JANUS CAPITAL
Group

VelocityShares Hedged Large Cap Indices Methodology

February 2015

Table of Contents

Introduction

The VelocityShares Volatility Hedged Equity Indices are designed to replicate a portfolio consisting of a large cap equity exposure and an allocation to a volatility strategy. There are two indices in the family, both of which utilize a large cap equity component, plus a volatility strategy component: the VelocityShares Tail Risk Hedged Large Cap Index employs a volatility strategy designed to hedge tail risk events (and therefore has a higher expected carry cost in calm markets), and the VelocityShares Volatility Hedged Large Cap Index employs a volatility strategy designed to hedge moderate volatility while balancing the risk/return profile of the volatility strategy.

Both volatility strategies are designed to provide long/short exposure to VIX futures and benefit from the interaction between the dynamics of the VIX futures curve and the convexity generated by using daily resetting instruments. They utilize a purely systematic, signals-free approach, in an attempt to create effective volatility positions with desirable cost/benefit characteristics.

The indices are designed to be investible – an investor holding all of the reference securities at the same weights and adjusted daily should realize returns similar to that of the index.

The reference securities are US listed exchange traded products (ETPs). The reference securities underlying the volatility strategy are linked to VIX futures indices (both long and short), and the reference securities underlying the equity component of the indices are linked to the S&P 500 index.

The Index is calculated beginning on December 20, 2005. The actual inception date for the VelocityShares Volatility Hedged Large Cap Index and the VelocityShares Tail Risk Hedged Large Cap Index, as well as the respective Component Indices, is April 30, 2012, and all data prior to this date is pre-inception index performance (PIP).

Index Construction

The VelocityShares Volatility Hedged Equity Indices family includes:

- VelocityShares Tail Risk Hedged Large Cap Index
- VelocityShares Volatility Hedged Large Cap Index

In addition for each index, the volatility component is also reported as a separate index series:

- VelocityShares Tail Risk Vol Component Index
- VelocityShares Volatility Hedged Vol Component Index

Each is composed of an 85% allocation to US large cap equities (through reference to S&P 500-linked ETPs) and a 15% allocation to a volatility-based hedging strategy (through reference to VIX futures-linked ETPs).

The volatility-based hedging strategy in the Tail Risk Hedged Large Cap Index uses a dynamic long/short exposure to short-dated VIX futures, with a target long exposure of 35%.

The volatility-based hedging strategy in the Volatility Hedged Large Cap Index uses a dynamic long/short exposure to short-dated VIX futures, with a target neutral exposure.

The volatility-based hedging strategies are based on the principles originally published by VelocityShares in the white paper "Portfolio Applications for VIX Based Instruments."[1]

The reference securities are all US listed ETPs.

Constituent Prices
The closing price for each reference security on an index business day is the price of the security, expressed in US dollars, at the regular close of the principal trading session on the primary exchange on which the security is listed as published by that exchange for that index business day.

Index Calculations

Step 1: Initial Allocation

Let

$$H_0 = 100$$

denote the beginning value of the Hedged Index on December 20th, 2005. The Volatility Hedged Equity Indices will seek to hold a target weight of 85% in ETPs that represent the large cap equity market, and a target weight of 15% for the volatility strategy referencing volatility-related ETPs (please see Appendix I for specifics about the reference ETPs).

The volatility strategy allocation will be divided into 13 sub-portfolios, each reflecting a position in an ETP with a two-times (2X) leveraged exposure to a short-term VIX futures index and an ETP with an inverse (-1X) exposure to the same short-term VIX futures index. As described

[1] "Portfolio Applications for VIX Based Instruments" Journal of Indexes, Nov/Dec 2011

below, the subdivision of the allocation into 13 sub-portfolios facilitates a weekly rebalancing procedure over the course of each quarter. The initial allocation between the leveraged and inverse exposures for the volatility strategy for each index is presented in the following table:

Volatility Strategy Initial/Target Allocations

Index	Initial Allocation
VelocityShares Tail Risk Hedged Large Cap Index	45% (2X), 55% (-1X)
VelocityShares Volatility Hedged Large Cap Index	1/3 (2X), 2/3 (-1X)

The total number of positions in the reference portfolio is 29, each subscripted by i:

- Three large cap equity market ETP positions (i = 1 to 3)
- 13 Leveraged (2X) VIX futures ETP Positions (i = 4 to 16)
- 13 Inverse (-X) VIX futures ETP Positions (i = 17 to 29)

The value

$$V_i(t)$$

represents the value of the position at the end of day t prior to any rebalancing.

