

SSGA US Large Cap Low Volatility Index (SSGALLV)

SSGA US Small Cap Low Volatility Index (SSGASLV)

Index Methodologies

Version 1.0
Valid from
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1. Index summary

Factsheet	
Full name	SSGA US Large Cap Low Volatility Index (“Large Cap Index”) SSGA US Large Cap Low Volatility Index (TR) (“Large Cap Index”) SSGA US Small Cap Low Volatility Index (“Small Cap Index”) SSGA US Small Cap Low Volatility Index (TR) (“Small Cap Index”)
Index Type	Large Cap Price Return (SSGALLV) Large Cap Gross Total Return (SSGALLVT) Small Cap Price Return (SSGASLV) Small Cap Gross Total Return (SSGASLVT)
Eligible stocks	<i>Large Cap Index:</i> Common stocks of the largest 1000 U.S. companies ranked by market capitalization that are listed on U.S. national securities exchanges, with applicable liquidity screens <i>Small Cap Index:</i> Common stocks of the next 2000 largest U.S. companies ranked by market capitalization that are listed on U.S. national securities exchanges, with applicable liquidity screens
Number of constituents	Not predefined
Weighting	Factor weighted : Inverse proportion of variance
Index Rebalance Determination Date	Annually ten (10) business days prior to last business day of March
Publication Date of the rebalance	Announced annually five (5) business days prior to last business day of March
Effective date of the rebalance	Effective annually after the close of the last business day of March
Calculation frequency	Price Return: Every 15 seconds between 09:30 & 18:00 ET Gross Total Return: Once-a-day between 18:15 ET & 19:00 ET [Official Close based upon U.S. equity primary exchange closes from 4 PM ET]
Index Live date	November 30, 2016
Historic (back-tested) data available since	March 31, 2005
Base level	SSGA US Large Cap Low Volatility Index (PR): 425.28 SSGA US Large Cap Low Volatility Index (TR): 332.95 SSGA US Small Cap Low Volatility Index (PR): 319.98 SSGA US Small Cap Low Volatility Index (TR): 258.26
Proposed Derivatives and Linked products	SPDR SSGA US Large Cap Low Volatility Index ETF (LGLV) SPDR SSGA US Small Cap Low Volatility Index ETF (SMLV)

<i>Bloomberg code</i>	Large Cap Index: SSGALLV INDEX / SSGALLVT INDEX Small Cap Index: SSGASLV INDEX / SSGASLVT INDEX
<i>Reuters code</i>	Large Cap Index: .SSGALLV / .SSGALLVT Small Cap Index: .SSGASLV / .SSGASLVT
<i>Launch date</i>	November 23, 2016

2. Governance and disclaimer

Index methodology changes

State Street Global Advisors is the index provider. The index methodology may be supplemented, amended in whole or in part, revised or withdrawn at any time by the index provider. Supplements, amendments, revisions and withdrawals may lead to changes to the composition of the index.

Index calculation agent

NYSE Arca is the index calculation agent of the index. The index calculation agent is responsible for the day-to-day management, calculation, and distribution of the index.

Ownership and trademarks

State Street Global Advisors is the owner of all intellectual and other property rights to the index, including the name and methodology of the index.

3. Publication

3.1 The opening, intraday and closing or daily publication of index values.

Opening

The first index level is calculated and published around 9:30 ET, when equities open for regular session trading in the U.S. The calculation of that level utilizes the most updated trade prices at that moment. In the case of constituents that have a non-traded, halted or suspended status, or have not opened for the current day, the previous day's reference prices (primary exchange official closes) or estimated prices (for IPOs, buyouts and swap offers) are used.

Dissemination frequency

The level of the price return index published every 15 seconds to the NYSE Global Index Feed (NYSE GIF). The calculated index levels incorporate the latest traded price of each constituent from within the regular trading session, normally 09:30 to 16:00 ET. The index only holds equities listed and traded in the U.S., and thus, intraday calculations of the index would incorporate trades on a consolidated level, from all exchanges and venues including those not designated as the official primary exchange.

The price return index is calculated from 09:30 until 18:00 ET on those days specified as index business days. Index business days will be classified as days on which the U.S. national securities exchanges are open for trading.

The gross total return index will be calculated on an end-of-day basis and its closing level will be published after market close.

Closing level

The closing level is the last level disseminated on the trading day and uses the official close prices from the primary listing market for each constituent. For constituents that have not traded or opened for the current day, the previous day's reference prices (primary exchange official closes) or estimated prices (for IPOs, buyouts and swap offers) are used instead. For securities that are halted or suspended status on a given day, the last traded prices are used. In the case of exceptional market conditions, the index may utilize other prices in the calculation of the official closing level, as indicated below in Section 3.2.

