

# NASDAQ Exceed Index Family

INDEX OVERVIEW AND METHODOLOGY – 4Q 2014

## INDEX OVERVIEW

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The NASDAQ Exceed family of Defined Indices were designed to provide defined outcome investment exposures to the market. Defined outcome investments use pre-set protection and return levels, allowing for a more controlled investment experience.

NASDAQ Exceed Indices measures the performance of a portfolio that consists of a basket of US investment grade corporate bonds and a basket of options on the SPDR S&P 500 ETF Trust.

» **NASDAQ Exceed Defined Protection Index** (Ticker: EXPROT) measures a synthetic portfolio of investments that seek to limit losses due to a decline in SPY to a maximum 12.5% while providing participation up to a max capped gain of 15%. The index uses options<sup>i</sup> and 0-3 year IG corporate bonds.

» **NASDAQ Exceed Defined Hedge Index** (Ticker: EXHEDG) measures a synthetic portfolio of investments that seek to shield the first 10% of losses due to a decline in SPY while providing 150% participation up to a moderate capped gain. The index uses options and 0-3 year IG corporate bonds.

» **NASDAQ Exceed Defined Enhancement Index** (Ticker: EXENHA) measures a synthetic portfolio of investments that seek to provide 200% participation on SPY up to a high capped gain while providing only 100% participation on declines. The index uses options and 0-3 year IG corporate bonds.

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## » Index Value and Return

1. Each NASDAQ Exceed index consists of four series. On any business day, the index value is calculated as

$$I_t = \sum_{i=1}^4 S_{i,t} \quad (1)$$

where

$I_t$  = Index value on business day,  $t$

$S_{i,t}$  = Value of the  $i$ -th series on business day,  $t$

2. The Index values were set as of the following dates:
  - a. NASDAQ Exceed Defined Protection Index was set as of 10/1/2001 at a value of \$98.39
  - b. NASDAQ Exceed Defined Hedge Index was set as of 11/1/2001 at a value of \$93.44
  - c. NASDAQ Exceed Defined Enhancement Index was set as of 12/3/2001 at a value of \$95.92
  - d. All series were initiated with a 25% index value
  - e. As of the Index close of Friday, August 22, 2014, each Index was rebalanced so that each series equaled 25% of the index value

$$I_0 = X \quad (2)$$

$$S_{1,0} = S_{2,0} = S_{3,0} = S_{4,0} = \frac{X}{4} \quad (3)$$

3. The index return is calculated as:

$$R_t = \frac{I_t}{I_{t-1}} \quad (4)$$

4. Each series will be set to expire on the first available Expiration Date upon which the series will have had a term of at least one year and a day
  - a. Until February 15, 2015, Expiration Date is defined as the business day prior to the Saturday following the third Friday of any given month in addition to the last trading day of the month for March, June, September and December
  - b. After February 15, 2015, Expiration date is defined as the third Friday of the expiration month unless that Friday is a holiday, in which case expiration will occur on the business day immediately preceding that holiday in addition to the last trading day of the month for March, June, September and December
  - c. The series expiration date will be set as the first available Expiration Date following a one year and one day period with the following exception:

- i. If the first available Expiration Date is within 65 days of an Expiration Date used by another series than the next available Expiration Date is to be used
- 5. Unless otherwise noted, all option values and strikes should be calculated to two decimal points

## » Series Value and Return – NASDAQ Exceed Defined Protection Index (EXPROT)

6. The index portfolio has four series. Each series consists of two components:
  - a. **Fixed income component (FI)** consisting of a basket of US investment grade corporate bonds as further defined in the **Fixed Income Component** section
  - b. **Equity component (EQ)** consisting of a short ATM put, a long OTM put, a long ATM call and a short OTM call on SPDR S&P 500 ETF Trust
7. On any business day, the value of each series is the sum of the two components

$$S_{i,t} = FI_{i,t} + EQ_{i,t} \quad (5)$$

8. **Non Expiration Day Calculation:** If it is not an expiration day of the  $i$ -th series, the fixed income component and the equity component are evaluated as follows:

$$FI_{i,t} = FShares_{i,t} * \sum_{j=1}^n B_{i,j,t} \quad (6)$$

$$EQ_{i,t} = EShares_{i,t} * (ATMCall_{i,t} - OTMCall_{i,t} - ATMPut_{i,t} + OTMPut_{i,t}) \quad (7)$$

$$FShares_{i,t} = FShares_{i,t-1} \quad (8)$$

$$EShares_{i,t} = EShares_{i,t-1} \quad (9)$$

where

$B_{i,j,t}$  = Closing value of the  $j$ -th bond in the  $i$ -th series on day  $t$