All of the reference securities are US listed ETPs.

Step 2: Define Returns

The return to each of the large cap equity market ETPs represents a dividend-reinvested return on the market as represented by the associated exchange traded product. Thus the return for positions i =1 to 3 is:

$$r_{i,t} = \frac{P_{i,t} + D_{i,t}}{P_{i,t-1}} - 1$$

where D represents dividends or other distributions.2

The return for reference securities i = 4 to 16 is

$$r_{i,t} = \frac{P_{Lev,t} + D_{Lev,t}}{P_{Lev,t-1}} - 1$$

where

$$P_{Lev,t}$$

is the time t price of an exchange traded product that seeks to return two-times (2X) leveraged exposure to VIX Futures and D represents dividends or other distributions.3

The return for positions i = 17 to 29 is

[2] Please see Appendix II regarding periods where data is unavailable.
[3] Please see Appendix II regarding periods where data is unavailable.

$$r_{i,t} = \frac{P_{Inv,t} + D_{Inv,t}}{P_{Inv,t-1}} - 1$$

where

$$P_{Inv,t}$$

is the time t price of an exchange traded product that seeks to return inverse exposure (-1X) to a VIX futures index and D represents dividends or other distributions for that reference security.4

Step 3: Weekly Rebalancing

If t is a Business Day that falls on a Wednesday or if t is a Business Day that falls on a Thursday immediately following a Wednesday that was not a Business Day, the portfolio will perform a Weekly Rebalance, and t is considered a Weekly Rebalance Day (WRD). On each WRD we denominate a sub-portfolio, j, to rebalance; we set the first sub-portfolio on December 21st, 2005 to one, and we increment each subsequent sub-portfolio to rebalance by one, unless j > 13, in which case it resets to one. In this fashion one sub-portfolio is rebalanced weekly and every sub-portfolio is rebalanced once a quarter.

On a WRD sub-portfolio j is rebalanced as follows:

$$\begin{aligned} \widehat{V}_{3+j}(t) &= w^*_{Lev} \times [V_{3+j}(t) + V_{16+j}(t)] \\ \widehat{V}_{16+j}(t) &= w^*_{Inv} \times [V_{3+j}(t) + V_{16+j}(t)] \end{aligned}$$

where

$$w^*_{Lev}$$

represents the target weight for the leveraged exposure to the VIX futures index, and

$$w^*_{Inv}$$

represents the target weight for the inverse exposure to the VIX futures index. The two weights sum to one.

For the remaining sub-portfolios:

$$\begin{aligned} \widehat{V}_{3+k}(t) &= V_{3+k}(t) \\ \widehat{V}_{16+k}(t) &= V_{16+k}(t) \\ k &= 1 \text{ to } 13 \\ k &\neq j \end{aligned}$$

[4] Please see Appendix II regarding periods where data is unavailable.

For completion's sake,

$$\begin{aligned} \widehat{V}_i(t) &= V_i(t) \\ i &= 1 \text{ to } 3 \end{aligned}$$

If t is not a WRD, for all i

$$\widehat{V}_i(t) = V_i(t)$$

Step 4: Monthly Rebalancing

On the last Business Day of each month, the portfolio is rebalanced such that the large cap equity market positions account for 85% of the portfolio value and VIX futures index positions account for 15% of the portfolio value.

The total portfolio value at time t,

$$V^*(t)$$

If t is a monthly rebalance date then

$$\begin{aligned} \widetilde{V}_i(t) &= \frac{0.85}{3} V^*(t) \\ i &= 1 \text{ to } 3 \end{aligned}$$

and

$$\begin{aligned} \widetilde{V}_i(t) &= 0.15 \times \left(\sum_{i=4}^{29} V_i(t) \right)^{-1} \times V^*(t) \times \widehat{V}_i(t) \\ i &> 3 \end{aligned}$$

If t is not a monthly rebalance date, then for all i:

$$\widetilde{V}_i(t) = \widehat{V}_i(t)$$

Step 5: Quarterly Rebalancing

If t is the last Business Day of the quarter, t is considered a quarterly rebalance day. The positions are rebalanced as follows:

$$\beta_i = \frac{1}{13}\frac{\widetilde{V}_i(t) + \widetilde{V}_{i+13}(t)}{\sum_{i=4}^{29}\widetilde{V}_i(t)}$$

$$\begin{aligned} \overline{V}_i(t) &= \beta_i \widetilde{V}_i(t) \\ \overline{V}_{i+13}(t) &= \beta_i \widetilde{V}_{i+13}(t) \\ i &= 4 \text{ to } 16 \end{aligned}$$

$$\begin{aligned} \overline{V}_i(t) &= \widetilde{V}_i(t) \\ i &= 1 \text{ to } 3 \end{aligned}$$

