&P U.S. High Yield Select Corporate Bond Index.** The index is designed to measure the performance of U.S. high yield corporate bonds with potentially greater liquidity. The index is market value weighted.

**S&P U.S. High Yield Low Volatility Corporate Bond Index.** The index is designed to measure the performance of U.S. high yield corporate bonds with potentially greater liquidity and lower volatility. The index is modified market value weighted with a 3% cap on any single issuer.

The indices are comprised of bonds from the S&P U.S. High Yield Corporate Bond Index that meet certain criteria as defined in *Eligibility Criteria and Index Construction* that act as proxies for liquidity and low volatility.

The indices undergo a rebalancing process once a month, with the intent of keeping the index current.

The indices are rules based, although the Index Committee reserves the right to exercise discretion, when necessary. The hallmark of a rules-based index is transparency and, broadly speaking, predictability. As an aide to transparency, this document sets out the rules by which the indices are governed, index calculation and management procedures, and the various formulae used to calculate index returns and other statistics.

This methodology was created by S&P Dow Jones Indices to achieve the aforementioned objective of measuring the underlying interest of the indices governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of S&P Dow Jones Indices so that the indices continue to achieve their objective.

# Eligibility Criteria and Index Construction

## Index Eligibility

For each index, index bonds are drawn from the constituent bonds of the S&P U.S. High Yield Corporate Bond Index (the “underlying universe index”).

For information on the S&P U.S. High Yield Corporate Bond Index, please refer to the S&P Global Bond Indices methodology available at [www.spdji.com](http://www.spdji.com).

## S&P U.S. High Yield Select Corporate Bond Index

The index is constructed according to the following steps:

1. **Create the Base Universe.** Bonds in the underlying universe index that satisfy the following criteria are selected and form the base universe:
  - **Coupon Type.** Fixed-to-float and zero coupon bonds are excluded.
  - **Hybrid Securities.** Hybrid securities, securities allowing deferred interest payments, Trust Preferred securities and securities with Tier Capital Codes of AT1, CT1, ST1, ST2, ST3, T1C, T1I, T2, T2L, and T2U are excluded.<sup>1</sup>
  - **Option Adjusted Spread (OAS).** Bonds must have a positive OAS value over the U.S. government bond curve.
  - **Average Score from Credit Rating (ASCR).** The ASCR must be less than 90.5.

*For details regarding the calculation of ASCR, please refer to Appendix II.*

2. **Final Index Composition.** Bonds in the base universe that satisfy the following criteria are selected and form the S&P U.S. High Yield Select Corporate Bond Index:
  - **Size.** Current amount outstanding must be greater than US\$ 400 million.<sup>2</sup>
  - **Spread Duration.** Spread Duration must be greater than or equal to 0.5.
  - **OAS Rank.** Bonds must have an OAS rank percentage equal to or less than 95%:
    - Bonds in the Base Universe are ranked by OAS values in ascending order.
    - OAS rank percentage is calculated by dividing the rank by the number of bonds in the Base Universe:
$$OAS\_Rank\_ \%_{bond\ i} = \frac{OAS\_Rank_{bond\ i}}{\# \text{ of bonds in Base Universe}}$$
  - **Issuer’s High Yield Bond Issuances.** The amount of high yield bonds issued by the issuer must be greater than or equal to US\$ 1 billion. This is calculated as the sum of the current amount outstanding for all bonds by issuer in the S&P U.S. High Yield Corporate Bond Index.<sup>3</sup>

<sup>1</sup> See Appendix I for Tier Capital Code definitions.

<sup>2</sup> For history prior to 2013, bond size had to be greater than the median size for all bonds in base universe.

<sup>3</sup> For history prior to 2013, the size of high yield bonds issued by the same issuer had to be greater than or equal to the median of the issuer size for all bonds in the base universe.