$ATMPut_{i,t}$  = Closing value of the ATM put in the  $i$ -th series on day  $t$

$OTMPut_{i,t}$  = Closing value of the OTM put in the  $i$ -th series on day  $t$

$ATMCall_{i,t}$  = Closing value of the ATM call in the  $i$ -th series on day  $t$

$OTMCall_{i,t}$  = Closing value of the OTM call in the  $i$ -th series on day  $t$

9. **Expiration Day Calculation:** On the expiration day of the  $i$ -th series, the series options expire and the index simultaneously rolls to the next expiration as of the close
  - a. On the expiration day of the  $i$ -th series, check whether the series represents more than 32.50% of the index value. If so, rebalance based on the “Series Rebalance” section
  - b. The FShares represents the fixed income component ratio used in the series calculation while EShares represents the equity component ratio

$$Credit_{i,t} = \sum_{j=1}^n (BY_{i,j,t} * D * BW_{i,j,t}) \quad (10)$$

$$FShares_{i,t} = \frac{S_{i,t} * (100\% - Credit_{i,t})}{\sum_{i=1}^n B_{i,j,t}} \quad (11)$$

$$EShares_{i,t} = \frac{S_{i,t}}{SPY_t} \quad (12)$$

where

$BY_{i,j,t}$  = Bond yield to maturity of the  $j$ -th bond in the  $i$ -th series on day  $t$

$D$  = Duration of the respective series

$BW_{i,j,t}$  = Index weight of the  $j$ -th bond in the  $i$ -th series on day  $t$

- c. The equity component is created with ATM puts, OTM puts, ATM calls, and OTM calls. Their strikes are determined as follows:

- i. Calculate the strike and value of the ATM put

$$ATMPutStrike_{i,t} = SPY_t \quad (13)$$

Find the put option at this strike that expires on the maturity day, and record its value as  $ATMPut_{i,t}$ . If no put options have the exact strike and maturity, approximate the put value as in the “Option Selection” section

- ii. Calculate the strike and value of the OTM put

$$OTMPutStrike_{i,t} = SPY_t * (1 - Floor) \quad (14)$$

where

$SPY_t$  = Closing value of SPDR S&P 500 ETF on day  $t$

$Floor$  = Downside floor = 12.5%

Find the put option at this strike that expires on the maturity day, and record its value as  $OTMPut_{i,t}$ . If no put options have the exact strike and maturity, approximate the put value as in the “Option Selection” section

- iii. Calculate the strike and value of the ATM call

$$ATMCallStrike_{i,t} = SPY_t \quad (15)$$

Find the call option at this strike that expires on the maturity day, and record its value as  $ATMCall_{i,t}$ . If no call options have the exact strike and maturity, approximate the call value as in the “Option Selection” section

- iv. Calculate the value and strike of the OTM call

$$OTMCall_{i,t} = SPY_t * \left( \frac{ATMCall_{i,t}}{SPY_t} + \frac{OTMPut_{i,t}}{SPY_t} - Credit_{i,t} - \frac{ATMPut_{i,t}}{SPY_t} \right) \quad (16)$$

Find the OTM call with this value, and record its strike as  $OTMCallStrike_{i,t}$ . If no call options have the exact value and maturity, approximate the call strike as in the “Option Selection” section