If t is not quarterly rebalance day then for all i

$$\overline{V}_i(t) = \widetilde{V}_i(t)$$

Step 6: Calculating Hedged Index

$$H_t = H_{t-1}(1 + R_t)$$

where

$$R_t = \left(\sum_{i=1}^{29}\overline{V}_i(t)\right) / \left(\sum_{i=1}^{29}\overline{V}_i(t-1)\right) - 1$$

The Vol Component Indices pertain to the portion of the foregoing indices reflecting the value of the VIX Futures related products. Each Vol Component Index starts at 100 on December 20th, 2005 and grows according to the growth in value of the sum of the 26 sub-portfolios, adjusted for the monthly rebalance.

Intra-day Index Calculation

The value of the index will be calculated intra-day (RD) by applying the then current adjusted market prices of the reference securities as if they were the end of day prices and following the end-of-day calculations described above.

Index Maintenance

Base Date
Each index has a level of 100 on the inception date, and on each index business day thereafter the index level is equal to the index level at the beginning of the period times the sum of one plus the index return (R) for the period. (Please see Appendix II)

Rebalancing
Each index will be rebalanced to its target ratio between the large cap exposure and the volatility strategy on a monthly basis in accordance with the aforementioned methodology. One sub-portfolio of the volatility strategy is rebalanced on a weekly basis, such that each of the 13 sub-portfolios will be rebalanced quarterly in accordance with the aforementioned methodology.

Corporate Actions
Corporate events, such as dividends, stock splits, spin-offs, mergers, rights offerings, etc. will result in either (i) an adjustment to the price of the instrument underlying the index or (ii) termination of the index, each as described below.

- **Stock splits and reverse stock split**
  The number of shares of an entity is adjusted (number of shares multiplied by the split ratio) based on the stock split factor and the price is adjusted (price multiplied by the reciprocal of the stock split ratio) based on the stock split factor. In a 2-for-1 stock split the adjustment factor is 2, so the number of shares is multiplied by 2 and the price is multiplied by ½.

- **Cash dividend**
  Cash dividends paid by reference securities are reinvested into that reference security. This would have the effect of increasing the total return of the index.

Corporate actions are applied after the close of trading on the day prior to the ex-date.

The Index Committee will be solely responsible for the determination and calculation of any adjustments to the price of any instrument underlying an index and of any related determinations and calculations with respect to any corporate action and its determinations and calculations will be conclusive absent manifest error.

Complex corporate actions: should any corporate action exist which the Index Committee deems requires a price adjustment, it will be solely responsible for determining the method and timing for any necessary price adjustments. In the case of simultaneous corporate actions, the Index Committee will determine the application of the above price adjustments which is the most accurate reflection of the impact of the corporate actions.

Index Policy

Announcements
Announcements regarding changes to any of the VelocityShares indices will be made publicly available prior to the effective date of the change. All announcements will be published on the index website: www.velocityindices.com

Holiday Schedule
Each VelocityShares index will be calculated on days when (a) the New York Stock Exchange is open for trading and (b) the primary exchange for the reference securities is open for trading. (Please see Appendix II)

Force Majeure or Market Disruption
Calculation of the index may not be possible or feasible under certain events or circumstances, including, without limitation, market disruptions, a systems failure, natural or man-made disaster, act of God, armed conflict, act of terrorism, riot or labor disruption or any similar intervening circumstance, that is beyond the reasonable control of the index provider and that the index provider determines affects the Index or underlying markets. Upon the occurrence of any such force majeure event, the index provider may, in its discretion, elect one (or more) of the following options:

- Make such determinations and/or adjustments to the terms of the Index as it considers appropriate to determine any closing level on any such appropriate index business day; and/or
- Defer publication of the information relating to the index until the next index business day on which it determines that no force majeure event exists; and/or
- Permanently cancel the publication of the information relating to the index. The index provider employs the methodology described above and its application of the methodology shall be conclusive and binding.

Index Committee

The Index Committee is responsible for reviewing the design, composition, and calculation of the VelocityShares Indices, the development of new indices, and to determine changes, if any, to the index methodology, and the treatment of corporate actions.

