



## INDEX METHODOLOGY

# NASDAQ SPECTRUM™ INDEXES

## INDEX DESCRIPTION

The Nasdaq Spectrum Indexes, each an “Index” and collectively the “Indexes”, are designed to provide a systematic multi-asset strategy with exposure to the Nasdaq-100®, a broad-based commodity index, and a 10-year U.S. Treasury Futures index (each a “Component” or collectively, “Components”) while targeting a specified level of volatility. The Indexes use the truVol® Risk Control Engine to dynamically adjust exposure on a daily basis to the equity Component with the aim of achieving the volatility target.

The truVol® Risk Control Engine is a proprietary risk management tool designed by Salt Financial LLC to offer higher levels of responsiveness and accuracy in targeting volatility for risk-controlled indices. The mechanism generally increases exposure to the equity Component when volatility falls and decreases exposure when it rises.

Two Indexes are available: one employing a 5% volatility target and another with a 7% volatility target.

The Indexes rebalance daily. Although each Index is designed to target a specific level of volatility, there is no guaranty the Indexes will achieve these results.

## INDEX CALCULATION

For each Index, the Index value is equal to the Index Base Value on the Index Base Date, thereafter for each Index Day, the value of an Index is calculated in accordance with the following formula:

$$I_t = I_{t-1} + \sum_i (U_{i,t-1} \times (P_{i,t} - P_{i,t-1}) - TC_{i,t} - FC_{i,t}) - AF_t$$

where:

$t$  = an Index Day  $t$ .

$i$  = an identifier for the respective Component index (see *Component parameters* section below for a list of Components and their respective identifiers).

$t - 1$  = the Index Day immediately preceding Index Day  $t$ .

$I_x$  = the value of the Index for Index Day  $x$ .

$U_{i,x}$  = the number of Units of Component  $i$  for Index Day  $x$  (see *Rebalancing process* section below for more details).

$P_{i,x}$  = the value of Component  $i$  for Index Day  $x$  (rounded to two decimal places). Please see the *Component parameters* section below for further information on the Components.

$TC_{i,t}$  = the estimated trading costs for Component  $i$  for Index Day  $t$  as determined in accordance with the following formula:

$$TC_{i,t} = |U_{i,t} - U_{i,t-1}| \times P_{i,t} \times CTC_i$$

where:

$CTC_i$  = the assigned Component trading cost for Component  $i$  as detailed in *Component parameters* below.

$FC_t$  = the estimated funding costs for the Components for Index Day  $t$  as determined in accordance with the following formula:

$$FC_t = |U_{i,t-1}| \times P_{i,t-1} \times FS_i \times \frac{Days_{t-1,t}}{360}$$

where:

$FS_i$  = the assigned Component funding spread as detailed in *Component parameters* below.

$AF_t$  = the Index fee for Index Day  $t$  as determined by the following formula:

$$AF_t = I_{t-1} \times F \times \frac{Days_{t-1,t}}{360}$$

where:

$F$  = the assigned Index fee rate as detailed in *Index parameters* below.

$Days_{t-1,t}$  = the number of calendar days from Index Day  $t - 1$  (inclusive) to Index Day  $t$  (exclusive).

*If the value for an underlying Component is unavailable on a given Index Day  $t$ , then such value shall be the last available value for that Component, as determined by the Index Administrator.*

## INDEX CONSTRUCTION

### Index parameters

The table below details the target volatility, exposures, and assumed Index-level costs specific, where applicable, to the construction and calculation of each Index.

Index (Symbol)	Target Volatility	Maximum Exposure <sup>1</sup>	Minimum Exposure	Maximum Exposure Change <sup>2</sup>	Index Fee Rate ( $F$ )
Nasdaq Spectrum 5% Index (NXQSP5)	5%	150%	0%	20%	0.0050
Nasdaq Spectrum 7% Index (NXQSP7)	7%	200%	0%	20%	0.0050

<sup>1</sup> The maximum exposure for the portfolio.