1. If  $\frac{OTMCallStrike_{i,t}}{SPY_t} > 15\%$  Then

$$OTMCallStrike_{i,t} = SPY_t * 115\% \quad (17a)$$

$$OldOTMCall = OTMCall_{i,t} \quad (17b)$$

Find the call option at this strike that expires on the maturity day, and record its value as  $OTMCall_{i,t}$ . If no call options have the exact strike and maturity, approximate the call value as in the “Option Selection” section

$$AddlFloor = OTMCall_{i,t} - OldOTMCall_{i,t} \quad (17c)$$

$$OTMPut_{i,t} = OTMPut_{i,t} + AddlFloor \quad (17d)$$

Find the put with this value, and record its strike as  $OTMPutStrike_{i,t}$ . If no put options have the exact value and maturity, approximate the put strike as in the “Option Selection” section

2. If  $OTMPutStrike_{i,t} > ATMputStrike_{i,t}$  Then

$$OTMPutStrike_{i,t} = ATMputStrike_{i,t} \quad (17e)$$

$$AddlCap = AddlFloor - (ATMPut_{i,t} - OTMPut_{i,t}) \quad (17f)$$

$$OTMPut_{i,t} = ATMPut_{i,t} \quad (17g)$$

$$OTMCall_{i,t} = OTMCall_{i,t} + AddlCap \quad (17h)$$

Find the OTM call with this value, and record its strike as  $OTMCallStrike_{i,t}$ . If no call options have the exact value and maturity, approximate the call strike as in the “Option Selection” section

v. Calculate the Cap

$$Cap_{i,t} = \left( \frac{OTMCallStrike_{i,t}}{SPY_t} - 1 \right) \quad (18)$$

vi. Calculate the Floor

$$Floor_{i,t} = - \left( \frac{OTMPutStrike_{i,t}}{SPY_t} - 1 \right) \quad (19)$$

## » Series Value and Return – NASDAQ Exceed Defined Hedge Index (EXHEDG)

6. The index portfolio has four series. Each series consists of two components:
  - a. **Fixed income component (FI)** consisting of a basket of US investment grade corporate bonds as further defined in the **Fixed Income Component** section
  - b. **Equity component (EQ)** consisting of a short OTM put, 1.5 long ATM calls and 1.5 short OTM calls on SPDR S&P 500 ETF Trust
7. On any business day, the value of each series is the sum of the two components

$$S_{i,t} = FI_{i,t} + EQ_{i,t} \quad (5)$$

8. **Non Expiration Day Calculation:** If it is not an expiration day of the  $i$ -th series, the fixed income component and the equity component are evaluated as follows:

$$FI_{i,t} = FShares_{i,t} * \sum_{j=1}^n B_{i,j,t} \quad (6)$$

$$EQ_{i,t} = EShares_{i,t} * (PR * ATMCall_{i,t} - PR * OTMCall_{i,t} - OTMPut_{i,t}) \quad (7)$$

$$FShares_{i,t} = FShares_{i,t-1} \quad (8)$$

$$EShares_{i,t} = EShares_{i,t-1} \quad (9)$$

where

$$PR = 150\%$$

$B_{i,j,t}$  = Closing value of the  $j$ -th bond in the  $i$ -th series on day  $t$

$OTMPut_{i,t}$  = Closing value of the OTM put in the  $i$ -th series on day  $t$

$ATMCall_{i,t}$  = Closing value of the ATM call in the  $i$ -th series on day  $t$

$OTMCall_{i,t}$  = Closing value of the OTM call in the  $i$ -th series on day  $t$

9. **Expiration Day Calculation:** On the expiration day of the  $i$ -th series, the series options expire and the index simultaneously rolls to the next expiration as of the close
  - a. On the expiration day of the  $i$ -th series, check whether the series represents more than 32.50% of the index value. If so, rebalance based on the “Series Rebalance” section
  - b. The FShares represents the fixed income component ratio used in the series calculation while EShares represents the equity component ratio

$$Credit_{i,t} = \sum_{j=1}^n (BY_{i,j,t} * D * BW_{i,j,t}) \quad (10)$$

$$FShares_{i,t} = \frac{S_{i,t} * (100\% - Credit_{i,t})}{\sum_{i=1}^n B_{i,j,t}} \quad (11)$$

$$EShares_{i,t} = \frac{S_{i,t}}{SPY_t} \quad (12)$$

where

$BY_{i,j,t}$  = Bond yield to maturity of the  $j$ -th bond in the  $i$ -th series on day  $t$

