

# **S&P Low Volatility Indices** *Methodology*

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# Introduction

## Index Objective and Highlights

S&P Dow Jones Indices' Low Volatility family of indices is designed to measure the performance of the least volatile stocks within their respective benchmark index. Constituents are weighted relative to the inverse of their corresponding volatility, with the least volatile stocks receiving the highest weights.

## Family of Indices

The Low Volatility family of indices is composed of:

- **S&P 500 Low Volatility Index** measures the performance of the 100 least volatile stocks in the S&P 500.
- **S&P 500 Low Volatility Index (CAD Hedged)** measures the performance of an investment strategy that is long the S&P 500 Low Volatility Index hedged against the fluctuations of the U.S. Dollar versus Canadian Dollar (CAD).
- **S&P MidCap 400 Low Volatility Index** measures the performance of the 80 least volatile stocks in the S&P MidCap 400.
- **S&P SmallCap 600 Low Volatility Index** measures the performance of the 120 least volatile stocks in the S&P SmallCap 600.
- **S&P BMI Emerging Markets Low Volatility Index** measures the performance of the 200 least volatile stocks in the S&P Emerging Plus LargeMidCap Index, an S&P Global BMI sub-index.
- **S&P Emerging Markets Low Volatility Select Index** measures the performance of the 50 least volatile stocks in the S&P Emerging Plus LargeMidCap, an S&P Global BMI sub-index.
- **S&P BMI International Developed Low Volatility Index** measures the performance of the 200 least volatile stocks in the S&P Developed Ex. US & South Korea LargeMidCap Index, an S&P Global BMI sub-index.
- **S&P Europe 350 Low Volatility Index** measures the performance of the 100 least volatile stocks in the S&P Europe 350 Index.
- **S&P Eurozone Low Volatility Index** measures the performance of the 80 least volatile stocks in the S&P Eurozone BMI Index, an S&P Global BMI sub-index.
- **S&P Eurozone Low Volatility Index (USD Hedged)** measures the performance of a strategy that is long the S&P Eurozone Low Volatility Index hedged against the fluctuations of the Euro versus the U.S. Dollar (USD).
- **S&P Nordic Low Volatility Index** measures the performance of the 30 least volatile locally listed stocks in the S&P Nordic BMI.
- **S&P Southern Europe Low Volatility Index** measures the performance of the 25 least volatile locally listed stocks in the S&P Italy BMI, S&P Portugal BMI and S&P Spain BMI.
- **S&P Developed Asia Low Volatility Index** measures the performance of the 150 least volatile stocks in the S&P Asia Pacific LargeMidCap Index.
- **S&P Pan Asia Low Volatility Index** measures the performance of the 50 least volatile stocks in the S&P Pan Asia Ex-New Zealand LargeMidCap Index.
- **S&P Korea Low Volatility Index** measures the performance of the 50 least volatile stocks in the S&P Korea BMI.

- **S&P South Africa Low Volatility Index** measures the performance of the 40 least volatile stocks in the S&P South Africa Composite.
- **S&P EPAC Ex. Korea Low Volatility Index** measures the performance of the 200 least volatile stocks in the S&P EPAC Ex-Korea LargeMidCap Index.
- **S&P EPAC Ex. Korea Low Volatility Index (USD Hedged)** measures the performance of an investment strategy that is long the S&P EPAC Ex. Korea Low Volatility Index hedged against the fluctuations of the constituent currencies versus the U.S. Dollar (USD).<sup>2</sup>
- **S&P Japan 500 Low Volatility Index** measures the performance of the 100 least volatile stocks in the S&P Japan 500.
- **S&P Japan 500 Low Volatility Index (USD Hedged)** measures the performance of an investment strategy that is long the S&P Japan 500 Low Volatility Index hedged against the fluctuations of the Japanese Yen (JPY) versus the U.S. Dollar (USD).<sup>2</sup>
- **S&P Europe 350 Carbon Efficient Select Low Volatility Index** measures the performance of the 50 least volatile stocks in the S&P Europe 350 Carbon Efficient Select Index.
- **S&P Global Low Volatility Index** measures the performance of the 300 least volatile stocks in the S&P Global LargeMidCap, an S&P Global BMI sub-index.
- **S&P Developed Low Volatility Index** measures the performance of the 200 least volatile stocks in the S&P Developed LargeMidCap, an S&P Global BMI sub-index.
- **S&P/ASX 200 Low Volatility Index** measures the performance of the 40 least volatile stocks in the S&P/ASX 200.
- **S&P China A-Share Low Volatility Index** measures the performance of the 100 least volatile stocks in the combined universe of the S&P China A BMI and S&P China Venture Enterprise indices.

The indices are designed to serve as benchmarks for low volatility or low variance strategies in their respective regional or country stock market.

*For more information on the benchmark indices referred to above, please refer to the S&P U.S. Indices, S&P Global BMI, S&P/IFCI, S&P European Indices, S&P South Africa Composite, S&P Japanese Indices, S&P Global 1200 Carbon Efficient Select Index Series, and S&P/ASX Australian Indices Methodologies documents located on our Web site, [www.spdji.com](http://www.spdji.com).*

## Supporting Documents

This methodology is meant to be read in conjunction with supporting documents providing greater detail with respect to the policies, procedures and calculations described herein. References throughout the methodology direct the reader to the relevant supporting document for further information on a specific topic. The list of the main supplemental documents for this methodology and the hyperlinks to those documents is as follows:

Supporting Document	URL
S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology	<a href="#">Equity Indices Policies &amp; Practices</a>
S&P Dow Jones Indices' Index Mathematics Methodology	<a href="#">Index Mathematics Methodology</a>
S&P Dow Jones Indices' Float Adjustment Methodology	<a href="#">Float Adjustment Methodology</a>
S&P Dow Jones Indices' Global Industry Classification Standard (GICS) Methodology	<a href="#">GICS Methodology</a>
S&P Dow Jones Indices' Country Classification Methodology	<a href="#">Country Classification Methodology</a>

This methodology was created by S&P Dow Jones Indices to achieve the aforementioned objective of measuring the underlying interest of each index 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 index continues to achieve its objective.