Sources of Data

The Consolidated Tape (CTS/UDTF) is the primary market data source for U.S. equity real-time and closing prices. Additional sources of data less commonly used include market data vendors, company announcements, exchange announcements, and other official sources.

3.2 Exceptional market conditions and corrections

The publication of the opening level of the index may be delayed or suspended in the event the index calculation agent believes that circumstances prevent the proper calculation of the index.

If index constituent prices are cancelled, the index will not be recalculated unless the index calculation agent decides otherwise.

If incorrect price or corporate action data affects an index daily open or close, it is corrected retroactively as soon as possible and all revisions are communicated out to the public and market data vendors.

There is the possibility of an exchange or market-wide event resulting in the normal closing auction not going off or official closing prices not being available. In those situations, the index will take guidance from the respective exchange(s) and address on an event-by-event basis. Exchange or market-wide events include, but are not limited to, the following:

- Volatility Halts
 - LULD (Limit Up / Limit Down)
 - Circuit Breaker
- Technological Problems / Failures
- Natural Disaster or Other BCP-Related Event

3.3 Announcement policy

Announcement policy

Changes to the index methodology will be announced and distributed by SSGA. The current index methodology can be found on [INSERT LINK]

Changes to the index as a result day-to-day management of the index, including index rebalances will be announced and distributed by NYSE Arca via www.nyxdata.com and <ftp2.nyxdata.com>.

As a general rule the announcement periods that are mentioned below will be applied. However, urgently required corporate action treatments, often resulting from late notices from the relevant company or exchange, may require the index calculation agent to deviate from the standard timing.

Inclusion of new constituents

The inclusion of new companies in the index will typically only occur during the index rebalances, although there could be exceptions based on a specific corporate action affecting a current constituent or index methodology changes made by the index provider. The inclusion of the new company will be announced at least five trading days before the effective date of the actual inclusion. For example, for

the rebalance effective for April 3, 2017, the announcement would occur after the close of trading on March 24, 2017.

Removal of Constituents

Components would be removed from the index as a result of periodic corporate actions, index rebalances, and index methodology changes made by the index provider, as applicable. All removals will be announced at least five trading days before the effective date of the removal. It should be noted that in the case of mergers and acquisitions, every effort will be made to remove the company at some reasonable time ahead of the last day of trading in the acquired company. There will be certain situations and corporate actions that would require a removal of a company with less than five trading days of notice. In those cases, the removal would be announced no later than 15:00 ET on the trading day preceding the market open of effective date of removal.

Corporate actions

In case of a corporate action event that could affect one or more constituents, the index calculation agent will inform the market about the intended treatment of the event in the index shortly after the firm details have become available and have been confirmed. When possible, the corporate action will be announced, even if not all information is known, at least five trading days before the effective date of the action. Once the corporate action has been effectuated, the index calculation agent will confirm the changes in a separate announcement.

Index rebalances and index performers: publication of new selection

The new composition of the index, including the companies to be a part of the index and their corresponding shares, will be announced at least five trading days before the effective date on www.nyxdata.com and [ftp2.nyxdata.com](ftp://ftp2.nyxdata.com).

4. Calculation

4.1 Calculation of the price index

The index is calculated on a Price Return and Gross Total Return basis. The current index level would be calculated by dividing the current modified index market capitalization based on security weights as determined by the construction methodology outlined in section 5.2 by the index divisor. The divisor was determined off of the initial capitalization base of the index and the base level. The divisor is updated as a result of corporate actions and composition changes.

The Gross Total Return calculation incorporates regular cash dividends paid in the underlying constituents and reinvests those distributions into the index at the open of the dividend ex-date.

4.2 Currency Conversion

The index is calculated and published in USD, and it may be calculated and published in other currencies.

5. Index rebalances

5.1 General aim of reviews and frequency

General aim of the periodical index rebalances

Index Objective: The SSGA US Large Cap Low Volatility Index is designed to track the performance of U.S. large cap companies that exhibit low volatility. The SSGA US Small Cap Low Volatility Index is designed to track the performance of U.S. small cap companies that exhibit low volatility. Volatility is a statistical measurement of the magnitude of movements in a stock's price over time.

The general aim of the periodical index rebalances is to ensure that the selection of the constituents continues to reflect the underlying index objective. Each index is rebalanced annually to ensure that the index components continue to meet the continued inclusion requirements.

Frequency

The reviews become effective after the close of trading on last business day of March effective for the market open on the first business day of April annually.