$D$  = Duration of the respective series

$BW_{i,j,t}$  = Index weight of the  $j$ -th bond in the  $i$ -th series on day  $t$

- c. The equity component is created with OTM puts, ATM calls, and OTM calls. Their strikes are determined as follows:

- i. Calculate the strike and value of the OTM put

$$PutStrike_{i,t} = SPY_t * (1 - Buffer) \quad (13)$$

where

$SPY_t$  = Closing value of SPDR S&P 500 ETF on day  $t$

$Buffer$  = Downside protection = 10%

Find the put option at this strike that expires on the maturity day, and record its value as  $OTMPut_{i,t}$ . If no put options have the exact strike and maturity, approximate the put value as in the “Option Selection” section

- ii. Calculate the strike and value of the ATM call

$$ATMCallStrike_{i,t} = SPY_t \quad (14)$$

Find the call option at this strike that expires on the maturity day, and record its value as  $ATMCall_{i,t}$ . If no call options have the exact strike and maturity, approximate the call value as in the “Option Selection” section

- iii. Calculate the value and strike of the OTM call

$$OTMCall_{i,t} = SPY_t * \frac{PR * \frac{ATMCall_{i,t}}{SPY_t} - Credit_{i,t} - \frac{OTMPut_{i,t}}{SPY_t}}{PR} \quad (15)$$

Find the OTM call with this value, and record its strike as  $OTMCallStrike_{i,t}$ . If no call options have the exact value and maturity, approximate the call strike as in the “Option Selection” section

- iv. Calculate the Cap

$$Cap_{i,t} = PR * \left( \frac{OTMCallStrike_{i,t}}{SPY_t} - 1 \right) \quad (16)$$

## » Series Value and Return – NASDAQ Exceed Defined Enhancement Index (EXENHA)

1. The index portfolio has four series. Each series consists of two components:
  - a. **Fixed income component (FI)** consisting of a basket of US investment grade corporate bonds as further defined in the **Fixed Income Component** section
  - b. **Equity component (EQ)** consisting of a short ATM<sup>ii</sup> put, 2 long ATM calls and 2 short OTM<sup>iii</sup> calls on the SPDR S&P 500 ETF Trust
2. On any business day, the value of each series is the sum of the two components

$$S_{i,t} = FI_{i,t} + EQ_{i,t} \quad (5)$$

3. **Non Expiration Day Calculation:** If it is not an expiration day of the *i*-th series, the fixed income component and the equity component are evaluated as follows:

$$FI_{i,t} = FShares_{i,t} * \sum_{j=1}^n B_{i,j,t} \quad (6)$$

$$EQ_{i,t} = EShares_{i,t} * (PR * ATMCall_{i,t} - PR * OTMCall_{i,t} - ATMPut_{i,t}) \quad (7)$$

$$FShares_{i,t} = FShares_{i,t-1} \quad (8)$$

$$EShares_{i,t} = EShares_{i,t-1} \quad (9)$$

where

$$PR = 200\%$$

$B_{i,j,t}$  = Closing value of the *j*-th bond in the *i*-th series on day *t*

$ATMPut_{i,t}$  = Closing value of the ATM put in the *i*-th series on day *t*

$ATMCall_{i,t}$  = Closing value of the ATM call in the *i*-th series on day *t*

$OTMCall_{i,t}$  = Closing value of the OTM call in the *i*-th series on day *t*

4. **Expiration Day Calculation:** On the expiration day of the *i*-th series, the series options expire and the index simultaneously rolls to the next expiration as of the close
  - a. On expiration of the *i*-th series, check whether the series represents more than 32.50% of the index value. If so, rebalance based on the “Series Rebalance” section
  - b. The FShares represents the fixed income component ratio used in the series calculation while EShares represents the equity component ratio

$$Credit_{i,t} = \sum_{j=1}^n (BY_{i,j,t} * D * BW_{i,j,t}) \quad (10)$$

$$FShares_{i,t} = \frac{S_{i,t} * (100\% - Credit_{i,t})}{\sum_{i=1}^n B_{i,j,t}} \quad (11)$$

$$EShares_{i,t} = \frac{S_{i,t}}{SPY_t}$$

(12)

where

$BY_{i,j,t}$  = Bond yield to maturity of the  $j$ -th bond in the  $i$ -th series on day  $t$