<sup>2</sup> The maximum daily change in exposure for each Component within the portfolio.

## Component parameters

The table below details the Components and assumed Component-level costs specific, where applicable, to the construction and calculation of the Indexes.

Asset Class Exposure	Component Identifier ( <i>i</i> )	Component (Symbol)	Component Exchange <sup>3</sup>	Component Calculation and Publishing Calendar <sup>3</sup>	Component Trading Cost ( <i>CTC<sub>i</sub></i> )	Component Funding Spread ( <i>FS<sub>i</sub></i> )
Equity (Nasdaq-100)	<i>EQ</i>	Nasdaq-100 Futures Excess Return Index (NDXNQER)	CME	CME	0.0001	0.0010
Commodities (Broad-based Commodities)	<i>CO</i>	MSCO Radar Dynamic Roll Excess Return Index (MSCORDD)	NYMEX and LME	NYMEX	0.0003	0.0000
Fixed Income (10 Year U.S. Treasuries)	<i>FI</i>	MS 10-Year US Treasury Note Rolling Future Index (MSCRFGTY)	CME	CME	0.0001	0.0007

## Index components and weighting

Each Index may only include the three Components as detailed above in *Component parameters*.

For each Index Day, an Index's exposure to the Components is determined in accordance with the steps outlined in *Appendix B: Exposure Determination Process*. These exposures are then transformed into Units of each Component (see *Rebalancing process* section below).

## Rebalancing process

Subject to a Hedge Delay, each Index is rebalanced daily after the market close. The number of Units of each Component is determined in accordance with the following process:

$$U_{i,t} = \begin{cases} TargetUnits_{i,t}, & t \text{ is a Component Trading Day for Component } i \\ U_{i,t-1}, & \text{otherwise} \end{cases}$$

where:

$$TargetUnits_{i,t} = \frac{FE_{i,t} \times I_{t-1}}{P_{i,t-1}}$$

For the Index Base Date ( $t_0$ ), the Units of each Component  $i$  is calculated in accordance with the following formula:

$$TargetUnits_{i,t_0} = \frac{FE_{i,t_0} \times Index\_Base\_Value}{P_{i,t_0}}$$

where:

$FE_{i,t}$  = the Final Exposure for Component  $i$  on Index Day  $t$ . See *Appendix B: Exposure Determination Process* for more details.

<sup>3</sup> CME = Chicago Mercantile Exchange, NYMEX = New York Mercantile Exchange, and LME = London Metals Exchange.

$I_{t-1}$  = the Index value on Index Day  $t - 1$ .

$P_{i,x}$  = the value of Component  $i$  for Index Day  $x$  (rounded to two decimal places).

## INDEX CALENDAR

### Holiday schedule

The Index is calculated Monday through Friday, except on days when the Chicago Mercantile Exchange (CME) is scheduled to be closed (the “Holiday Schedule”).

### Index calculation and dissemination schedule

Index values are made available after the market close on each Index Day via the [Nasdaq Global Index Watch \(GIW\) website](#).

## ADDITIONAL INFORMATION

### Announcements

Nasdaq announces Index-related information via the [Nasdaq Global Index Watch \(GIW\) website](#).

For more information on the general Index Announcement procedures, please refer to the [Nasdaq Index Methodology Guide](#).

### Recalculation and restatement policy

For information on the Recalculation and Restatement Policy, please refer to the [Nasdaq Index Recalculation Policy](#).

### Contact information

For any questions regarding an Index, please contact the Nasdaq Index Client Services team at [indexservices@nasdaq.com](mailto:indexservices@nasdaq.com).

### Index dissemination

Where applicable, Index values and weightings information are available through the [Nasdaq Global Index Watch \(GIW\) website](#) as well as the Nasdaq Global Index FlexFile Delivery Service (GIFFD) and Global Index Dissemination Services (GIDS). Similar to the GIDS offerings, Genium Consolidated Feed (GCF) provides real-time Index values and weightings for the Nordic Indexes.