# Eligibility Criteria

## Index Eligibility

For information on stock eligibility criteria and index management rules of the relevant parent indices, please refer to the *S&P U.S. Indices*, *S&P Global BMI*, *S&P/IFCI*, *S&P European Indices*, *S&P South Africa Composite*, *S&P Japanese Indices*, *S&P Global 1200 Carbon Efficient Select Index Series*, and *S&P/ASX Australian Indices Methodologies* documents located on our Web site at [www.spdji.com](http://www.spdji.com).

**Liquidity.** As of the rebalancing reference date, stocks must have a minimum three-month average daily value traded (3M ADVT) or six-month median daily value traded (6M MDVT) over and above their parent indices for the following indices:

Index	Minimum ADVT / MDVT (Buffer for Current Constituents)
S&P BMI International Developed Low Volatility	3M ADVT US\$ 3 million (US\$ 2.5 million)
S&P BMI Emerging Markets Low Volatility	3M ADVT US\$ 3 million (US\$ 2.5 million)
S&P Emerging Markets Low Volatility Select	3M ADVT US\$ 7 million (US\$ 6 million)
S&P Nordic Low Volatility	3M ADVT US\$ 1.5 million (US\$ 1.2 million)
S&P Southern Europe Low Volatility	3M ADVT EUR 5 million (EUR 4 million)
S&P Eurozone Low Volatility	3M ADVT EUR 3 million (EUR 2.5 million)
S&P Developed Asia Low Volatility	3M ADVT US\$ 3 million (US\$ 2.5 million)
S&P Pan Asia Low Volatility	3M ADVT US\$ 5 million (US\$ 4 million)
S&P Korea Low Volatility	3M ADVT KRW 1 billion (KRW 800 million)
S&P South Africa Low Volatility	6M MDVT ZAR 10 million (ZAR 8 million)
S&P EPAC Ex. Korea Low Volatility <sup>1</sup>	3M ADVT US\$ 3 million (US\$ 2.5 million)
S&P Japan 500 Low Volatility	3M ADVT JPY 300 million (JPY 250 million)
S&P Europe 350 Carbon Efficient Select Low Volatility	3M ADVT EUR 7 million (EUR 5.6 million)
S&P Global Low Volatility	3M ADVT US\$ 3 million (US\$ 2.5 million)
S&P Developed Low Volatility	3M ADVT US\$ 3 million (US\$ 2.5 million)
S&P/ASX 200 Low Volatility	3M ADVT AUD 2 million (AUD 1.5 million)
S&P China A-Share Low Volatility	3M ADVT RMB 20 million (RMB 18 million)

**Currency and Listing.** For the S&P Eurozone Low Volatility Index, stocks must trade in euros on Eurozone-domiciled exchanges. For the S&P Emerging Markets Low Volatility Select Index, local listed shares of companies domiciled in Africa (excluding South Africa), Latin America and the Middle East are excluded. However, those companies' developed-market listings, which include ADRs (only levels II and III) and GDRs, are included. If a company domiciled in one of the regions listed above (excluding South Africa) does not have any developed-market listings, then the company is excluded from the S&P Emerging Markets Low Volatility Select Index. The developed-market listings are first screened to ensure that they meet the liquidity criteria as detailed in *Eligibility Criteria*. Additionally, the volatilities for these developed-market candidates are calculated and analyzed as part of the index universe.

**Size.** For the S&P Europe 350 Carbon Efficient Select Low Volatility Index, stocks must have a minimum float market capitalization of US\$ 2.5 billion as of the rebalancing reference date. To be eligible for the S&P China A-Share Low Volatility Index, stocks must have a minimum float market capitalization of RMB 1 billion (RMB 900 million for current constituents) as of the rebalancing reference date. Moreover, stocks must not be designated as Special Treatment (ST or \*ST) by the Shanghai or Shenzhen Stock Exchanges.

<sup>1</sup> Prior to 2005, there was no liquidity minimum above the S&P Global BMI liquidity threshold.

## **Multiple Share Classes and Dual Listed Companies**

Each company is represented once by the Designated Listing. For more information regarding the treatment of multiple share classes, please refer to Approach B within the Multiple Share Classes section of the S&P Dow Jones Indices' Equity Indices Policies & Practices document.

The multiple share class treatment is not relevant to the S&P/ASX 200, S&P Japan 500 or the S&P Korea Low Volatility indices.

## **Securities Domiciled in Russia and India**

As defined by S&P Dow Jones Indices, companies domiciled in either Russia or India have their local listed shares excluded from the S&P BMI Emerging Markets, S&P Emerging Markets Low Volatility Select, and S&P Global Low Volatility indices. Indian local listed stocks are excluded from the S&P Pan Asia Low Volatility Index. However their developed market listings, which include ADRs (only levels II and III) and GDRs, are included. If the Russian and Indian companies do not have any developed-market listings, then they are excluded from the S&P BMI Emerging Markets, S&P Emerging Markets Low Volatility Select, S&P Pan Asia, and S&P Global Low Volatility indices' eligible universes. The developed-market listings are first screened to ensure that they meet the liquidity criteria as mentioned under *Eligibility Criteria*. Additionally, the volatilities for these developed-market candidates are calculated and analyzed as part of the index universe.

## **Mainland Chinese-Traded Stocks**

All mainland Chinese-trading stocks are excluded from the S&P BMI Emerging Markets, S&P Emerging Low Volatility Select, S&P Pan Asia, and S&P Global Low Volatility indices. However, any Hong-Kong listed shares included in the S&P Emerging Plus LargeMidCap and S&P Pan Asia Ex-New Zealand LargeMidCap are eligible for inclusion for the S&P BMI Emerging Markets, S&P Emerging Markets Low Volatility Select, S&P Pan Asia, and S&P Global Low Volatility indices.

