MARKET VECTORS® INDICES

INDEX GUIDE

MARKET VECTORS® US DYNAMIC PUT WRITE INDEX

VERSION 1.12 | 06.2015

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1. INTRODUCTION

This document provides the rules for calculating and maintaining the Market Vectors US Dynamic Put Write Index (the "Index").

1.1 Market Vectors Specialty Indices

Index Name
Market Vectors® US Dynamic Put Write Index

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The following long names, short names and abbreviations are approved by the Index Owner.

1.2 Names and Symbol

Long Name	Short Name	Symbol
Market Vectors® US Dynamic Put Write Index (TR)	MV US Dynamic Put Write Idx (TR)	MVVCAP

The next table shows the launch date, base date and base value for the Index.

1.3 Base Date and Base Value

Index	Launch Date	Base Value	Base Date
Market Vectors® US Dynamic Put Write Index (TR)	12 June 2014	1000.00	8 January 2005

2. GENERAL DESCRIPTION

2.1 Index Description

2.1.1 Market Vectors® US Dynamic Put Write Index

The Index includes:

- Put Options on the SPDR S&P 500 ETF (ticker: SPY)
- Treasury Bills

At the base date, there will be a starting value of 1,000 USD and four different buckets (Bucket 1 to Bucket 4). Each of these four buckets are allocated a notional of 50% or 25% of the starting value initially. Then each bucket sells ("writes") Options with expiration dates either one or two months out from front month Put Option with a total notional value that equals 200% of its market value.

While each bucket has the same notional option exposure, option strike prices and expiry dates vary between the four buckets. Each bucket also has initially a cash amount equalling 25% of the starting value. The cash position is deposited into Treasury Bills maturing the Thursday prior to the next bucket rebalancing day and is reinvested in the bucket at each bucket rebalancing day. For the time between Thursday and the rebalancing, the bond for the following rebalancing date replaces the matured bond. Each of the four buckets sells Put Options, each spaced apart by one week.

The Put Options typically expire Saturday following the third Friday of each month. Each Monday a different bucket will buy back the Put Options it originally sold and sell new Put Options ("option roll"). The new Put Options sold will be either the 1st or 2nd back-month contract. Front-month Put Options contracts will never be sold. The option roll on each Monday will occur at the closing price of this Monday and will be reflected in the index.

- In typical Put Options months (i.e., four weeks between the expiry of the front- and 1st back-month contracts):

  The order and timing of options rolls during these types of option months are as follows:

  - Bucket 1: Monday prior to the next Saturday Put Option expiry
  - Bucket 2: 1st Monday following the most recent Saturday Put Option expiry
  - Bucket 3: 2nd Monday following the most recent Saturday Put Option expiry
  - Bucket 4: 3rd Monday following the most recent Saturday Put Option expiry

  The Monday following the Bucket 4 option roll will start the cycle again with Bucket 1 rolling its Put Option contracts.

  The volatility of the price of the SPDR S&P 500 ETF (ticker: SPY) is incorporated into the strike price calculation formula for each new Put Option Contract sold. The volatility input utilizes a GARCH (Generalized AutoRegressive Conditional Heteroskedasticity) model to forecast future volatility using only the price return of the SPDR S&P 500 ETF.

  In non-typical Put Option months (i.e., five weeks between the expiry of the front- and 1st back-month contracts) the week following the Bucket 4 option roll will have no option roll activity:

- The order and timing of options rolls during these types of option months are as follows:
  - Bucket 1: Monday prior to the next Saturday Put Option expiry
  - Bucket 2: 1st Monday following the most recent Saturday Put Option expiry
  - Bucket 3: 2nd Monday following the most recent Saturday Put Option expiry
  - Bucket 4: 3rd Monday following the most recent Saturday Put Option expiry
  - No Roll: 4th Monday following the most recent Saturday Put Option expiry

  The Monday following the No Roll will start the cycle again with Bucket 1 rolling its Put Option contracts.

  The volatility of the price of the SPDR S&P 500 ETF (ticker: SPY) is incorporated into the strike price calculation formula for each new Put Option Contract sold. The volatility input utilizes a GARCH (Generalized AutoRegressive Conditional Heteroskedasticity) model to forecast future volatility using only the price return of the SPDR S&P 500 ETF.

2. GENERAL DESCRIPTION

The Market Vectors US Dynamic Put Write Index is calculated as a total return index using USD prices and has the following identifiers:

Index Type	ISIN	SEDOL	WKN	Bloomberg	Reuters
Total Return index	DE000SLA0HA8	BN7Q4T8	SLA0HA	MVVCAP	.MVVCAP

The Index was launched on 12 June 2014 with a base index value of 1000.00 as of 8 January 2005.