Decisions made by the Index Committee include all matters related to index policy and maintenance. The Index Committee meets periodically to review market conditions and index performance, or on an as-needed basis to address major market developments.

The Index Committee reserves the right to exercise its discretion in making decisions with respect to any index policy or action. Index Committee internal procedures and discussions are considered to be potentially market moving and are therefore kept confidential.

Index Dissemination

Index Tickers
The indices are calculated in real-time and disseminated by the Consolidated Tape Association (CTA) every 15 seconds during the U.S. trading day. Official closing index levels are published on each index business day at approximately 6 PM Eastern Time and are made available on www.velocitysharesindices.com.

File Transfer Protocol (FTP)
Daily index level information is available via FTP. Please contact index@velocityshares.com for subscription information.

Contact Information

index@velocityshares.com

www.velocityindices.com

19 Old Kings Highway South
Suite 120
Darien, CT 06820

+1 203 992 4301

Disclosures and Disclaimers

This document does not constitute an offer of services in jurisdictions where Janus, VelocityShares or its affiliates do not have the necessary licenses. Janus nor VelocityShares receives compensation in connection with licensing its indices to third parties. All information provided by Janus or VelocityShares is impersonal and not tailored to the needs of any person, entity or group of persons. Janus, VelocityShares and its affiliates make no representation regarding the advisability of investing in any investment fund or other vehicle that is offered by third parties and that seeks to provide an investment return based on the returns of any Janus or VelocityShares index. A decision to invest in any such investment fund or other vehicle should not be made in reliance on any of the statements set forth in this document. Prospective investors are advised to make an investment in any such fund or other vehicle only after carefully considering the risks associated with investing in such funds, as detailed in an offering memorandum or similar document that is prepared by or on behalf of the issuer of the investment fund or other vehicle. Inclusion of a security within an index is not a recommendation by Janus or VelocityShares to buy, sell, or hold such security, nor is it considered to be investment advice. Janus or VelocityShares does not guarantee the accuracy and/or completeness of any Janus or VelocityShares index, any data included therein, or any data from which it is based, and Janus nor VelocityShares shall have no liability for any errors, omissions, or interruptions therein. Janus and VelocityShares makes no warranties, express or implied, as to results to be obtained from use of information provided by Janus or VelocityShares and used in this service, and Janus and VelocityShares expressly disclaim all warranties of suitability with respect thereto. While Janus and VelocityShares have obtained information believed to be reliable, Janus and VelocityShares shall not be liable for any claims or losses of any nature in connection with information contained in this document, including but not limited to, lost profits or punitive or consequential damages, even if it is advised of the possibility of same. These materials have been prepared solely for informational purposes based upon information generally available to the public from sources believed to be reliable. Janus and VelocityShares make no representation with respect to the accuracy or completeness of these materials, the content of which may change without notice.

Appendix I: Reference ETPs

Reference	Ticker	Primary Exchange
Large Cap Equity	SPY	NYSE
Large Cap Equity	VOO	NYSE
Large Cap Equity	IVV	NYSE
2x Long VIX Short-term Futures ETF	UVXY	NYSE
-1x VIX Short-Term Futures ETF	SVXY	NYSE

Historical Data

Prior to October 4, 2011, no return data for VIX futures-linked ETPs was available and therefore for the 2X leveraged exposure, we use twice the return of the S&P 500 VIX Short-Term Futures Index solely for historical backfilling purposes:

$$r_{i,t} = 2 \times \left(\frac{SPVXSP_t}{SPVXSP_{t-1}} - 1 \right)$$

Prior to October 4, 2011, no return data for VIX futures-linked ETPs was available and therefore for the inverse exposure, we use the negative of the return of the S&P 500 VIX Short-Term Futures Index solely for backfilling purposes:

$$r_{i,t} = -1 \times \left(\frac{SPVXSP_t}{SPVXSP_{t-1}} - 1 \right)$$

The use of VIX futures data rather than ETP prices prior to October 4, 2011 means this data does not include the management fees of ETPs, nor any collateral return. It is likely that the back tested index returns are higher than they would have been, had ETP prices been available during this period.

Appendix II: Holiday Schedule

NYSE Holiday Schedule

2015	2016	2017
January 1	January 1	January 2
January 19	January 18	January 16
February 16	February 15	February 20
April 3	March 25	April 14
May 25	May 30	May 29
July 3	July 4	July 4
September 7	September 5	September 4
November 26	November 24	November 23
December 25	December 26	December 25