## **Korean Stocks**

All Korean preferred stocks and KOSDAQ listed stocks are excluded from the S&P Korea Low Volatility Index. These stocks currently are eligible in the S&P Korea BMI. Stocks that reach their foreign ownership limit continue to be eligible for the S&P Korea Low Volatility Index provided the stocks remains in the S&P Korea BMI.

## **Other Stocks with Zero Float**

Any stock with an IWF (Investible Weight Factor) of zero is excluded from the S&P Low Volatility Indices.

*For more information on the Investible Weight Factor (IWF), please refer to S&P Dow Jones Indices' Float Adjustment Methodology.*

For a list of the countries with securities eligible for inclusion in each S&P Low Volatility index, please refer to *Appendix A*.

# Index Construction

## Approaches

There are two steps in the creation of the indices. The first is the selection of the companies; the second is the weighting of the index constituents, which is based on their respective inverse volatility.

## Constituent Selection

To be eligible for inclusion into the S&P Low Volatility indices, stocks must first become constituents of the respective underlying indices as outlined in the *Introduction* of this methodology. Additionally, to be eligible for the S&P 500, S&P MidCap 400 and S&P SmallCap 600 Low Volatility Indices, stocks must have been issued and trading for at least one calendar year leading up to the rebalancing reference date. Generally, a stock must have traded on all trading days in the 12 months (252 trading days for the US) leading up to the rebalancing reference date; however, Index Committee discretion may be used in situations where a stock was subject to a temporary trading halt during that period.

To be eligible for the S&P China A-Share Low Volatility Index, stocks must have been issued for at least one calendar year, with a minimum of 180 traded days in the trailing 12 months leading up to the rebalancing reference date.

To be eligible for the S&P BMI International Developed, S&P BMI Emerging Markets, S&P Emerging Markets Low Volatility Select, S&P Europe 350, S&P Eurozone BMI, S&P Nordic, S&P Southern Europe, S&P Developed Asia, S&P Pan Asia, S&P Korea, S&P South Africa, S&P EPAC Ex. Korea, S&P Japan 500, S&P Global, S&P Developed Low Volatility, and S&P/ASX 200 Low Volatility indices, each stock must have been issued and trading for at least one calendar year before becoming an index constituent. However, there is no minimum number of days that each stock must have actually traded.

The selection of index constituents is done as follows:

1. Using available price return data for the trailing one year of trading days leading up to each index rebalancing reference date, the volatilities of the constituents within each eligible universe are calculated.
2. Constituents meeting eligibility requirements as described under *Eligibility Criteria* are, then, ranked in descending order based on the inverse of the realized volatility. The top securities with the least volatility, as determined by each index's targeted constituent count (see *Family of Indices* section of *Introduction*) form the index.

The S&P Pan Asia Low Volatility Index is comprised of the 50 least volatile stocks in the eligible universe subject to a maximum number of 15 stocks per GICS Sector and a maximum number of 10 stocks per country. During each quarterly rebalancing, if a current index constituent is ranked in the top 20<sup>th</sup>-percentile of the total number of eligible stocks, it remains in the index. If not, the stock is deleted and the least volatile stock, that is not an index constituent, is added.

The S&P Korea Low Volatility Index is comprised of the 50 least volatile stocks in the eligible universe subject to a maximum number of 15 stocks per GICS Sector.

**Buffer Rule.** In order to reduce turnover, a 20% buffer rule based on realized volatility is applied to the security selection process at each rebalancing for the S&P Eurozone, S&P Developed Asia, S&P EPAC Ex. Korea, S&P South Africa Low Volatility, S&P Europe 350 Carbon Efficient Select, S&P Japan 500, S&P Global, S&P Developed Low Volatility, S&P/ASX 200 Low Volatility, and S&P China A-Share Low Volatility indices. Securities are selected as follow:

1. All securities ranked within the top 80% of the target stock count are automatically selected for the index.
2. Current index constituents not already selected in Step 1 that are within the top 120% of the target stock count are added to the index in rank order until the target stock count has been reached.
3. If, following Step 2, the target stock count has not been reached, non-constituent securities not already selected in Step 1 that are ranked from 80% to 100% of the target stock count are added to the index in rank order until the target stock count has been reached.

### Constituent Weightings

At each rebalancing, the weight,  $w$ , for each index constituent,  $i$ , is set inversely proportional to its volatility.

$$w_i = \frac{1}{\sum_{i=1}^N \frac{1}{Volatility_i}}$$

Where N refers to the index count, the index count for each index is as follows:

Index	Constituent Count
S&P 500 Low Volatility	100
S&P MidCap 400 Low Volatility	80
S&P SmallCap 600 Low Volatility	120
S&P BMI International Developed Low Volatility	200
S&P BMI Emerging Markets Low Volatility	200
S&P Emerging Markets Low Volatility Select	50
S&P Europe 350 Low Volatility	100
S&P Eurozone Low Volatility	80
S&P Nordic Low Volatility	30
S&P Southern Europe Low Volatility	25
S&P Developed Asia Low Volatility	150
S&P Pan Asia Low Volatility	50
S&P Korea Low Volatility	50
S&P South Africa Low Volatility	40
S&P EPAC Ex. Korea Low Volatility <sup>2</sup>	200
S&P Japan 500 Low Volatility	100
S&P Europe 350 Carbon Efficient Select Low Volatility	50
S&P Global Low Volatility	300
S&P Developed Low Volatility	200
S&P/ASX 200 Low Volatility	40
S&P China A-Share Low Volatility	100

Volatility is defined as the standard deviation of the security's daily price returns, in local currency, over the prior one year of trading days. It can be mathematically expressed as:

$$\sqrt{\frac{\sum_{i=1}^N (X_i - \bar{X})^2}{N - 1}}$$

<sup>2</sup> Prior to 2005, the constituent count was 100.

where:

$$X_i = \text{Price change} = \frac{P_t}{P_{t-1}} - 1$$

$P_t$  = Closing price of the stock on day  $t$

$P_{t-1}$  = Closing price of the stock on day  $t-1$

$t$  = 1 to  $N$

$\bar{X}$  = Average price change

$N$  = Number of trading days in a year based on local calendar

In the S&P Pan Asia Low Volatility Index, modifications are made to stock weights at each rebalancing to ensure diversification across individual stocks and countries. At each rebalancing, the weight for each index constituent is constrained between 0.05% and 3.0% and the weight of each country is capped at 20%.