3. GENERAL DEFINITIONS

3.1 Index Currency

The Index is calculated with the security prices in US Dollars.

3.2 Review Schedule

There is no review for the MV US Dynamic Put Write Index necessary. Instead of a classical review, the underlying Buckets 1 to 4 are rolled on a monthly basis (as described in Section 2.1.1).

The details of each roll are announced on the first day after the option expiry.

Bucket weights are reviewed semi-annually. The weight of each bucket is set to 25% after the close of the last trading date in June and December.

3.3 Dissemination

The Index will be calculated weekdays at 22:45 (CET) and the index values are disseminated to data vendors once a day.

The Index is disseminated on days when either the US equity market or the US options market is open for trading.

4. CALCULATION

4.1 Index Formula

The Indices are calculated using the following formula:

$$Index_t = \frac{\sum_{i=1}^{4} s_{i,t} \times Bucket_{i,t}}{Divisor}$$

with:

$Index_t$ = index value at business day (t)
$Bucket_{i,t}$ = value of bucket (i) at business day (t)
$s_{i,t}$ = number of shares in $Bucket_{i,t}$ at business day (t)
Divisor = fixed value for scaling purposes

Each bucket is calculated using the following formula:

$$Bucket_{i,t} = Bucket_{i,R-1} + MtM_{i,t} + MtM^{B}_{i,t}$$

with:

$Bucket_{i,R-1}$ = value of bucket (i) at Rebalancing Date of bucket (i) immediately preceding (t)
MtM_t = the Mark to Market value for the options bucket (i) at business day (t)
$MtM^{B}_{i,t}$ = the Mark to Market value for the bond in bucket (i) at business day (t)

Initially each bucket is set to 1,000,000 (for rounding purposes).

The daily Mark to Market value for the options in bucket (i) is calculated using the following formula:

$$MtM_{i,t} = CV_{i,R-1} - CV_{i,t}$$

with:

$CV_{i,R-1}$ = contract value at Rebalancing Date of bucket (i) immediately preceding (t)
$CV_{i,t}$ = contract value at business day (t)

The contract value of bucket (i) is calculated using the following formula:

$$CV_{i,t} = C_{i,R-1} \times P_{i,t} \times R_{i,R-1}$$

with:

$C_{i,R-1}$ = number of contracts at Rebalancing Date of bucket (i) immediately preceding (t)
$P_{i,t}$ = price (average bid-ask price is used) of the sold option of bucket (i) at business day (t)
$R_{i,R-1}$ = ratio of the option sold at Rebalancing Date of bucket (i) immediately preceding (t)

The number of contracts is calculated at the Rebalancing Day (R) using the following formula:

$$C_{i,R} = \frac{\frac{Bucket_{i,R} \times 2}{K_{i,R}}}{R_{i,R}}$$

with:

$K_{i,R}$ = strike of option sold at Rebalancing Day (R) of bucket (i)
$Bucket_{i,R}$ = value of bucket (i) at Rebalancing Date (R) of bucket (i)

4. CALCULATION

$R_{i,R}$ = ratio of the option sold at Rebalancing Date (R) of bucket (i)

The value of Treasury Bills in bucket (i) is calculated as:

$TB_{i,t} = (MP_{i,t} + PCF_{i,t}) \times NB_{i,t}$

with:

$MP_{i,t}$ = Bid Price of Treasury Bill of bucket (i) at business date (t)

$PCF_{i,t}$ = Principal CF of Treasury Bill (i) at business day (t)

$NB_{i,t}$ = Number of Treasury Bills (i) at business day (t)

The cash position invested in Treasury Bills (i) is calculated on a Rebalancing Day (R) using the following formula:

$Cash_{i,R} = Bucket_{i,R} + C_{i,R} \times P_{i,R} \times R_{i,R}$

with:

$Cash_{i,0} = Bucket_{i,0}$

Matured T-Bills (i) are replaced with the bond expiring prior to the following rebalancing date of the respective bucket:

$$NB^{new}_{i,t+1} = \frac{NB_{i,t} \times PCF_{i,t}}{MP^{new}_{i,t}}$$

The daily Mark to Market value for the bond in bucket (i) is calculated using the following formula:

$MtM^{B}_{i,t} = TB_{i,t} - Cash_{i,R}$

For the bonds matured and replaced, the daily Mark to Market value for the bond in bucket (i) is:

$MtM^{B}_{i,t} = NB_{i,t0} \times PCF_{i,t0} - Cash_{i,R} + NB^{new}_{i,t} \times MP^{new}_{i,t} - NB^{new}_{i,t0} \times MP^{new}_{i,t0}$

with t0 being the day when the old bond matured.