- **Age or Size.** Bond age must be equal to or less than five years or current amount outstanding must be greater than or equal to US\$1 billion.<sup>4</sup> Bond age is calculated as follows:

$$\text{Bond Age} = \frac{\text{Rebalancing Reference Date}^5 - \text{Bond Issue Date}}{365.25}$$

## S&P U.S. High Yield Low Volatility Corporate Bond Index

The index is constructed according to the following steps:

1. **Calculate Marginal Contribution of Risk (MCR).** MCR for all bonds in the S&P U.S. High Yield Select Corporate Bond Index is calculated as follows:

- Calculate the market value weight of each bond in the S&P U.S. High Yield Select Corporate Bond Index:

$$\text{Market\_Value\_}\%_{\text{bond } i} = \frac{\text{Market\_Value}_{\text{bond } i}}{\sum_i \text{Market\_Value}_{\text{bond } i}}$$

- Calculate the adjusted average OAS for the S&P U.S. High Yield Select Corporate Bond Index ( $\text{AAOAS}_{su}$ ):

$$\text{AAOAS}_{su} = \frac{\sum_i (\text{OAS}_{\text{bond } i} * \text{Spread\_Duration}_{\text{bond } i} * \text{Market\_Value\_}\%_{\text{bond } i})}{\sum_i (\text{Spread\_Duration}_{\text{bond } i} * \text{Market\_Value\_}\%_{\text{bond } i})}$$

- Calculate MCR for each bond in the S&P U.S. High Yield Select Corporate Bond Index:

$$\text{MCR}_{\text{bond } i} = (\text{OAS}_{\text{bond } i} - \text{AAOAS}_{su}) * \text{Spread\_Duration}_{\text{bond } i}$$

- Rank bonds in the S&P U.S. High Yield Select Corporate Bond Index by MCR in ascending order.
- Calculate MCR\_Rank\_% for each bond:

$$\text{MCR\_Rank\_}\%_{\text{bond } i} = \frac{\text{MCR\_Rank}_{\text{bond } i}}{\# \text{ of bonds in the S\&P U.S. High Yield Select Corporate Bond Index}}$$

2. **Final Index Composition.** Bonds from the S&P U.S. High Yield Select Corporate Bond Index with MCR\_Rank\_% between 0 and 50% (including 50%) are selected and form the S&P U.S. High Yield Low Volatility Corporate Bond Index. Bonds selected for the index at the last rebalancing that are also part of the current rebalancing's S&P U.S. High Yield Select Corporate Bond Index remain eligible and are selected for index inclusion if their S&P U.S. High Yield Select Corporate Bond Index MCR\_Rank\_% is between 0 and 60% (including 60%).

## Weighting Scheme

**S&P U.S. High Yield Select Corporate Bond Index.** Index bonds are market value weighted.

**S&P U.S. High Yield Low Volatility Corporate Bond Index.** Index bonds are market value weighted, subject to an issuer weight cap whereby any issuer that exceeds 3% of the market value weight of the index is capped at 3%. The excess market value over the 3% cap is redistributed on a pro-rata basis to all the index bonds of the other issuers that are below the 3% cap. The process is repeated until no issuer exceeds the 3% limit. The 3% issuer cap is applied each month on the rebalancing reference date as the index undergoes the rebalancing process.

<sup>4</sup> For history prior to 2013, bond age had to be less than or equal to five years or the bond size had to be within 20% of the largest issues in base universe.

<sup>5</sup> Prior to the December 20, 2016, the rebalancing date was used.

## Pricing

Thomson Reuters is the designated pricing source. Bonds that are not priced by Thomson Reuters are not eligible for index inclusion.

**S&P U.S. High Yield Select Corporate Bond Index.** Index bonds are priced using the bid price.

**S&P U.S. High Yield Low Volatility Corporate Bond Index.** New additions to the index enter at the ask price during the pro-forma period and are priced using the bid price starting on the first day of the new composition. For all other bonds, bid pricing is used.<sup>6</sup>

## Index Calculations

The total return is calculated by aggregating the interest return, reflecting the return due to paid and accrued interest, and price return, reflecting the gains or losses due to changes in the end-of-day price and principal repayments.

*For further details regarding Index Calculations, please refer to S&P Dow Jones Indices' Fixed Income Index Mathematics Methodology available at [www.spdji.com](http://www.spdji.com).*

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<sup>6</sup> Prior to December 20, 2016, only bid prices were used.

# Index Maintenance

## Monthly Rebalancing

The indices are rebalanced monthly.