For more detailed information regarding Index Dissemination, please see the [Nasdaq Index Methodology Guide](#).

## Website

For further information, please refer to the [Nasdaq Global Index Watch \(GIW\) website](#).

## FTP and dissemination service

Where applicable, Index values and weightings are available via FTP on the Nasdaq Global Indexes FlexFile Delivery Service (GIFFD). Index values are available via Nasdaq's Global Index Dissemination Services (GIDS).

## GOVERNANCE

### Index governance

All Nasdaq Indexes are managed by the governance committee structure and have transparent governance, oversight, and accountability procedures for the index determination process. For further details on the Index Methodology and Governance overlay, please refer to the [Nasdaq Index Methodology Guide](#).

## APPENDIX A: DEFINITIONS

Term	Description
<b>Calculation Disruption Event</b>	<p>In respect of an Index, the occurrence of one or more of the following events that affects a Component of that Index, or any underlying instrument of such Component, and that the Index Administrator deems to be material to the Index:</p> <ul style="list-style-type: none"> <li>• <b>Price Failure:</b> Any event that impairs or prevents the ability of the Index Administrator to obtain a relevant price, level, rate, value or any other information from an exchange or other source necessary, on a timely basis and in a manner acceptable to the Index Administrator, in order to perform the calculation of the Index.</li> <li>• <b>Inaccurate Data:</b> The price or value of a component, or other input data, used directly or indirectly in the Index that, in the determination of the Index Administrator, is inaccurate, incomplete and/or does not adequately reflect the true market price or value of such component or input data.</li> <li>• <b>Force Majeure:</b> Any event or circumstance (including, without limitation, 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, or restrictions due to emergency powers enforced by federal, state or local government agencies), that is beyond the reasonable control of the Index Administrator and that the Index Administrator determines, in its sole discretion, affects the Index, a Component of the Index, any input data required to calculate the Index, or that prevents the ability of the Index Administrator to calculate the Index.</li> <li>• <b>General Moratorium:</b> the Index Administrator observes on any day that there has been a declaration of a general moratorium in respect of banking activities in any relevant jurisdiction.</li> </ul>
<b>Components</b>	In respect of an Index, each of the three Components as detailed in the <i>Component parameters</i> section.
<b>Component Trading Day</b>	In respect of a Component, each Index Day that the Exchange(s) for that Component is scheduled to be open for trading.
<b>Consequences of a Market Disruption Event or a Calculation Disruption Event</b>	<p>In respect of an Index, if a Market Disruption Event or a Calculation Disruption Event occurs or is occurring on an Index Day that the Index Administrator determines materially affects the Index, the Index Administrator may:</p> <ul style="list-style-type: none"> <li>• Delay the calculation of the Index and halt the dissemination of the value of the Index and /or other information relating to the Index until such time, which may be a subsequent Index Day, that the Index Administrator determines that such Market Disruption Event or Calculation Disruption Event is no longer occurring.</li> <li>• Determine a good faith estimate of any affected or missing input data required to calculate the Index or the value of the Index for such Index Day or time for such Index Day.</li> <li>• If there is a material disruption to any of the markets underlying the commodity Component on a scheduled Rebalance Day for that Component, determine a good faith adjustment to the value of the Index, to address any valuation impact to the Index due to such disruption.</li> </ul>