In the S&P Korea Low Volatility Index, modifications are made to stock weights at each rebalancing to ensure diversification across individual stocks and sectors. At each rebalancing, the weight for each index constituent is constrained between 0.05% and 3.0% and the weight of each sector is capped at 30%.

### **Index Calculations**

The index is calculated by means of the divisor methodology used in all S&P Dow Jones Indices' equity indices.

*For more information on index calculations, please refer to the Non-Market Capitalization Weighted Indices section of S&P Dow Jones Indices' Index Mathematics Methodology.*

# Index Maintenance

## Rebalancing

Index	Effective Date (after the close of)	Reference Date (after the close of)
S&P 500, S&P MidCap 400, S&P SmallCap 600 and S&P Pan Asia Low Volatility	Third Friday of February, May, August, and November	Last trading dates of January, April, July and October, respectively
S&P BMI International Developed Low Volatility	Third Friday of March, June, September, and December	Last trading dates of February, May, August, November, respectively
S&P BMI Emerging Markets Low Volatility		
S&P Emerging Markets Low Volatility Select		
S&P Europe 350 Low Volatility		
S&P Eurozone Low Volatility		
S&P Nordic Low Volatility		
S&P Southern Europe Low Volatility		
S&P South Africa Low Volatility		
S&P Developed Asia Low Volatility		
S&P EPAC Ex. Korea Low Volatility		
S&P Japan 500 Low Volatility		
S&P Global Low Volatility		
S&P Developed Low Volatility		
S&P/ASX 200 Low Volatility		
S&P China A-Share Low Volatility		
S&P Korea Low Volatility	Third Friday of April and October	Last trading dates of March and September, respectively
S&P Europe 350 Carbon Efficient Low Volatility	Third Friday of January, April, July and October	Last trading dates of December, March, June, and September, respectively

The constituents' shares for the S&P 500, S&P MidCap 400 and S&P SmallCap 600 Low Volatility Indices are calculated using closing prices on the second Friday of the rebalancing month as the reference price. The constituents' shares for all other Low Volatility Indices are calculated using closing prices on the Wednesday prior to the second Friday of the rebalancing month as the reference price.

## Corporate Actions

Corporate Action	Adjustment Made to the Index	Divisor Adjustment?
Spin-off	The spun-off company is added to all the indices of which the parent is a constituent, at a zero price at the market close of the day before the ex-date (with no divisor adjustment). The spun-off company is removed after at least one day of regular way trading (with a divisor adjustment).  <i>For further information, please refer to the Treatment of Spin-offs in S&amp;P Dow Jones Indices' Equity Indices Policies &amp; Practices document.</i>	
Rights Offering	The price is adjusted to the Price of the Parent Company minus (the Price of the Rights Offering/Rights Ratio). Index shares change so that the company's weight remains the same as its weight before the rights offering.	No
Stock Split	Index shares are multiplied by and the price is divided by the split factor.	No
Share Issuance or Share Repurchase	None. Actual shares outstanding of the company play no role in the daily index calculation.	No
Special Dividends	The price of the stock making the special dividend payment is reduced by the per share special dividend amount after the close of trading on the day before the dividend ex-date.	Yes
Constituent Change	Except for spin-offs, there are no intra-rebalancing additions.	-
	Deletions due to delistings, acquisition or any other corporate event resulting in the deletion of the stock from the index causes the weight of the rest of the stocks in the index to change. Relative weights stay the same. Constituents removed from their respective benchmark index are also removed from their Low Volatility Index simultaneously.	Yes

*For more information on Corporate Actions, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.*

## Other Adjustments

In cases where there is no achievable market price for a stock being deleted, it may be removed at a zero or minimal price at the Index Committee's discretion, in recognition of the constraints faced by investors in trading bankrupt or suspended stocks.

## Currency, Currency Hedged, and Risk Control Indices

The indices are calculated in the following currencies:

Index	Currency of Calculation
S&P 500 Low Volatility	USD, EUR, SEK
S&P 500 Low Volatility (Hedged)	CAD, EUR
S&P MidCap 400 Low Volatility	USD
S&P SmallCap 600 Low Volatility	USD
S&P BMI International Developed Low Volatility	USD
S&P BMI Emerging Markets Low Volatility	USD
S&P Emerging Markets Low Volatility Select	USD, EUR, SEK
S&P Europe 350 Low Volatility	USD, EUR
S&P Eurozone Low Volatility Index	USD, EUR
S&P Eurozone Low Volatility USD Hedged Index	USD
S&P Nordic Low Volatility	USD, EUR, SEK
S&P Southern Europe Low Volatility	USD, EUR
S&P Developed Asia Low Volatility	USD
S&P Pan Asia Low Volatility	USD, EUR, SEK
S&P Korea Low Volatility	USD, KRW
S&P South Africa Low Volatility	USD, ZAR
S&P EPAC Ex. Korea Low Volatility	USD, CAD
S&P EPAC Ex. Korea Low Volatility (Hedged)	USD, CAD
S&P Japan 500 Low Volatility	USD, JPY
S&P Japan 500 Low Volatility USD Hedged Index	USD
S&P Europe 350 Carbon Efficient Select Low Volatility	USD, EUR
S&P Global Low Volatility	USD
S&P Developed Low Volatility	USD
S&P/ASX 200 Low Volatility	USD, AUD
S&P China A-Share Low Volatility	RMB

Real-time spot Forex rates, as supplied by Reuters, are used for ongoing index calculation of real-time indices.

