truVol® QQQ Balanced 5 Excess Return

Index Methodology
February 2021

Version History

No.	Date	Author	Comments
1.0	2/9/2021	E.Bae	Initial

Introduction

The Salt truVol® QQQ Balanced 5 Index (the “Index”; ticker: SFQBAL) is designed to provide exposure to both US large cap growth equities and Treasuries while dynamically controlling volatility with a target of 5%.

The Index uses the truVol® Risk Control Engine (RCE) to help optimize weighting between the Invesco QQQ ETF (QQQ) and the iShares 7-10 Year Treasury Bond ETF (IEF). Developed by Salt Financial, the RCE is designed to offer higher levels of responsiveness and accuracy in targeting volatility for risk-controlled indices. The strategy also uses the RCE to maintain a daily volatility target of 5%, using non-renumerated cash to reduce exposure if necessary.

The Index is rebalanced daily and calculated in excess of a daily accrual of 3-month LIBOR (Excess Return) and includes an index fee of 50 basis points.

Although the Index is designed to target a specific risk level and subsequently allow more consistent pricing for structured products and fixed-index annuities, there are no guarantees the Index will achieve these results.

Components

The Index allocates notional exposure to the following two underlying components, in excess of the risk-free rate, to arrive at the final index value. The first (the "Equity Component") is represented by the Invesco QQQ ETF (QQQ). The second (the "Fixed Income Component") is represented by the iShares 7-10 Year Treasury Bond ETF (IEF). The Index is reduced by a fixed fee of 0.50% (annualized).

Underlying Component	Ticker
Invesco QQQ ETF	QQQ
iShares 7-10 Year Treasury Bond ETF	IEF

Excess Return Calculations

Each Underlying Component is transformed into an excess return series on a daily basis based on the following formula. These series serve as the building blocks for the final index.

$$ER\ Level_t^i = ER\ Level_{t-1}^i * \left(1 + ER_t^i\right);$$

$$ER_t^i = \left(\frac{Underlying\ Component_t^i}{Underlying\ Component_{t-1}^i} - 1\right) - \frac{RFR_{t-1}}{360} * days(t, t-1)$$

Where

$ER\ Level_t^i = Excess\ return\ level\ of\ Underlying\ Component\ i\ on\ day\ t$
$ER_t^i = Excess\ return\ of\ Underlying\ Component\ i\ on\ day\ t$
$Underlying\ Component_t^i = Underlying\ Component\ level\ on\ day\ t$
$RFR_t = 3M\ Libor\ on\ day\ t$
$days(t, t-1) = Actual\ day\ count\ between\ day\ t\ and\ day\ t-1\ (previous\ business\ day)$

Rebalancing

The Index is rebalanced daily at market close and employs the truVol® RCE to determine initial component weights. The truVol® RCE is a proprietary risk management toolkit designed to enhance risk-controlled index strategies. At the end of each day, the Equity and Fixed Income components assume the following weights:

$$w_t^{EQ} = Min\left(1, \frac{5\%}{truVol_t^{EQ}}\right)$$

$$w_t^{FI} = 1 - w_t^{EQ}$$

These weights, along with a covariance matrix specified by the truVol® RCE, determine the portfolio volatility on day t.

$$truVol^{Ptf} = \sqrt{w'\Sigma w}$$

In an effort to consistently target the desired level of risk, the Index has the ability to scale up notional exposure, subject to a maximum of 125%. In other words, when volatility is below the target level, the Index has the potential to apply leverage. Alternatively, when volatility is above the target level, the Index may reduce exposure. This scaling mechanism, denoted as the "leverage ratio", is calculated as:

$$Leverage\ Ratio_t = Min\left(1.25, \frac{5\%}{truVol_t^{Ptf}}\right)$$

The leverage ratio is applied to the initial component weights to determine the adjusted (final) weights:

$$w_t^{i,Adj} = Leverage\ Ratio_t * w_t^i;\ i \in \{EQ, FI\}$$

Excess Return Index Calculation with Fee Decrement

On each NYSE business day, the excess return level is calculated as follows:

$$ER\ Level_t = ER\ Level_{t-1} * (1 + ER_t);$$

$$ER_t = ER_t^{EQ} * w_{t-2}^{EQ,Adj} + ER_t^{FI} * w_{t-2}^{FI,Adj} - \frac{Fee}{360} * \mathrm{days(t, t-1)}$$

Where

$ER\ Level_t = Excess\ return\ level\ of\ the\ Index\ on\ day\ t$
$ER_t = Excess\ return\ of\ the\ Index\ on\ day\ t$
$ER_t^i = Excess\ return\ of\ the\ Underlying\ Component\ i\ on\ day\ t$
$(See\ Excess\ Return\ Calculation\ Section)$
$w_t^{i,Adj} = Adjusted\ weight\ of\ component\ i\ on\ day\ t$
$Fee = 0.50\%\ annual\ decrement$
$days(t, t-1) = Actual\ day\ count\ between\ day\ t\ and\ day\ t-1\ (previous\ business\ day)$

Unscheduled Market Closures

In situations where an exchange is forced to close early due to unforeseen events, such as computer or electric power failures, weather conditions or other events, Salt will calculate the closing price of the indices based on (1) the closing prices published by the exchange, or (2) if no closing price is available, the last regular trade reported for each security before the exchange closed. If the exchange fails to open due to unforeseen circumstances, Salt treats this closure as a standard market holiday. The Index will use the prior day’s closing prices and shifts any corporate actions to the following business day.

Disclaimer

All information for an index prior to its Inception Date is back-tested, based on the methodology that was in effect on the Inception Date. Back-tested performance, which is hypothetical and not actual performance, can frequently result in material differences between back-tested results and actual results achieved by an investment strategy.

Past performance of an index is not a guarantee of future results. Charts, graphs, and other performance indicators are provided for illustrative purposes and may reflect hypothetical historical performance. The back-test period does not necessarily correspond to the entire available history of any particular index.

Back-tested calculations are generally prepared with the benefit of hindsight. No hypothetical calculation can comprehensively account for all the factors that may impact actual performance. Index returns shown do not represent the results of any strategy tracking the index, including any sales charges, commissions, or other fees charged to purchase securities, fund, or other investment vehicles.

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