truVol® Growth-Value Momentum

Index Methodology
August 2021

Version History

No.	Date	Author	Comments
1.0	7/31/2021	E.Bae	Initial

Introduction

The Salt truVol® Growth-Value Momentum Index (the “Index”; ticker: SFGVM) is designed to provide exposure to either US large cap growth or value stocks with Treasuries for diversification while dynamically controlling volatility with a target of 5%.

The Index uses the truVol® Risk Control Engine (RCE) to help optimize weighting between the iShares Russell 1000 Growth ETF (IWF), the iShares Russell 1000 Value ETF (IWD) 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 the Federal Funds Effective Rate (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 both equities ("Equity Sleeve") and fixed income ("Fixed Income Sleeve"), in excess of the risk-free rate, to arrive at the final index value. The Equity Sleeve is represented by either the iShares Russell 1000 Growth ETF (IWF, "Growth") or the iShares Russell 1000 Value ETF (IWD, "Value") as determined by trailing 252-day momentum. The Fixed Income Sleeve 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
iShares Russell 1000 Growth ETF	IWF
iShares Russell 1000 Value ETF	IWD
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

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

Momentum Signal

The strategy allocates to either Growth or Value in the Equity Sleeve using price momentum as a signal. Each day, momentum (252-day return) for both Growth and Value is calculated. The equity component with the higher return (momentum) for each day of the trailing five-day period is assigned a weight of 1 and the other is assigned 0.

$$StrategyWeight_t^{x \in \{Growth, Value\}} = \begin{cases} RankWeight_t^x, & \frac{1}{5}\sum_{i=0}^{4} RankWeight_{t-i}^x = RankWeight_t^x \\ StrategyWeight_{t-1}^x, & else \end{cases}$$

Where

$$RankWeight_t^x = \begin{cases} 1, & if\ Momentum_t^x = Max(Momentum_t^{Growth}, Momentum_t^{Value}) \\ 0, & else \end{cases}$$

$$Momentum_t^x = \frac{Close_t^x}{Close_{t-252}^x}$$

The change in allocation between Growth and Value is subject to a five-day implementation period.

$$SmoothWeight_t = \frac{1}{5}\sum_{i=0}^{4} StrategyWeight_{t-i}$$

Index 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 Sleeves assume the following weights:

$$w_t^{x \in \{Growth,Value\}} = Min\left(1, \frac{5\%}{truVol_t^{EQ}}\right) * SmoothWeight_t^x$$

$$w_t^{FI} = 1 - \sum w_t^{x \in \{Growth,Value\}}$$

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:

$$Leverage\ Ratio_t = Min\left(1.5, \frac{5\%}{truVol_t^{Ptf}}\right)$$

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

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

This daily rebalancing is separate from the process governing the selection and potential switching of the Underlying Component in the Equity Sleeve (Growth or Value). However, the multi-day implementation of that process may be impacted by the changes in either the Equity Sleeve or Leverage Ratio that are determined by the daily rebalance.

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

(collectively, the "Salt Financial Indices LLC Parties") do not guarantee the accuracy, completeness, timeliness or availability of the Content. The Salt Financial Indices LLC Parties are not responsible for any errors or omissions, regardless of the cause, for the results obtained from the use of the Content. THE CONTENT IS PROVIDED ON AN "AS IS" BASIS. THE SALT FINANCIAL INDICES LLC PARTIES DISCLAIM ANY AND ALL EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE, FREEDOM FROM BUGS, SOFTWARE ERRORS OR DEFECTS, THAT THE CONTENT'S FUNCTIONING WILL BE UNINTERRUPTED OR THAT THE CONTENT WILL OPERATE WITH ANY SOFTWARE OR HARDWARE CONFIGURATION. In no event shall the Salt Financial Indices LLC Parties be liable to any party for any direct, indirect, incidental, exemplary, compensatory, punitive, special or consequential damages, costs, expenses, legal fees, or losses (including, without limitation, lost income or lost profits and opportunity costs) in connection with any use of the Content even if advised of the possibility of such damages.

In addition, Salt Financial Indices provides services to, or relating to, many organizations, including but not limited to issuers of securities, investment advisers, broker-dealers, investment banks, other financial institutions and financial intermediaries, and accordingly may receive fees or other economic benefits from those organizations, including organizations whose securities or services they may recommend, rate, include in model portfolios, evaluate or otherwise address. Salt Financial Indices has established policies and procedures to maintain the confidentiality of certain nonpublic information received in connection with each analytical process it performs in connection with the services it provides.