	<p>Under such scenario, an adjustment may be applied once the disruption is no longer occurring and, for the avoidance of doubt, prior Index values will not be restated.</p> <ul style="list-style-type: none"> <li>For purposes of this term, the Index Administrator may consult market participants when making determinations.</li> </ul>
<b>Disrupted Day</b>	In respect of an Index and a Component, an Index Day on which there is a Market Disruption Event in respect of that Component.
<b>Evaluation Date</b>	In respect of an Index, each Index Day.
<b>Exchange</b>	In respect of an Index and a Component, the exchange(s) listed for that Component in the <i>Component parameters</i> section.
<b>Hedge Delay</b>	In respect of an Index and a Component, if a Market Disruption Event occurs on a scheduled Rebalance Day for such Component, then no change of units of that Component shall occur on that day.
<b>Index Administrator</b>	Nasdaq, Inc.
<b>Index Base Date</b>	December 31, 2002
<b>Index Base Value</b>	1,000.00
<b>Index Day</b>	In respect of an Index and starting with the Index Base Date, each weekday that is not a scheduled holiday according to the Holiday Schedule as defined in the <i>Index Calendar</i> section.
<b>Market Disruption Event</b>	<p>In respect of an Index and a Component, the occurrence of one or more of the following events that affects that Component, or any underlying instrument of that Component, and that the Index Administrator deems to be material to the Index:</p> <ul style="list-style-type: none"> <li><b>Exchange Disruption:</b> Any exchange related event on a relevant exchange that disrupts or impairs the ability of market participants to effect transactions or obtain market values or price discovery of a component used directly or indirectly in the Index.</li> <li><b>Trading Disruption:</b> Any unscheduled closure of the relevant exchange; a material suspension, limitation or disruption of trading on such exchange; a failure of such exchange to publish the relevant price, level, value or other information; a halt in trading, such as a circuit breaker or other exchange imposed halt, but excluding an exchange imposed daily “limit price” for any of the underlying markets of the commodity Component; or any other event that materially affects the ability of market participants to trade, effect transactions in, maintain or unwind positions in that Component or any underlying instrument of that Component.</li> </ul>
<b>Rebalance Day</b>	In respect of an Index, a Component, and an Evaluation Date, the Index Day after that Evaluation Date that is not a Disrupted Day for that Component.

For additional key terms not defined above, please refer to the [Nasdaq Index Methodology Guide](#).

## APPENDIX B: EXPOSURE DETERMINATION PROCESS

For each Evaluation Date, new preliminary portfolio weights are determined for an Index and then scaled to target the Index's specified volatility target. Components within an Index are rebalanced daily on days that the underlying assets of those Components are tradable. The daily rebalance process is further subject to a maximum leverage constraint and a maximum daily change constraint.

The daily exposure determination mechanism consists of the following determination steps:

### 1. Portfolio Allocation

The preliminary portfolio allocation for each Index is determined and represented as a vector of weights ( $w$ ), defined as:

$$w_t = \{w_{EQ,t}, w_{CO,t}, w_{FI,t}\}$$

Where the preliminary weights for each Component are determined in the following sections.

### 2. Equity Weight

Determine the preliminary weight for the equity Component ( $EQ$ ) based on a long-term standard deviation ( $LTSD$ ) of returns and the truVol variance for the equity Component, in accordance with the following process:

$$w_{EQ,t} = \frac{LTSD_{EQ,t-1}}{3 \times \sqrt{\sigma_{EQ,t-1}^{0.93}}}$$

$\sigma_{EQ,t}^{0.93}$  = truVol variance for Component  $EQ$  (see step 6 *truVol Covariance Matrix* below for more information).

$$LTSD_{EQ,t} = \sqrt{\frac{1}{N-1} \times \sum_{k=0}^{N-1} \left( \frac{P_{EQ,t-k}}{P_{EQ,t-k-1}} - 1 - \frac{1}{N} \left[ \sum_{j=0}^{N-1} \frac{P_{EQ,t-j}}{P_{EQ,t-j-1}} - 1 \right] \right)^2}$$

where:

$N = 1260$

$t$  = an Index Day

$P_{EQ,x}$  = the value of Component  $EQ$  for Index Day  $x$  (rounded to two decimal places).

Backtesting note:  $N$  starts at 815 on the Index Day immediately preceding the Index Base Date and increases by 1 each Index Day up to a maximum of 1260.