WM/Reuters foreign exchange rates are taken daily at 4:00 PM London Time and used in the end-of-day calculation of the indices. These mid-market fixings are calculated by The WM Company based on Reuters data and appear on Reuters pages WMRA.

The S&P Korea Low Volatility, S&P Japan 500 Low Volatility and S&P/ASX Low Volatility indices are calculated in U.S. dollars using spot exchange rates taken at 4:17 PM Sydney Time as supplied by Reuters so that closing values can be provided in local time zones.

Additional currency, currency hedged, and risk control versions of the indices may be available. For a list of available currency, currency hedged, and risk control indices, please contact Client Services at [index\\_services@spglobal.com](mailto:index_services@spglobal.com).

*For more information on currency, currency hedged, and risk control indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.*

## 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 500 Low Volatility	04/04/2011	11/16/1990	11/16/1990	1000
S&P 500 Low Volatility (CAD Hedged)	01/24/2012	11/29/2002	11/29/2002	1000
S&P MidCap 400 Low Volatility	09/24/2012	08/16/1991	08/16/1991	100
S&P SmallCap 600 Low Volatility	09/24/2012	02/17/1995	02/17/1995	100
S&P BMI International Developed Low Volatility	12/05/2011	06/21/1991	06/21/1991	1000
S&P BMI Emerging Markets Low Volatility	12/05/2011	09/19/1997	09/19/1997	1000
S&P Emerging Markets Low Volatility Select	11/13/2014	09/19/1997	09/19/1997	1000
S&P Europe 350 Low Volatility	07/09/2012	03/20/1998	03/20/1998	1000
S&P Eurozone Low Volatility Index	03/30/2015	12/17/1999	12/17/1999	100
S&P Eurozone Low Volatility USD Hedged Index	03/30/2015	11/29/2002	11/29/2002	100
S&P Nordic Low Volatility	05/17/2013	12/20/2002	12/20/2002	1000
S&P Southern Europe Low Volatility	02/28/2014	12/17/1999	12/17/1999	100
S&P Developed Asia Low Volatility	08/05/2015	12/19/2003	12/19/2003	100
S&P Pan Asia Low Volatility	11/19/2012	11/19/1999	11/19/1999	1000
S&P Korea Low Volatility	05/08/2013	04/21/2000	04/21/2000	1000
S&P South Africa Low Volatility	01/29/2014	09/19/2008	09/19/2008	1000
S&P EPAC Ex. Korea Low Volatility	05/25/2015	03/16/1990	03/16/1990	100
S&P EPAC Ex. Korea Low Volatility USD Hedged Index	05/25/2015	11/29/2002	11/29/2002	100
S&P Japan 500 Low Volatility	06/08/2015	03/19/1993	03/19/1993	100
S&P Japan 500 Low Volatility USD Hedged Index	06/08/2015	03/31/1993	03/31/1993	100
S&P Europe 350 Carbon Efficient Select Low Volatility	01/18/2016	01/16/2009	01/16/2009	1000
S&P Global Low Volatility	04/11/2016	03/17/1995	03/17/1995	1000
S&P Developed Low Volatility	04/11/2016	03/17/1995	03/17/1995	1000
S&P/ASX 200 Low Volatility	10/17/2017	06/16/2000	06/16/2000	100
S&P China A-Share Low Volatility	07/11/2018	06/16/2006	06/16/2006	1000

# Index Data

## Calculation Return Types

S&P Dow Jones Indices calculates multiple return types which vary based on the treatment of regular cash dividends. The classification of regular cash dividends is determined by S&P Dow Jones Indices.

- Price Return (PR) versions are calculated without adjustments for regular cash dividends.
- Gross Total Return (TR) versions reinvest regular cash dividends at the close on the ex-date without consideration for withholding taxes.
- Net Total Return (NTR) versions, if available, reinvest regular cash dividends at the close on the ex-date after the deduction of applicable withholding taxes.

In the event there are no regular cash dividends on the ex-date, the daily performance of all three indices will be identical.

For a complete list of indices available, please refer to the daily index levels file (“SDL”).

*For more information on the classification of regular versus special cash dividends as well as the tax rates used in the calculation of net return, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.*

*For more information on the calculation of return types, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.*

# Index Governance

## Index Committee

The S&P Low Volatility Indices are managed by S&P Dow Jones Indices' Index Committees. The Committees meet regularly. At each meeting, the Committee reviews pending corporate actions that may affect index constituents, statistics comparing the composition of the indices to the market, companies that are being considered as candidates for addition to an index, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

S&P Dow Jones Indices considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P Dow Jones Indices' Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

*For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.*

# Index Policy

## Announcements

All index constituents are evaluated daily for data needed to calculate index levels and returns. All events affecting the daily index calculation are typically announced in advance via the Index Corporate Events report (.SDE), delivered daily via ftp to all clients. Any unusual treatment of a corporate action or short notice of an event may be communicated via email to clients.

*For more information, please refer to the Announcements section of S&P Dow Jones Indices' Equity Indices Policies & Practices document.*

## Pro-forma Files

In addition to the corporate events file (.SDE), S&P Dow Jones Indices provides constituent pro-forma files each time the indices rebalance. The pro-forma file is typically provided daily in advance of the rebalancing date and contains all constituents and their corresponding weights and index shares effective for the upcoming rebalancing. Since index shares are assigned based on prices prior to the rebalancing, the actual weight of each stock at the rebalancing differs from these weights due to market movements.

*Please visit [www.spdji.com](http://www.spdji.com) for a complete schedule of rebalancing timelines and pro-forma delivery times.*

## Holiday Schedule

The S&P Low Volatility Indices are calculated daily, throughout the calendar year. The only days the indices are not calculated are on days when all exchanges where the S&P Low Volatility Indices' constituents are listed are officially closed.