The rebalancing reference date is three business days prior to the last business day of the month. On this date, the composition of the underlying universe index (i.e. the S&P U.S. High Yield Corporate Bond Index) is observed. All terms and conditions and pricing data required to rebalance the indices for the subsequent month are also obtained as of the rebalancing reference date.<sup>7</sup> Any market events after this date that affect the constituent membership are reflected on the next rebalancing.

Additions, deletions and other changes to the indices arising from the monthly rebalancing are made provided the security's reference information and pricing are available by designated pricing and data providers on the rebalancing reference dates.<sup>8</sup>

Changes to the indices are published on the announcement date and become effective on the rebalancing date. Information related to the rebalancing is obtained and disseminated after the close of business.

Rebalancing Schedule	
Rebalancing Frequency	Monthly
Rebalancing Date	Last day of the rebalancing period (T)
Announcement Date	T-2
Rebalancing Reference Date	T-3

*All days reflect after the close and count business days*

## Ongoing Maintenance

The indices are also reviewed on an ongoing basis to account for the following:

- When an index bond is in default or misses an interest payment, the price reported by the pricing source is used. However, the Index Committee may determine that the bond be removed from the index at a different price and may specify a price of 0.00. The decision of the Index Committee is final.
- If an index bond is no longer priced by the pricing source, the last available price is used. However, the Index Committee may determine that a different price be used. The decision of the Index Committee is final. For clarity, index bonds that are no longer priced by the pricing source fail to meet the pricing availability factors and are removed at the next rebalancing date. If the bond is priced for at least one of the five business days prior to the rebalancing announcement date, the bond remains in the index. Otherwise, it is removed from the index at the subsequent rebalancing date.

## Currency of Calculation

The indices are calculated in U.S. dollars.

<sup>7</sup> Prior to December 20, 2016, the composition of the underlying universe index and its terms and conditions data were observed three business days prior to the last business day of the month, and the pricing data were as of the last business day of the month.

<sup>8</sup> Terms and conditions, and pricing data are subject to Thomson Reuters data availability.



### Base Dates and History Availability

Index history availability, base dates and base values are shown in the table below.

Index	Launch Date	First Value Date	Base Date	Base Value
S&P U.S. High Yield Select Corporate Bond Index	01/27/2017	12/30/2016	12/30/2016	100
S&P U.S. High Yield Low Volatility Corporate Bond Index	12/20/2016	01/31/2000	01/31/2000	100

# Index Governance

## Index Committee

S&P Dow Jones Indices' Fixed Income Index Committee maintains the indices. All committee members are full-time professionals at S&P Dow Jones Indices. Meetings are held quarterly and whenever deemed appropriate.

The Index Committee oversees the management of the indices, including determinations of intra-rebalancing changes, maintenance and inclusion policies, and other matters affecting the maintenance and calculation of the indices.

In fulfilling its responsibilities, the Index Committee has full and complete discretion to (i) amend, apply, or exempt the application of index rules and policies as circumstances may require and (ii) add, remove, or by-pass any bond in determining the composition of an index.

The Index Committee may rely on any information or documentation submitted to it or gathered by it that the Index Committee believes to be accurate. The Index Committee reserves the right to reinterpret publicly available information and to make changes to the indices based on a new interpretation of that information at its sole discretion. All Index Committee discussions are confidential.

The Index Committee is separate from and independent of other analytical groups at S&P Global. In particular, the Index Committee has no access to or influence on decisions by S&P Global Ratings analysts.

*For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Fixed Income Policies & Practices document located on our Web site, [www.spdji.com](http://www.spdji.com).*

# Index Policy

## Announcements

Announcements of any relevant information pertaining to the indices are made at approximately 06:00 PM New York Time. Press releases are posted on the S&P Dow Jones Indices Web site at [www.spdji.com](http://www.spdji.com).

## Holiday Schedule

The indices are calculated when the Securities Industry and Financial Markets Association (SIFMA®) declares the U.S. fixed income markets to be open.

*A complete holiday schedule for the year is available at [www.spdji.com](http://www.spdji.com).*

## Index Releases

Releases are issued by S&P Dow Jones Indices at the end of the business day. The release time is generally 06:00 PM New York Time.