### 3. Commodity Weight

Determine the preliminary weight for the commodity Component ( $CO$ ) based on a trailing six-month return measure in accordance with the following process:

$$w_{CO,t} = 15\% \times FinalSignal_{CO,t-1}$$

$$FinalSignal_{CO,t} = \frac{1}{5} \sum_{k=0}^4 BufferedSignal_{CO,t-k}$$

$$BufferedSignal_{CO,t} = \begin{cases} 1, & \frac{\sum_{k=0}^9 Signal_{CO,t-k}}{10} = 1 \\ 0, & \frac{\sum_{k=0}^9 Signal_{CO,t-k}}{10} = 0 \\ BufferedSignal_{CO,t-1}, & otherwise \end{cases}$$

$$Signal_{CO,t} = \begin{cases} 1, & \left( \frac{P_{CO,t}}{P_{CO,t-126}} - 1 > 0 \right) \\ 0, & otherwise \end{cases}$$

where:

$t$  = an Index Day

$P_{CO,x}$  = the value of Component  $CO$  for Index Day  $x$  (rounded to two decimal places).

#### 4. Fixed Income Weight

Determine the preliminary weight for the fixed income Component ( $FI$ ) based on a smoothed z-score signal of the daily two-year change in the 10-year yield in accordance with the following process:

$$w_{FI,t} = (1 - w_{EQ,t}) \times FinalSignal_{FI,t-1}$$

$$FinalSignal_{FI,t} = \frac{1}{5} \times \sum_{k=0}^4 BufferedSignal_{FI,t-k}$$

$$BufferedSignal_{FI,t} = \begin{cases} 1, & \frac{\sum_{k=0}^4 Signal_{FI,t-k}}{5} = 1 \\ 0, & \frac{\sum_{k=0}^4 Signal_{FI,t-k}}{5} = 0 \\ BufferedSignal_{FI,t-1}, & otherwise \end{cases}$$

$$Signal_{FI,t} = \begin{cases} 1, & zScore_t < 2 \\ 0, & otherwise \end{cases}$$

Calculate the z-score of the daily two-year change in 10-year Yield over the past 100 days:

$$zScore_t = \frac{YieldChg_t - \frac{1}{N} \times \sum_{k=0}^{N-1} YieldChg_{t-k}}{\sqrt{\frac{1}{N-1} \times \sum_{k=0}^{N-1} \left( YieldChg_{t-k} - \frac{1}{N} \times \sum_{k=0}^{N-1} YieldChg_{t-k} \right)^2}}$$

$$YieldChg_t = \frac{Yield10Y_t}{Yield10Y_{t-504}} - 1$$

where:

$t$  = an Index Day

$N = 100$

$Yield10Y_x$  = the 10-Year U.S. Treasury Yield for Index Day  $x$ .

## 5. Exponential Weighted Moving Average Covariance (*EWCoVar*)

The *EWCoVar* is determined for each component pair  $(i, j)$  within an Index, based on a common trading day calendar for each Component pair.

For each Index Day that is not a common Component Trading Day for both Components of a component pair  $(i, j)$  then:

$$EWCoVar_{i,j,t}^{\lambda} = EWCoVar_{i,j,t-1}^{\lambda}$$

For each Index Day that is a common trading day for both components of a component pair  $(i, j)$  then:

$$EWCoVar_{i,j,t}^{\lambda} = \lambda \times EWCoVar_{i,j,t-1}^{\lambda} + (1 - \lambda) \times \ln\left(\frac{P_{i,t}}{P_{i,t'-1}}\right) \times \ln\left(\frac{P_{j,t}}{P_{j,t'-1}}\right)$$

where:

$t$  = an Index Day

$t' - 1$  = the Index Day that is a common Component Trading Day for the relevant components immediately preceding Index Day  $t$ .

$P_{i,x}$  = the value of Component  $i$  for Index Day  $x$  (rounded to two decimal places).

$P_{j,x}$  = the value of Component  $j$  for Index Day  $x$  (rounded to two decimal places).