$D$  = Duration of the respective series

$BW_{i,j,t}$  = Index weight of the  $j$ -th bond in the  $i$ -th series on day  $t$

- c. The equity component is created with ATM puts, ATM calls, and OTM calls. Their strikes are determined as follows:

- i. Calculate the strike and value of the ATM put

$$ATMPutStrike_{i,t} = SPY_t \quad (13)$$

where

$SPY_t$  = Closing value of SPDR S&P 500 ETF on day  $t$

Find the put option at this strike that expires on the maturity day, and record its value as  $ATMPut_{i,t}$ . If no put options have the exact strike and maturity, approximate the put value as in the “Index Option Value Calculation Methodology” (“Option Selection”) section

- ii. Calculate the strike and value of the ATM call

$$ATMCallStrike_{i,t} = SPY_t \quad (14)$$

Find the call option at this strike that expires on the maturity day, and record its value as  $ATMCall_{i,t}$ . If no call options have the exact strike and maturity, approximate the call value as in the “Option Selection” section

- iii. Calculate the value and strike of the OTM call

$$OTMCall_{i,t} = SPY_t * \frac{PR * \frac{ATMCall_{i,t}}{SPY_t} - Credit_{i,t} - \frac{ATMPut_{i,t}}{SPY_t}}{PR} \quad (15)$$

Find the OTM call with this value, and record its strike as  $OTMCallStrike_{i,t}$ . If no call options have the exact value and maturity, approximate the call strike as in the “Option Selection” section

- iv. Calculate the Cap

$$Cap_{i,t} = PR * \left( \frac{OTMCallStrike_{i,t}}{SPY_t} - 1 \right) \quad (16)$$

## » Fixed Income Component

### 10. Eligibility Factors

- a. Issuer must be a U.S. corporation issuing investment grade rated bonds in US dollars
- b. Securities eligible for inclusion in the index include:
  - i. U.S. SEC Registered and 144a securities, with or without registration rights
  - ii. Original issue zero coupon bonds
  - iii. Step-up coupons and those that change according to a predetermined schedule
- c. Securities excluded from the index include:
  - i. Toggle notes
  - ii. Bonds that are callable/putable
  - iii. bonds with sinking funds
  - iv. perpetual securities
  - v. Fixed-to-floating rate securities
  - vi. Warrant-bearing, Convertible, Preferred, DRD-eligible (Dividend Received Deduction), Qualified Dividend Income (QDI) eligible securities, structured or linked notes and defaulted securities
  - vii. Any other security specifically not mentioned in eligible securities
- d. Only senior and subordinated bonds are included. Covered bonds and equipment trust certificate are excluded as are non-corporate bonds secured by mortgages are also excluded
- e. The following corporate structures are eligible for inclusion in the index:
  - i. Debentures, MTN, zero coupon bonds, and corporate insured bank notes
- f. Securities must be issued in US dollars
- g. Country of incorporation of the issuer must be the U.S.
- h. Only bonds with a maturity of between 0 and 3 years will be included
- i. Each bond must have a maturity greater than or equal to one month from the rebalancing date. No bonds mature in the index
- j. The minimum credit rating for inclusion in investment grade indices is BBB-/Baa3/BBB-. For an issue rated by S&P, Moody's, and Fitch, the lowest of the three ratings is used as the issue's credit rating. When there are two ratings, the lower of the two ratings must be considered investment grade. When there is only one rating, that rating must be considered investment grade. New issues must be rated by at least one rating agency to be considered at the next rebalancing. Bonds that are not rated are removed at the first rebalancing. Defaulted securities are removed at the first rebalancing. For ratings based sub-indices, the above rules are applied to the appropriate rating band
- k. Bonds must have a fixed coupon schedule

- l. Securities must be publicly issued in the U.S. SEC registered or 144a markets
- m. A minimum par of US\$ 250 million at each rebalancing is required