## Recalculation Policy

S&P Dow Jones Indices reserves the right to recalculate an index under certain limited circumstances. S&P Dow Jones Indices may choose to recalculate and republish an index if it is found to be incorrect or inconsistent within two trading days of the publication of the index level in question for one of the following reasons:

1. Index methodology event
2. Late announcement
3. Revised source data

Any other restatement or recalculation of an index is only done under extraordinary circumstances to reduce or avoid possible market impact or disruption as solely determined by the Index Committee.

*For more information on the recalculation policy please refer to S&P Dow Jones Indices' Fixed Income Policies & Practices document located on our Web site, [www.spdji.com](http://www.spdji.com).*

*For information on Calculations and Pricing Disruptions, Expert Judgment and Data Hierarchy, please refer to S&P Dow Jones Indices' Fixed Income Policies & Practices document located on our Web site, [www.spdji.com](http://www.spdji.com).*

# Index Dissemination

Index levels are available through S&P Dow Jones Indices' website at [www.spdji.com](http://www.spdji.com), major quote vendors (see codes below), numerous investment-oriented websites, and various print and electronic media.

## Tickers

Total Return Index	Ticker
S&P U.S. High Yield Select Corporate Bond Index	SPUSHYST
S&P U.S. High Yield Low Volatility Corporate Bond Index	SPUSHLVT

## FTP

Daily index levels and index data are available via FTP subscription.

*For product information, please contact S&P Dow Jones Indices, [www.spdji.com/contact-us](http://www.spdji.com/contact-us).*

## Web site

*For further information, please refer to S&P Dow Jones Indices' Web site at [www.spdji.com](http://www.spdji.com).*

# Appendix I

## Definition of Terms

**Option Adjusted Spread (OAS).** The OAS is the spread over the U.S. government bond curve that the investor receives for assuming various risks net of the cost of the embedded option. OAS is calculated applying a Hull-White one factor short rate model with a volatility term structure fitted to a selected set of ATM swaption volatilities.

**Spread Duration.** The sensitivity of a bond's price with embedded options to a change in its OAS.

**Tier Capital Codes.** Tier Capital Codes are defined as follows:

Tier Capital Code	Definition
AT1	Additional Tier 1 Capital (Basel III)
CT1	Common Equity Tier 1 (Basel III)
ST1	Tier 1 (Solvency II)
ST2	Tier 2 (Solvency II)
ST3	Tier 3 (Solvency II)
T1C	Core Tier 1 Capital (Basel II)
T1I	Innovative Tier 1 (Basel II)
T2	Tier 2 Capital (Basel III)
T2L	Lower Tier 2 Capital (Basel II)
T2U	Upper Tier 2 Capital (Basel II)

## Appendix II

### Calculation of Average Score from Credit Rating

Ratings from each ratings agency are converted to numeric values as detailed in the table below. The Average Score from Credit Rating (ASCR) is calculated as the arithmetic average of the numeric values of the available ratings. If ratings are available from all three ratings agencies, the average score will be calculated from all three ratings. If only two of the ratings agencies rate a bond, the average score is based on an average of the two. If only one rating is available, the average score is the numeric value of that one rating.

S&P	Moody's	Fitch	Score
AAA	AAA	AAA	100
AA+	AA1	AA+	99
AA	AA2	AA	98
AA-	AA3	AA-	97
A+	A1	A+	96
A	A2	A	95
A-	A3	A-	94
BBB+	BAA1	BBB+	93
BBB	BAA2	BBB	92
BBB-	BAA3	BBB-	91
BB+	BA1	BB+	90
BB	BA2	BB	89
BB-	BA3	BB-	88
B+	B1	B+	87
B	B2	B	86
B-	B3	B-	85
CCC+	CAA1	CCC+	84
CCC	CAA2	CCC	83
CCC-	CAA3	CCC-	82
CC	CA	CC+	81
C	CA1	CC	80
	CA2	CC-	79
	CA3	C+	78
		C	77
		C-	76

# Appendix III

## Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Change	Effective Date (After Close)	Methodology	
		Previous	Updated
Additional Index Eligibility Exclusions:  S&P U.S. High Yield Select Corporate Bond Index	02/28/2017	--	Hybrid securities, securities allowing deferred interest payments, Trust Preferred securities and securities with Tier Capital Codes of AT1, CT1, ST1, ST2, ST3, T1C, T1I, T2, T2L, and T2U are excluded

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