For the Index Date immediately preceding Index Base Date ( $t_0$ ), the *EWCoVar* of each component pair  $(i, j)$  is calculated in accordance with the following formulae:

$$EWCoVar_{EQ,EQ,t_0-1}^{\lambda} = \frac{17.5\%^2}{252}$$

$$EWCoVar_{CO,CO,t_0-1}^{\lambda} = \frac{15\%^2}{252}$$

$$EWCoVar_{FI,FI,t_0-1}^{\lambda} = \frac{5\%^2}{252}$$

$$EWCoVar_{EQ,CO,t_0-1}^{\lambda} = EWCoVar_{CO,EQ,t_0-1}^{\lambda} = 0$$

$$EWCoVar_{EQ,FI,t_0-1}^{\lambda} = EWCoVar_{FI,EQ,t_0-1}^{\lambda} = \frac{17.5\% \times 5\% \times -30\%}{252}$$

$$EWCoVar_{CO,FI,t_0-1}^{\lambda} = EWCoVar_{FI,CO,t_0-1}^{\lambda} = \frac{15\% \times 5\% \times 20\%}{252}$$

## 6. truVol Covariance Matrix

Construct the truVol Covariance Matrix for each Index in accordance with the following process:

$$\Sigma_t^\lambda = \begin{pmatrix} \sigma_{EQ,t-1}^\lambda & EWCoVar_{EQ,CO,t-1}^\lambda \times TVF_t^\lambda & EWCoVar_{EQ,FI,t-1}^\lambda \times TVF_t^\lambda \\ EWCoVar_{CO,EQ,t-1}^\lambda \times TVF_t^\lambda & EWCoVar_{CO,CO,t-1}^\lambda & EWCoVar_{CO,FI,t-1}^\lambda \\ EWCoVar_{FI,EQ,t-1}^\lambda \times TVF_t^\lambda & EWCoVar_{FI,CO,t-1}^\lambda & EWCoVar_{FI,FI,t-1}^\lambda \end{pmatrix}$$

where:

$$\sigma_{EQ,t-1}^\lambda = \begin{cases} \hat{y}_{t-1}^{QQQ}, & \text{truVol\_Risk\_Model}_{t-1} = \text{"Intraday"} \\ EWCoVar_{EQ,EQ,t-1}^\lambda, & \text{otherwise} \end{cases}$$

$$TVF_t^\lambda = \sqrt{\frac{\sigma_{EQ,t-1}^\lambda}{EWCoVar_{EQ,EQ,t-1}^\lambda}}$$

Note: if the parameter  $TVF_t^\lambda$  is undefined for any reason, then  $TVF_t^\lambda = 1$ .

## 7. Exposure Ratio

Determine the daily exposure ratio for each Index based on the target volatility and the estimated portfolio volatility for two specific values for lambda ( $\lambda = 0.93, 0.97$ ) in accordance with the following process:

$$Exposure\_Ratio_t = \text{Min} \left( \text{MaxExposure}, \frac{VolTarget}{\text{Max}(\sigma PTF_t^{0.93}, \sigma PTF_t^{0.97})} \right)$$

where:

*MaxExposure* = See Maximum Exposure in the *Index parameters* section.

*VolTarget* = See Target Volatility in the *Index parameters* section.

$$\sigma PTF_t^\lambda = \sqrt{252 \times w_t \cdot \Sigma_t^\lambda \cdot w_t'}$$

$w_t$  = the vector of component weights for Index Day  $t$ , as defined in the step 1 *Portfolio Allocation* above.

$w_t'$  = the transpose vector of  $w_t$ .

Note: If  $\sigma PTF_t^\lambda$  is undefined for any reason<sup>4</sup>, then  $\sigma PTF_t^\lambda = \sigma PTF_{t-1}^\lambda$ .

## 8. Volatility Adjustment Factor

The volatility adjustment factor (*VAF*) is used to help nudge the realized volatility back to the target and correct for any temporary over- or under-shoots from the risk scaling mechanism. It uses a slow decay exponential weighted moving average on the volatility-controlled Index.

<sup>4</sup> The primary reason for an undefined portfolio volatility is a negative variance (i.e.,  $w_t \cdot \Sigma_t^\lambda \cdot w_t' < 0$ ), which can occur under extremely rare circumstances.

