



truVol[®] US Balanced Target Risk 4.25 Excess Return

Index Methodology
August 2020

Version History

No.	Date	Author	Comments
1.0	8/4/2020	R.Poirier	Initial

Introduction

The Salt truVol® US Balanced Target Risk 4.25 Index (the “Index”; ticker: SFBAL) is designed to provide exposure to both US equities and Treasuries while targeting a constant volatility level of 4.25%. The index uses the [truVol® Risk Control Engine \(RCE\)](#) to help optimize weighting between the SPDR S&P 500 ETF (SPY) 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 4.25%, 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).

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 SPDR S&P 500 ETF (SPY). The second (the “Fixed Income Component”) is represented by the iShares 7-10 Year Treasury Bond ETF (IEF).

Underlying Component	Ticker
SPDR S&P 500 ETF	SPY
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.

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

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

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:

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

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

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 150%. 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:

$$Leverage\ Ratio_t = Min\left(1.5, \frac{4.25\%}{truVol_t^{Ptf}}\right)$$

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

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

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

$$ER_t = ER_t^{EQ} * w_{t-2}^{EQ,Adj} + ER_t^{FI} * w_{t-2}^{FI,Adj}$$

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

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.

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