

**S&P Dow Jones
Indices**

A Division of **S&P Global**

S&P/TSX Composite Low Volatility Index *Methodology*

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Introduction

Index Objective and Highlights

The S&P/TSX Composite Low Volatility Index[®] measures the performance of the 50 least volatile stocks within the S&P/TSX Composite (the underlying universe index). Volatility is defined as the standard deviation of a security's daily price returns over the prior one year trading period. Constituent are weighted relative to the inverse of their corresponding volatility, with the least volatile stocks receiving the highest weights.

For more information on the S&P/TSX Composite, please refer to the S&P/TSX Canadian Indices Methodology available at www.spdji.com.

Partnership

The S&P/TSX indices are calculated and managed by S&P Dow Jones Indices. The TMX Group Inc. (TMX) is the owner and distributor of all S&P/TSX equity index data.

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	Equity Indices Policies & Practices
S&P Dow Jones Indices' Index Mathematics Methodology	Index Mathematics Methodology
S&P Dow Jones Indices' Float Adjustment Methodology	Float Adjustment Methodology

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

To be included in the index, a stock must be a member of the S&P/TSX Composite and must have traded on all trading days in the prior 12 months leading up to the rebalancing reference date.

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 S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

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.

Constituent Selection

To be eligible for inclusion in the index, stocks must first be constituents of the S&P/TSX Composite. The selection of index constituents is done as follows:

1. Using available price return data for the trailing 12 months leading up to each index rebalancing reference date, the volatilities of the constituents are calculated.
2. Constituents are then ranked based on the inverse of the realized volatility. The top 50 securities with the least volatility form the index.

Constituent Weightings

The index employs a volatility-driven weighting scheme. At each rebalancing, the weight, w , for each index constituent, i , is set inversely proportional to its volatility.

$$w_i = \frac{\frac{1}{Volatility_i}}{\sum_{i=1}^{50} \frac{1}{Volatility}}$$

Volatility is defined as the standard deviation of the security's daily price returns over the prior 12 months of trading days. It can be mathematically expressed as:

$$\sqrt{\frac{\sum_{i=1}^{50} (X_i - \bar{X})^2}{N-1}}$$

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 50

\bar{X} = Average price change

Index Calculations

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

Please refer to S&P Dow Jones Indices' Mathematics Methodology for further details on the index calculation methodology.

Index Maintenance

Rebalancing

The index is rebalanced quarterly, effective after the close on the third Friday of March, June, September and December. The rebalancing reference dates are the last business day of February, May, August and November, respectively. Weights calculated as a result of the reference date data are implemented in the index using closing prices as of the Thursday prior to the second Friday of March, June, September and December.

Additions and Deletions

Additions. With the exception of qualifying spin-offs, no additions are made to the index between quarterly rebalancings.

Deletions. Constituents removed from the underlying universe index are also removed from the index simultaneously.

Corporate Actions

All index adjustments and corporate action treatments follow the S&P/TSX Composite.

Spin-Offs. Spin-offs are added to the index on the ex-date. Spin-off treatment follows the underlying universe index. If the spin-off remains in the underlying universe index, it will remain in the index and is evaluated for continued index inclusion at the subsequent rebalancing.

For general information on corporate actions, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology.

Currency of Calculation and Additional Index Return Series

The S&P/TSX Composite High Beta Index is calculated in Canadian and U.S. dollars.

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.

In addition to the indices detailed in this methodology, additional return series versions of the indices may be available, including, but not limited to: currency, currency hedged, decrement, fair value, inverse, leveraged, and risk control versions. For a list of available indices, please refer to [S&P DJI's All Indices by Methodology Report](#).

For information on various index calculations, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

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 Methodology.

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/TSX Canadian indices are maintained by the S&P/TSX Canadian Index Committee. The Index Committee is comprised of four members representing S&P Dow Jones Indices and three members representing the Toronto Stock Exchange (“TSX”). The Index Committee is chaired by a member designated by S&P Dow Jones Indices. Meetings are held monthly, and from time to time, as needed.

The Index Committee is responsible for setting rules and policies for the S&P/TSX Canadian Indices, determining the composition of the Indices and administering the methodology. In fulfilling its responsibilities, the Index Committee has full and complete discretion to amend, apply or exempt the application of the methodology and other index policies as circumstances may require, and add, remove or by-pass any security in determining the composition of any of the indices.

The Index Committee may rely on any information or documentation submitted to or gathered by it that the Index Committee believes to be accurate. Where a public document used by the Index Committee is available in both official languages, the Index Committee shall assume that the contents of both versions are identical. The Index Committee reserves the right to reinterpret publicly available information and to make changes to the index based on a new interpretation of that information at its sole and absolute discretion.