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

## Rebalancing

The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on or around the scheduled rebalancing date. Any such change will be announced with proper advance notice where possible.

## Unexpected Exchange Closures

For information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

## Recalculation Policy

For information on the recalculation policy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

*For information on Calculations and Pricing Disruptions, Expert Judgment and Data Hierarchy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.*

**Contact Information**

For any questions regarding an index, please contact: [index\\_services@spglobal.com](mailto:index_services@spglobal.com).

# Index Dissemination

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

## Tickers

The table below lists headline indices covered by this document. All currency, currency hedged, risk control, and return type versions of the below indices that may exist are also covered by this document. Please contact [index\\_services@spglobal.com](mailto:index_services@spglobal.com) for a complete list of indices covered by this document.

Index (Currency)	Return Type	Bloomberg	Reuters
S&P 500 Low Volatility Index (USD)	Price Return	SP5LVI	.SP5LVI
	Total Return	SP5LVIT	.SP5LVIT
	Net Total Return	SP5LVIN	.SP5LVIN
S&P 500 Low Volatility Index (EUR)	Price Return	SP5LVIE	--
	Total Return	SP5LVJET	--
	Net Total Return	SP5LVJEN	--
S&P 500 Low Volatility Index (EUR) Hedged	Price Return	SP5LVHEP	--
	Total Return	SP5LVHET	--
	Net Total Return	SP5LVHEN	--
S&P 500 Low Volatility Index (SEK)	Price Return	SP5LVIS	--
	Total Return	SP5LVIST	--
S&P 500 Low Volatility Index (CAD) Hedged	Price Return	SP5LVICH	.SP5LVICH
	Total Return	SP5LVCTH	.SP5LVCTH
	Net Total Return	SP5LVCNH	.SP5LVCNH
S&P MidCap 400 Low Volatility Index (USD)	Price Return	SP4LVI	.SP4LVI
	Total Return	SP4LVIT	.SP4LVIT
	Net Total Return	SP4LVIN	.SP4LVIN
S&P SmallCap 600 Low Volatility Index (USD)	Price Return	SP6LVI	.SP6LVI
	Total Return	SP6LVIT	.SP6LVIT
	Net Total Return	SP6LVIN	.SP6LVIN
S&P BMI International Developed Low Volatility Index (USD)	Price Return	SPIDLVUP	--
	Total Return	SPIDLVUT	--
	Net Total Return	SPIDLVUN	--
S&P BMI Emerging Markets Low Volatility Index (USD)	Price Return	SPEMLVUP	--
	Total Return	SPEMLVUT	--
	Net Total Return	SPEMLVUN	--
S&P Emerging Markets Low Volatility Select Index (USD)	Price Return	SPBELSUP	--
	Total Return	SPBELSUT	--
	Net Total Return	SPBELSUN	--
S&P Emerging Markets Low Volatility Select Index (EUR)	Price Return	SPBELSEP	--
	Total Return	SPBELSET	--
	Net Total Return	SPBELSEN	--
S&P Emerging Markets Low Volatility Select Index (SEK)	Price Return	SPBELSSP	--
	Total Return	SPBELSST	--
	Net Total Return	SPBELSSN	--
S&P Europe 350 Low Volatility Index (USD)	Price Return	SPEULV	--
	Total Return	SPEULVT	--
	Net Total Return	SPEULVN	--
S&P Europe 350 Low Volatility Index (EUR)	Price Return	SPEULVE	--
	Total Return	SPEULVET	--
	Net Total Return	SPEULVEN	--
S&P Eurozone Low Volatility Index (USD)	Price Return	SPELVUP	--
	Total Return	SPELVUT	--
	Net Total Return	SPELVUN	--
S&P Eurozone Low Volatility Index (EUR)	Price Return	SPELVEP	--
	Total Return	SPELVET	--
	Net Total Return	SPELVEN	--