The announcement will be made five trading days before the effective date of the rebalance.

5.2 Index universe and selection principle

Index Universe

Large Cap Index: The eligible universe from which index constituents will be selected comprises the common stocks (of all share classes) of the largest 1000 U.S. companies ranked by total market capitalization that are listed on U.S. national securities exchanges and have an average monthly trading volume over six months of at least 250,000 shares, as of the Index Rebalance Determination date. Eligible constituents shall have at least 50% of issued shares available to trade (Free Float Factor greater than 50%).

Small Cap Index: The eligible universe from which index constituents will be selected comprises the common stocks (of all share classes) of the U.S. companies ranked from 1,001 to 3,000 by total market capitalization that are listed on U.S. national securities exchanges and have an average monthly trading volume over six months of at least 250,000 shares, as of the Index Rebalance Determination Date. Eligible constituents shall have at least 50% of issued shares available to trade (Free Float Factor greater than 50%).

The stocks within each index universe are assigned one proprietary sector classification among the following sectors:

1. Energy

2. Technology
3. Health Care
4. Industrials
5. Financials
6. Consumer Staples
7. Telecommunications
8. Consumer Discretionary
9. Materials
10. Utilities

Selection of constituents

1. At each annual Index Rebalance Determination Date, the securities in the index universe are categorized to one of the 10 proprietary sectors shown above.
2. The index universe is ranked by volatility, from low to high, within each sector according to the following definition:

Definition of Volatility: each security's volatility is defined as monthly total return volatility σ_i :

$$\sigma_i = \sqrt{\frac{1}{N-1} \sum_{t=1}^{N=60} (r_{it} - \bar{r}_i)^2}$$

Where:

N = total number of trailing monthly returns

r_{it} is stock i's monthly total return in month t;

\bar{r}_i is stock i's average monthly total returns over the past 60 month.

Where a stock has at least 5 years of monthly returns, N=60

Where a stock has at least 2.5 years of monthly returns, but less than 5 years of monthly returns, N= total available monthly returns

When a stock has less than 2.5 years of monthly returns, then stock's volatility will be equal to the average volatility of the stocks in the same sector in the index universe.

3. Select stocks that rank in the top (i.e., stocks with lowest volatility) in each sector until the total free float market cap of the selected stocks reaches 30% of that sector, including the first stock that brings the combined total free float market cap above 30% of that sector.
4. Selected stocks are then weighted by the inverse of the variance (the square of the volatility), i.e., $1/(\sigma_i^2)$, where σ_i is the volatility for stock i calculated at step 2.
5. Normalize the weights calculated in step 4 such that security weights sum to 100%.
6. For each security that is selected perform the following liquidity tests and adjust weights accordingly:
 - a. Any constituent index weight greater than 5% is limited to 5%. Any weight above 5% is reallocated on a pro rata basis among remaining securities in the same sector that have weights below 5%.

- b. Any constituent's float adjusted index weight is limited to 20 times the stock's float adjusted investment universe weight. Any weight in excess of this limit is reallocated on a pro rata basis among remaining securities in the same sector that have weights under the limits set forth in this Step 6.
- c. Pro rata weight redistribution is achieved by utilizing the most recent previously calculated weights and calculating an overall allocation of weight within the sector in question.
- d. In the event there are no securities within a sector that can be reallocated any excess weight of a security from the sector, the excess weight will be allocated to all qualifying securities across the entire index.
- e. The liquidity tests described in this Step 6 are an iterative process and are performed until all constituents pass both tests.

5.3 Periodical update of weighting

Update of number of shares

The number of shares included in the index for each constituent at each index rebalance effective date is determined by the construction methodology outlined in section 5.2.

Maintenance of the Index

The share quantity of each component stock in the index remains fixed between index rebalance effective dates except in the event of certain types of corporate actions such as stock splits, reverse stock splits, stock dividends. In the event of a merger between two components, the share quantity of the surviving entity may be adjusted to account for any stock issued in the acquisition. NYSE Arca may substitute stocks or change the number of stocks included in the index, based on changing conditions in the industry or in the event of certain types of corporate actions, including mergers, acquisitions, spin-offs, and reorganizations.

6. Corporate Actions

6.1 General

The index may be adjusted in order to maintain the continuity of the index level and the composition. The underlying aim is that the index continues to reflect as closely as possible the value of the underlying portfolio and index objective.

Adjustments take place in reaction to events that occur with constituents in order to mitigate or eliminate the effect of that event on the performance of the index.

Changes related to specific corporate action events in which share positions need to be adjusted in the index will be reflected as soon as practicably possible.