11. Target Fixed Income Weights

- a. The indices will utilize a market value weighting methodology to weight individual fixed income components
- b. Each component weighting will equal the market value of the individual component divided by the sum of all the component market values within the portfolio
- c. Once set, the target weights are free to float due to market actions until the next rebalancing date

## » Series Rebalance

12. If the respective series represents more than 32.5% of the value of the index then all four series will be rebalanced so that each series represents 25% of the index
- a. Each series will be set to 25% of the current value of the index. If  $I_t$  and  $S_{i,t}$  are the values of the index and the  $i$ th series, respectively, at time of rebalance  $t$ , then for  $i = 1$  to 4,

$$S_{i,t} = 0.25 * I_t$$

- b. The value of each component (call, put, or fixed income component) of each series will be readjusted so that it represents the same proportion of the series but reflects the new series value. The component value is divided by the value of one share of the component (such as a single call or put) to obtain the number of shares of that component to be held in the portfolio. If  $C_{i,j,t}$  is the value of the  $j$ th component of the  $i$ th series at time  $t$ ,  $V_{i,j,t}$  the value of a single share of the component, and  $N_{i,j,t}$  the number of shares of the component in the portfolio, then

$$P_{i,j,t} = \frac{C_{i,j,t-1}}{S_{i,j,t-1}}$$
$$C_{i,j,t} = P_{i,j,t} * S_{i,j,t}$$
$$N_{i,j,t} = \frac{C_{i,j,t}}{V_{i,j,t}}$$

## » Index Series Equations

### ENHANCEMENT EQUITY EQUATION

#### **At Maturity:**

IF  $SPY_p \geq 0$ , Then  $\text{MIN}(200\% * SPY_p, CAP)$

IF  $SPY_p < 0$ , Then  $SPY_p$

$SPY_p$  = SPY Performance measured by SPY closing level at maturity less SPY closing level on initial date

MIN = Minimum of the 2 values in the ()

**CAP** = Maximum gain, solved for variable based on the other constants in the formula

### HEDGE EQUITY EQUATION

#### **At Maturity:**

IF  $SPY_p \geq 0$ , Then  $\text{MIN}(150\% * SPY_p, \mathbf{CAP})$

IF  $SPY_p < 0$ , Then  $\text{MIN}(0, SPY_p + 10\%)$

$SPY_p$  = SPY Performance measured by SPY closing level at maturity less SPY closing level on initial date

MIN = Minimum of the 2 values in the ()

**CAP** = Maximum gain, solved for variable based on the other constants in the formula

## PROTECTION EQUITY EQUATION

### **At Maturity:**

IF  $SPY_p \geq 0$ , Then  $\text{MIN}(SPY_p, \text{CAP})$

IF  $SPY_p < 0$ , Then  $\text{MAX}(\text{FLOOR}, SPY_p)$

$SPY_p$  = SPY Performance measured by SPY closing level at maturity less SPY closing level on initial date

$\text{MIN}$  = Minimum of the 2 values in the ()

$\text{CAP}$  = Maximum gain not to exceed 15%, solved for variable based on the other constants in the formula

$\text{MAX}$  = Maximum of the 2 values in the ()

$\text{FLOOR}$  = Maximum loss not to exceed 12.5%, solved for variable based on the other constants in the formula

## » Index Option Value Calculation Methodology (“Option Selection”)

### 13. Methodology to calculate index option values

- a. Select the options that match the maturity date of the series.
  - i. If those options do not exist, use two groups of options with expiration dates immediately prior and post the series maturity date. These two maturities are weighted so that their weighted average maturity equals the series maturity date. Denote the weights as:

$W^{near}$  and  $W^{next}$  for the near-term and next-term, respectively

In the case where there is an expiration that matches that of the option then  $W^{near} = W^{next} = 50\%$  and only a low and high strike (or value) need be calculated

- ii. For each maturity, select the options that match the desired strike (or value). If no such option exists, use two options with strikes (or values) immediately below and above the desired strike (or value). These two strikes (or values) are weighted so that their weighted average strike (or value) equals the desired strike (or value). Denote the weights as:

$W_{low}^{near}$  and  $W_{high}^{near}$  for the near-term options with low strike (or value) and high strike (or value), respectively.