Index (Currency)	Return Type	Bloomberg	Reuters
S&P Eurozone Low Volatility USD Hedged Index	Price Return	SPELVUPH	--
	Total Return	SPELVUTH	--
	Net Total Return	SPELVUNH	--
S&P Nordic Low Volatility Index (USD)	Price Return	SPNLVUP	--
	Total Return	SPNLVUT	--
	Net Total Return	SPNLVUN	--
S&P Nordic Low Volatility Index (EUR)	Price Return	SPNLVEP	--
	Total Return	SPNLVET	--
	Net Total Return	SPNLVEN	--
S&P Nordic Low Volatility Index (SEK)	Price Return	SPNLVSP	--
	Total Return	SPNLVST	--
	Net Total Return	SPNLVSN	--
S&P Southern Europe Low Volatility Index (USD)	Price Return	SPSELVUP	--
	Total Return	SPSELVUT	--
	Net Total Return	SPSELVUN	--
S&P Southern Europe Low Volatility Index (EUR)	Price Return	SPSELVEP	--
	Total Return	SPSELVET	--
	Net Total Return	SPSELVEN	--
S&P Developed Asia Low Volatility (USD)	Price Return	SPDALVUP	--
	Total Return	SPDALVUT	--
	Net Total Return	SPDALVUN	--
S&P Pan Asia Low Volatility Index (USD)	Price Return	SPPALV	--
	Total Return	SPPALVT	--
	Net Total Return	SPPALVN	--
S&P Pan Asia Low Volatility Index (EUR)	Price Return	SPPALVE	--
	Total Return	SPPALVET	--
	Net Total Return	SPPALVEN	--
S&P Pan Asia Low Volatility Index (SEK)	Price Return	SPPALVS	--
	Total Return	SPPALVST	--
	Net Total Return	SPPALVSN	--
S&P Korea Low Volatility Index (USD)	Price Return	SPKLVUP	--
	Total Return	SPKLVUT	--
	Net Total Return	SPKLVUN	--
S&P Korea Low Volatility Index (KRW)	Price Return	SPKLVKP	--
	Total Return	SPKLVKT	--
	Net Total Return	SPKLVKN	--
S&P South Africa Low Volatility Index (USD)	Price Return	SPSALVUP	.SPSALVUP
	Total Return	SPSALVUT	.SPSALVUT
	Net Total Return	SPSALVUN	.SPSALVUN
S&P South Africa Low Volatility Index (ZAR)	Price Return	SPSALVZP	.SPSALVZP
	Total Return	SPSALVZT	.SPSALVZT
	Net Total Return	SPSALVZN	.SPSALVZN
S&P EPAC Ex. Korea Low Volatility Index (USD)	Price Return	SPEPLVUP	--
	Total Return	SPEPLVUT	--
	Net Total Return	SPEPLVUN	--
S&P EPAC Ex. Korea Low Volatility USD Hedged Index	Price Return	SPEPLVUPH	--
	Total Return	SPEPLVUTH	--
	Net Total Return	SPEPLVUNH	--
S&P EPAC Ex-Korea Low Volatility Index (CAD)	Price Return	--	--
	Total Return	SPEXLCT	.SPEXLCT
	Net Return	SPEXLCTN	.SPEXLCTN
S&P EPAC Ex-Korea Low Volatility Index (CAD) Hedged	Price Return	--	--
	Total Return	SPEXLCHT	.SPEXLCHT
	Net Return	SPEXLCHN	.SPEXLCHN
S&P Japan 500 Low Volatility Index (USD)	Price Return	SPJ5LVUP	--
	Total Return	SPJ5LVUT	--
	Net Total Return	SPJ5LVUN	--
S&P Japan 500 Low Volatility Index (JPY)	Price Return	SPJ5LVJP	--
	Total Return	SPJ5LVJT	--
	Net Total Return	SPJ5LVJN	--
S&P Japan 500 Low Volatility USD Hedged Index	Price Return	SPJ5LHUP	--
	Total Return	SPJ5LHUT	--
	Net Total Return	SPJ5LHUN	--
S&P Europe 350 Carbon Efficient Select Low Volatility Index (USD)	Price Return	SPEUCLUP	--
	Total Return	SPEUCLUT	--
	Net Total Return	SPEUCLUN	--
S&P Europe 350 Carbon Efficient Select Low Volatility Index (EUR)	Price Return	SPEUCLEP	--
	Total Return	SPEUCLET	--
	Net Total Return	SPEUCLEN	--

Index (Currency)	Return Type	Bloomberg	Reuters
S&P Global Low Volatility Index (USD)	Price Return	SPGLLVUP	--
	Total Return	SPGLLVUT	--
	Net Total Return	SPGLLVUN	--
S&P Developed Low Volatility Index (USD)	Price Return	SPDELVUP	--
	Total Return	SPDELVUT	--
	Net Total Return	SPDELVUN	--
S&P/ASX 200 Low Volatility Index (AUD)	Price Return	SPLVAXAP	--
	Total Return	SPLVAXAT	--
	Net Total Return	--	--
S&P China A-Share Low Volatility Index (CNY)	Price Return	SPCALVCP	
	Total Return	SPCALVCT	
	Net Total Return	SPCALVCN	

## FTP

Daily constituent and index level 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 A – Eligible Markets Per Index

Markets	S&P Low Volatility Indices					
	S&P 500, S&P MidCap 400, S&P SmallCap 600	S&P BMI International Developed	S&P BMI Emerging Markets	S&P Emerging Markets Select	S&P Europe 350	S&P Eurozone
Australia		•				
Austria		•			•	•
Belgium		•			•	•
Brazil			•	Δ		
Canada		•				
Chile			•	Δ		
China			□	□		
Colombia			•	Δ		
Czech Republic			•	•		
Denmark		•			•	
Egypt			•	Δ		
Finland		•			•	•
France		•			•	•
Germany		•			•	•
Greece			•	•		•
Hong Kong		•				
Hungary			•	•		
India			□	□		
Indonesia			•	•		
Ireland		•			•	•
Israel		•				
Italy		•			•	•
Japan		•				
Luxembourg		•			•	•
Malaysia			•	•		
Mexico			•	Δ		
Morocco			•	Δ		
Netherlands		•			•	•
New Zealand		•				
Norway		•			•	
Peru			•	Δ		
Philippines			•	•		
Poland			•	•		
Portugal		•			•	•
Qatar			•	Δ		
Russia			□	□		
Singapore		•				
South Africa			•	•		
South Korea			•	•		
Spain		•			•	•
Sweden		•			•	
Switzerland		•			•	
Taiwan			•	•		
Thailand			•	•		
Turkey			•	•		
UAE			•	Δ		
UK		•			•	
US	•					

□ For China, India and Russia, only developed market listings are eligible. These may include HK, NY and LSE listings.

Δ Constituents from these countries must be trading in Developed markets.

In September 2014, Greece was reclassified to emerging market status from developed market status. Qatar and the UAE were reclassified to emerging market status from frontier market status.

S&P Low Volatility Indices					
Markets	S&P Nordic	S&P Southern Europe	S&P Developed Asia	S&P Pan Asia	S&P Korea
Australia			•	•	
Austria					
Belgium					
Brazil					
Canada					
Chile					
China				□	
Colombia					
Czech Republic					
Denmark	•				
Egypt					
Finland	•				
France					
Germany					
Greece					
Hong Kong			•	•	
Hungary					
India				□	
Indonesia				•	
Ireland					
Israel					
Italy		•			
Japan			•	•	
Luxembourg					
Malaysia				•	
Mexico					
Morocco					
Netherlands					
New Zealand			•		
Norway	•				
Peru					
Philippines				•	
Poland					
Portugal		•			
Qatar					
Russia					
Singapore			•	•	
South Africa					
South Korea			•	•	•
Spain		•			
Sweden	•				
Switzerland					
Taiwan				•	
Thailand				•	
Turkey					
UAE					
UK					
US					

□ For China, India and Russia, only developed market listings are eligible. These may include HK, NY and LSE listings. In September 2014, Greece was reclassified to emerging market status from developed market status. Qatar and the UAE were reclassified to emerging market status from frontier market status.