6.2. Removal of constituents

Any stock deleted from the index as a result of a corporate action such as a merger, acquisition, spin-off, delisting or bankruptcy is not replaced by any new stock until the next index rebalancing date. In certain circumstances, the index calculation agent may decide to add another company into the index as a result of the pending removal of a current constituent. This action would be taken while considering the interests of affected parties and would typically only be a result of a certain type of corporate action, such as an acquisition where part of the merger proceeds is paid in the stock of another company.

If a company is removed from the index, the divisor will be adjusted to maintain the index level.

6.2.1. Mergers and Acquisitions

Merger or acquisition between members of the index: In the event a merger or acquisition occurs between members of the index, the acquired company is deleted from the index and its market capitalization moves to the acquiring company's stock, according to the merger terms and depending on the portion of proceeds paid in the stock of the acquirer.

Merger or acquisition between a member and a non-member of the index: A non-member is defined as a company that is not a current constituent of the index. A merger or acquisition between one member of the index and one non-member can take two forms:

(1) The acquiring company is a member of the index and the acquired company is not. The acquiring company's shares will be adjusted when the merger is deemed effective.

(2) The acquiring company is not a member, but the acquired company is a member. The acquired company is removed from the index and the acquiring company may be considered for inclusion at the next rebalance, if it meets the initial inclusion criteria. As in any other addition, these actions would be announced at least five trading days ahead of effectiveness.

6.2.2 Suspensions and company distress

Immediately upon a company filing for bankruptcy, an announcement will be made to remove the stock from the index effective for the next business day following the bankruptcy. If the stock is trading on an over-the-counter (OTC) market, the last trade or price on that market is utilized as the deletion price on that day.

If the stock does not trade on the relevant exchange between the bankruptcy announcement and the deletion effective date, the stock may be deleted from the index in that corporate action with a presumed market value of \$0.

6.2.3 Price sources

In the event that the trading in shares is suspended or halted, the last known price established during regular daytime trading on the primary exchange will be used. Depending on the particular situation, the index may value the security at a price of \$0 for purposes of index calculation and/or index corporate action. This would be applicable for certain extreme cases such as a company bankruptcy or severe distress where the security is non-transactable.

6.3 *Split-up /spin off*

Spun-off companies will be added to the index at the time of the event. The parent company will not be removed from the index at the time of the event.

6.4. *Dividends*

6.4.1. Distinction ordinary and special dividend

The price return index will be adjusted for dividends that are special in nature, typically through a price adjustment and corresponding divisor change.

To decide whether a dividend should be considered a special dividend the index calculation agent will use the following criteria:

- a) the declaration of a company of a dividend additional to those dividends declared as part of the company's normal results and dividend reporting cycle; merely an adjustment to the timing of the declaration of a company's expected dividend would not be considered as a special dividend circumstance; or
- b) the identification of an element of a dividend paid in line with a company's normal results and dividend reporting cycle as an element that is unambiguously additional to the company's normal payment.

For the purpose of clarification, adjustments will not be made for the following situations, specifically in the Price Return Index:

1. Payment of ordinary dividends, irrespective of how they are financed;
2. Issue of redeemable shares or any other entitlement in lieu of an ordinary dividend; or
3. Unexpected increase or decrease, resumption or cessation, or change in frequency to an ordinary dividend.

6.5. Rights issues and other rights

In the event of a rights issue, the price is adjusted for the value of the right before the open on the ex-date, and the shares are increased according to the terms of the offering. The adjustment assumes that the rights offering is fully subscribed. The amount of the price adjustment is determined from the terms of the rights issue, including the subscription price, and the price of the underlying security. Adjustments are made only if the rights represent a positive value, or are in-the-money, or alternatively, represent or can be converted into a tangible cash value.

6.6 Bonus issues, stock splits and reverse stock splits

For bonus issues, stock splits and reverse stock splits, the number of shares included in the index will be adjusted in accordance with the ratio given in the corporate action. Since the event will not change the value of the company included in the index, the divisor will not be changed because of such event.

6.7 Changes in number of shares

No adjustments will be made to the index for share issuances and share repurchases between index rebalances.

7. Index Formula

7.1 Index calculation formula

The index is calculated using the following formula:

$$I_t = \frac{\sum_i^N Q_{i,t} M_{i,t} C_{i,t}}{DIV}$$

Where:

t day of calculation

N number of constituent equities in index

$Q_{i,t}$ number of shares based on security weights as determined by the construction methodology outlined in section 5.2

$M_{i,t}$ multiplier of equity i on day t

$C_{i,t}$ price of equity i on day t

DIV current index divisor on day t