Denote the weights as:

$W_{low}^{next}$  and  $W_{high}^{next}$  for the next-term options with low strike (or value) and high strike (or value), respectively

- iii. The desired option value is interpolated as:

$$\begin{aligned} OptionPrice = & W^{near} * (W_{low}^{near} * OptionPrice_{low}^{near} + W_{high}^{near} * OptionPrice_{high}^{near}) \\ & + W^{next} * (W_{low}^{next} * OptionPrice_{low}^{next} + W_{high}^{next} * OptionPrice_{high}^{next}) \end{aligned}$$

where

$$\begin{aligned} W^{near} + W^{next} &= 1 \\ W_{low}^{near} + W_{high}^{near} &= 1 \\ W_{low}^{next} + W_{high}^{next} &= 1 \end{aligned}$$

- iv. The desired option strike is interpolated as:

$$OptionStrike = W^{near} * (W_{low}^{near} * OptionStrike_{low}^{near} + W_{high}^{near} * OptionStrike_{high}^{near})$$

$$+W^{next} * (W_{low}^{next} * OptionStrike_{low}^{next} + W_{high}^{next} * OptionStrike_{high}^{next})$$

where

$$\begin{aligned}W^{near} + W^{next} &= 1 \\W_{low}^{near} + W_{high}^{near} &= 1 \\W_{low}^{next} + W_{high}^{next} &= 1\end{aligned}$$

## » Rebalancing

### 14. Credit Component

- a. Based on new issuance, size and maturity, the bonds in the index are subject to change every month, effective after the close of the last calendar day of the month. On a monthly basis, the index is reviewed and rebalanced based on eligibility criteria
- b. Weighting of the components will be reset on a monthly basis following the guidelines set forth in section 11

### 15. Equity Component

- a. On the first business day following every Expiration, all options utilizing the Index Option Value Calculation Methodology should be reviewed to see whether there are better options that may be used
  - i. The option should be reviewed to see whether there is a single option that can be used
  - ii. If there are no single options listed with the particular characteristics, the option should be reviewed to see whether there is a single expiration that can be used
  - iii. If there is no single expiration, the option should be reviewed to see whether there is a closer option series to be used as compared to  $W^{near}$  and  $W^{next}$
  - iv. The option should be analyzed to see whether there is a closer option strike to be used as compared to  $W_{low}^{near}$ ,  $W_{high}^{near}$ ,  $W_{low}^{next}$ , and  $W_{high}^{next}$

## » Maintenance

### 16. Index Construction

- a. The Index Calculation Agent is responsible for gathering securities information for the Eligible Universe and applying the methodology to create individual indices

### 17. Securities Pricing

- a. The Index Calculation Agent is responsible for determining an evaluated value for each security and associated equation in the indices

### 18. Calculation and Dissemination

- a. The Index Calculation Agent is responsible for compiling, calculating, maintaining and disseminating the values of the indices
- b. Calculation will occur once a day upon the close of the US equity markets

### 19. Index Committee

- a. The Index Committee solely maintains the index methodology and is not involved in any way in the day-to-day maintenance or administration of the index.
- b. The Index Committee meets at least once annually to review the Index methodology. Any changes to the methodology will be publicly disclosed at least ten (10) trading days prior to implementation by the Index Calculation Agent

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<sup>i</sup> Characteristics on all options include but are not limited to expiration/ maturity date, % level out or in the money, put or call, European or American type exercise, Vanilla or Binary style option

<sup>ii</sup> ATM = At-the-money (ATM) is defined as the strike level of an option that equates to 100% of the value of SPY. For example, if SPY is equal to 180 then the ATM put is struck at 180 (180 \* 100%)

<sup>iii</sup> OTM = Out-of-the-money (OTM) is defined as the strike level of an option that equates to a value below that of the current spot level of SPY. For example, if SPY is equal to 180 then an OTM put that would be 10% below the current spot level of SPY would be struck at 162 (180 \* 90%)