S&P Low Volatility Indices						
Markets	S&P South Africa	S&P EPAC Ex. Korea	S&P Japan 500	S&P Global	S&P Developed	S&P/ASX 200
Australia		•		•	•	•
Austria		•		•	•	
Belgium		•		•	•	
Brazil				•		
Canada				•	•	
Chile				•		
China				□		
Colombia				•		
Czech Republic				•		
Denmark		•		•	•	
Egypt				•		
Finland		•		•	•	
France		•		•	•	
Germany		•		•	•	
Greece				•		
Hong Kong		•		•	•	
Hungary				•		
India				□		
Indonesia				•		
Ireland		•		•	•	
Israel		•		•	•	
Italy		•		•	•	
Japan		•	•	•	•	
Luxembourg		•		•	•	
Malaysia				•		
Mexico				•		
Morocco				•		
Netherlands		•		•	•	
New Zealand		•		•	•	
Norway		•		•	•	
Peru				•		
Philippines				•		
Poland				•		
Portugal		•		•	•	
Qatar				•		
Russia				□		
Singapore		•		•	•	
South Africa	•			•		
South Korea				•		
Spain		•		•	•	
Sweden		•		•	•	
Switzerland		•		•	•	
Taiwan				•		
Thailand				•		
Turkey				•		
UAE				•		
UK		•		•	•	
US				•	•	

□ For China, India and Russia, only developed market listings are eligible. These may include HK, NY and LSE listings. In September 2014, Greece was reclassified to emerging market status from developed market status. Qatar and the UAE were reclassified to emerging market status from frontier market status.

## Appendix B – Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Change	Effective Date (After Close)	Previous	Methodology Updated
S&P Emerging Markets Low Volatility Select, S&P Nordic Low Volatility, S&P Southern Europe Low Volatility, and S&P Europe 350 Carbon Efficient Select Low Volatility:  Addition of Liquidity Buffer Rule	08/10/2018	--	For current index constituents, the minimum three-month average daily value traded (ADVT) is as follows: <ul style="list-style-type: none"> <li>• S&amp;P Emerging Markets Low Volatility Select: US\$ 6 million</li> <li>• S&amp;P Nordic Low Volatility: US\$ 1.2 million</li> <li>• S&amp;P Southern Europe Low Volatility: EUR 4 million</li> <li>• S&amp;P Europe 350 Carbon Efficient Select Low Volatility: EUR 5.6 million</li> </ul>
S&P South Africa Low Volatility:  Change of Index Eligibility Liquidity Measure	08/10/2018	Three-month average daily value traded (3M ADVT) of ZAR 10 million.	Six-month median daily value traded (6M MDVT) of ZAR 10 million (ZAR 8 million for current constituents).
S&P South Africa Low Volatility:  Addition of Selection Buffer for Current Constituents	08/10/2018	--	A 20% buffer rule based on realized volatility is applied to the security selection process at each rebalancing
S&P Korea Low Volatility:  Addition of Liquidity Buffer Rule	10/20/2017	--	For current index constituents, the minimum three-month average daily value traded (ADVT) is KRW 800 million.
Dual Listed Companies	06/19/2017	--	Some companies may have more than one listing in the respective benchmark index. In the S&P Low Volatility Indices, each company is represented once by the primary listing, which is generally the most liquid listing.
S&P Developed Asia Low Volatility:  Addition of Liquidity Buffer Rule	12/18/2015	--	For current index constituents, the minimum three-month average daily value traded (ADVT) is US\$ 2.5 million.

Change	Effective Date (After Close)	Previous	Methodology  Updated
Treatment of Spin-offs	09/30/2015	<p>Spin-offs are generally not added to the indices and there is no weight change to the parent stock. The price of the parent company is adjusted to the Price of the Parent Company minus (the Price of the Spun-off Company/Share Exchange Ratio). Index shares change so that the company's weight remains the same as its weight before the spin-off. There is no index divisor change.</p> <p>However, when the price of the spin-off is not known, the spun-off company is added to the index at a zero price. Once the spun-off company trades, the company is dropped from the index and the parent's index shares are adjusted so that the company's weight remains the same as the combined weight of parent and the spin-off, determined on the first day of trading.</p>	<p>The spun-off company is added to all the indices of which the parent is a constituent, at a zero price at the market close of the day before the ex-date (with no divisor adjustment). The spun-off company is removed after at least one day of regular way trading (with a divisor adjustment).</p>
Holiday Schedule	06/23/2015	<p>With the exception of the S&amp;P Pan Asia Low Volatility Index, the S&amp;P Low Volatility Indices are calculated daily, throughout the calendar year. The only days the indices are not calculated are on days when <u>all</u> exchanges where the S&amp;P Low Volatility Indices' constituents are listed are officially closed.</p> <p>The S&amp;P Pan Asia Low Volatility Index is not calculated on any index calculation day when stocks representing 10% or more of the total weight of the underlying index are not trading due to an exchange holiday. Similarly, the Risk Control indices based on S&amp;P Pan Asia Low Volatility Indices are not calculated on any index calculation day when stocks representing 10% or more of the total weight of the underlying index are not trading due to an exchange holiday. These days are determined at each annual index rebalancing.</p>	<p>The S&amp;P Low Volatility Indices are calculated daily, throughout the calendar year. The only days the indices are not calculated are on days when <u>all</u> exchanges where the S&amp;P Low Volatility Indices' constituents are listed are officially closed.</p> <p>The Risk Control indices based on the S&amp;P Pan Asia Low Volatility Index are not rebalanced on any index calculation day when stocks representing 15% or more of the total weight of the underlying index are not trading due to an exchange holiday. These days are determined at each annual index rebalancing.</p>

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