The volatility adjustment factor for an Index is determined in accordance with the following formulae:

$$VAF_t = \text{Min} \left( 1.5, \frac{VolTarget^2}{252 \times EWVar_{Index,t}^{0.97}} \right)$$

where:

$EWVar_{Index,t}^{0.97}$  = the exponential weighted moving average variance of the volatility-controlled Index for Index Day  $t$ .

$$EWVar_{Index,t}^{0.97} = 0.97 \times EWVar_{Index,t-1}^{0.97} + (1 - 0.97) \times \ln \left( \frac{I_t + \sum_i (TC_{i,t} + FC_{i,t}) + AF_t}{I_{t-1}} \right)^2$$

$I_t$  = the Index value on Index Day  $t$ .

On the Index Base Date  $t_0$  and the Index Day immediately preceding:

$$EWVar_{Index,t_0}^{0.97} = EWVar_{Index,t_0-1}^{0.97} = \frac{VolTarget^2}{252}$$

## 9. Scaled Exposures

The scaled exposure for each Component within an Index is determined in accordance with the following formulae:

$$ScaledExposure_{i,t} = Exposure_{i,t} \times \left( 1 - \text{Max} \left( 0, 1 - \frac{MaxExposure}{\sum_i Exposure_{i,t}} \right) \right)$$

where:

$$Exposure_{i,t} = \begin{cases} Smoothed\_Risk\_Scalars_{t-1} \times Exposure\_Ratio_t \times VAF_{t-1} \times w_{i,t}, & i = EQ \\ Exposure\_Ratio_t \times VAF_{t-1} \times w_{i,t}, & i = CO \text{ or } FI \end{cases}$$

The “risk scalars” are proprietary elements of the truVol® Risk Control Engine that are detailed in the truVol Calculation Module, which is made available to relevant authorized individuals by Salt Financial LLC.

## 10. Final Exposure<sup>5</sup>

The final exposures ( $FE$ ) are determined in accordance with the following process:

Where Component  $i$  = EQ or CO:

$$FE_{i,t} = \text{Min} \left( \begin{matrix} MaxExposure_i, FE_{i,t-1} + MaxChange_i, \\ Max(Scaled\_Exposure_{i,t}, FE_{i,t-1} - MaxChange_i) \end{matrix} \right)$$

<sup>5</sup> For Index dissemination purposes, the Index Administrator may publish the effective exposure ( $EE$ ) of a Component daily as of after the market close. The effective exposure is determined as follows:

$$EE_{i,t} = \frac{U_{i,t} \times P_{i,t}}{I_t}$$

Where Component  $i$  = FI:

$$FE_{i,t} = \text{Min} \left( \begin{array}{l} \text{MaxExposure}_i - \sum_{j=EQ,CO} FE_{j,t}, FE_{i,t-1} + \text{MaxChange}_i, \\ \text{Max}(\text{Scaled\_Exposure}_{i,t}, FE_{i,t-1} - \text{MaxChange}_i) \end{array} \right)$$

For the Index Base Date ( $t_0$ ), the final exposures of each Component  $i$  are determined in accordance with the following formula:

$$FE_{i,t_0} = \text{Scaled\_Exposure}_{i,t_0}$$

## APPENDIX C: SUPPLEMENTAL TRUVOL DEFINITION

This Methodology document has a companion document, the Nasdaq Spectrum Indexes – truVol Calculation Module (“truVol Calculation Module”) that contains proprietary information designated as trade secrets by Salt Financial LLC. The truVol Calculation Module is made available to a more limited group of authorized individuals with the banks engaging in hedging activity of the Index.

## DISCLAIMER

Nasdaq may, from time to time, exercise reasonable discretion as it deems appropriate in order to ensure Index integrity, including but not limited to, quantitative inclusion criteria. Nasdaq may also, due to special circumstances, if deemed essential, apply discretionary adjustments to ensure and maintain the high quality of the index construction and calculation. Nasdaq does not guarantee that any Index accurately reflects future market performance.

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