4.2 Selection of Strike-Prices

Selection of Strike-Price (K) – based on closing prices and data as of Friday prior to the expiry of the options contracts:

$StrikePrice\ K = I_t \times exp\ \{(Cash_t - q_t + \sigma_t^2/2) \times T + \sigma_t \times \sqrt{(T)} \times Z\}$

with:

I_t = Closing Price of the SPDR S&P 500 ETF (ticker: SPY) on day (t)

T = 1/12; expected holding period for the Put Option

$Cash_t$ = Risk Free Interest Rate (Treasury Bills) on day (t) using the annual yield of the respective T-Bill and multiply it by 1/12

q_t = 1-month Dividend Yield of the SPDR S&P 500 ETF (ticker: SPY) on day (t); using the SPDR S&P 500 ETF (ticker: SPY) 12-month yield and multiply it by 1/12

4. CALCULATION

σ_t = Option Volatility (GARCH model to forecast the volatility of the SPDR S&P 500 ETF (ticker: SPY) on day (t)

Z = Standard Deviation out of the months = -1

4.3 Semi-annual Rebalancing

To keep the divisor constant, the following condition must hold on semi-annual rebalancing dates (last business day of June and December):

$$\sum_{i=1}^{4} s_{i,t} \times Bucket_{i,t} = \sum_{i=1}^{4} s_{i,t+1} \times Bucket_{i,t} \text{ with } s_{i,t} \neq s_{i,t+1}$$

4.4 Input Data

The following rounding procedures are used for the index calculation:

- No rounding:
  - Expected holding Period of Option T
  - Price (average bid-ask price is used) of sold Option: $P_{i,t}$
  - Ratio of Option sold: $R_{i,R}$
  - Bid Price/Principal CF of Treasury Bills: $MP_{i,t} \ / \ PCF_{i,t}$
  - Number of T-Bills: $NB_{i,t}$
  - Value of T-Bills: $TB_{i,t}$
  - Mark to Market value of bucket (for bonds): MtM^{B}_{t}
- Rounding to 0 decimal places:
  - Strike-Price K
- Rounding to 2 decimal places:
  - Index Values: I_t and Index Values: $Index_t$
  - Number of Contracts: $C_{i,R-1}$
- Rounding to 6 decimal places:
  - 1 month dividend yield: q_t
  - Option Volatility (GARCH model to forecast the volatility of the SPDR S&P 500 ETF (ticker: SPY): σ_t
  - Contract Value: $CV_{i,t}$
  - Value of Bucket: $Bucket_{i,t}$
  - Divisor
  - Mark to Market value of bucket (for options): MtM_t
  - Cash position: $Cash_t$
  - Standard Deviation: Z
  - Dividend Yield of the SPDR S&P 500 ETF (ticker: SPY): q_t

4.5 Data Correction

Incorrect or missing input data will be corrected immediately.

5. PERIODIC REVIEW

5.1 Index Review

The Indices are reviewed on a weekly basis.

Updated bucket weights are implemented semi-annually. The weight of each bucket is set to 25% after the close of the last trading date in June and December. To keep the divisor constant, the number of shares in each bucket is selected in a way that ensures the sum of aggregated values invested in the buckets does not change (see 4.3).

5.1.1 Market Vectors® US Dynamic Put Write Index

Review procedure:

At the base date, there will be a starting value of 1,000 USD and four different buckets (Bucket 1 to Bucket 4). Each of these four buckets is allocated a notional of 50% or 25% of the starting value initially. Then each bucket sells ("writes") Options with expiration dates either one or two months out from front month Put Option with a total notional value that equals 200% of its market value.

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  The order and timing of options rolls during these types of option months are as follows:

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  The Monday following the Bucket 4 option roll will start the cycle again with Bucket 1 rolling its Put Option contracts.

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  - No Roll: 4th Monday following the most recent Saturday Put Option expiry

  The Monday following the No Roll will start the cycle again with Bucket 1 rolling its Put Option contracts.

  The volatility of the price of the SPDR S&P 500 ETF (ticker: SPY) is incorporated into the strike price calculation formula for each new Put Option Contract sold. The volatility input utilizes a GARCH model to forecast future volatility using only the price return of the SPDR S&P 500 ETF.