Index corrections and changes to index composition are implemented at such time and in such manner, as the Index Committee deems appropriate. The timing of any index change made in response to a correction shall be at the sole and absolute discretion of the Index Committee.

Stock prices, VWAPs, and prices used to calculate QMV shall be prices determined by trading on the TSX. Canadian and U.S. trading volume is determined using the composite volume. Canadian trading volume includes trading on the TSX, Aequitas (Lit and Neo), Alpha, CSE (Pure Trading), Instinet Canada, Liquidnet Canada, Lynx, Nasdaq CXC, Nasdaq CXD, Nasdaq CX2, Omega and TriAct Match Now. U.S. volume will include trading volume on OTC markets only if the company is dual-listed on a U.S. exchange.

S&P Dow Jones Indices considers information about changes to its Canadian 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 Methodology.

Index Policy

Announcements

Whenever possible, announcements of additions or deletions of stocks or other index adjustments are made five trading days before the adjustments are implemented. In those cases when it is not possible to trade a stock five days after an announcement, the announcement period may be shortened. However, the implementation of an index adjustment is never earlier than the market close of the day following the announcement.

Announcements of additions and deletions for the S&P/TSX Canadian indices are generally made at 05:15 PM Eastern Time. Press releases are released to major news services.

In addition, TMX Datalinx offers a fee-based subscription to Index Notices. The Index Notices provide the most detailed and comprehensive coverage of index changes. Complete data for index replication (including share counts, tickers and data on index levels and returns) are also available through TMX Datalinx. In order to subscribe, contact TMX Datalinx by phone at +1.416.947.4778 or by email at marketdata@tmx.com.

Holiday Schedule

The S&P/TSX Canadian indices are calculated when the Canadian equity market is open.

A complete holiday schedule for the year is available on the TMX Web site at www.tmx.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 Methodology.

Recalculation Policy

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

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

Contact Information

For any questions regarding an index, please contact: index_services@spglobal.com.

Index Dissemination

The TMX Group Inc. (TMX) serves as the distributor of both real-time and historical index data. In addition, index levels are available on S&P Dow Jones Indices Web site at www.spdji.com, through major quote vendors (see codes below), through numerous investment oriented Web sites and various print and electronic media.

Tickers

The table below lists headline indices covered by this document. All versions of the below indices that may exist are also covered by this document. Please refer to [S&P DJI's All Indices by Methodology Report](#) for a complete list of indices covered by this document.

Index	Bloomberg	Reuters	Thomson
S&P/TSX Composite Low Volatility Index	SPTXLVPR	.GSPTXLV	T.XLV
S&P/TSX Composite Low Volatility TR Index	SPTXLVTR	.TRGSPTXLV	TR.XLV
S&P/TSX Composite Low Volatility Index (USD)	TXLVU	.GSPTXLVU	
S&P/TSX Composite Low Volatility Index (USD) TR	TXLVUT	.TRGSPTXLVU	

Index Data

Daily constituent and index level data is available from the Toronto Stock Exchange on subscription. Please contact Market Data at 416-947-4778 or, by email, at marketdata@tmx.com.

For further information, please refer to the TMX Web site at www.tmx.com.

Web site

For further information, please refer to S&P Dow Jones Indices' Web site at www.spdji.com.

Appendix

Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Change	Effective Date (After Close)	Previous	Methodology Updated
Trading Volume for Liquidity Calculation	31-Jul-18	Canadian trading volume includes trading volume at the TSX, Aequitas (Lit and Neo), Alpha, CSE (Pure Trading), Lynx, Nasdaq CXC, Nasdaq CX2 and Omega. U.S. trading volume is determined using the composite volume.	Canadian and U.S. trading volume is determined using the composite volume. Canadian trading volume includes trading on the TSX, Aequitas (Lit and Neo), Alpha, CSE (Pure Trading), Instinet Canada, Liquidnet Canada, Lynx, Nasdaq CXC, Nasdaq CXD, Nasdaq CX2, Omega and TriAct Match Now.
Multiple Share Class Lines	20-Aug-15	Companies that have more than one class of common stock outstanding were represented only once in the index. The stock price was based on one class, and the share count was based on the total shares outstanding of all classes.	Each company is represented once by the primary listing, which is generally the most liquid share line.
Trading Volume Marketplaces	20-Aug-15	TSX and other Canadian trading venues which make the data available in a timely fashion.	TSX, Aequitas (Lit and Neo), Alpha, Chi-X, CSE (Pure Trading), CX2, Lynx, TMX Select (Excluded after September 2016 review) and Omega.

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