Draft

"There is nothing more powerful than an idea whose time has come."

— Victor Hugo

Brochure updated: 15 April 2020

$$\sqrt{\frac{252}{n}\sum_{t=1}^{n}R_t^2}$$

The Concept

RealVol futures settle to a calculation of realized volatility. Specifically, RealVol futures will settle to the appropriate RealVol index.

The Purpose

Realized volatility is a key metric to understanding and quantifying risk. Having the ability to trade risk itself opens up a whole new frontier in controlling the systematic risk of a portfolio.

Realized Volatility

Realized volatility measures the daily movement of the underlying asset regardless of direction. It is functionally different from instruments based on implied volatility.

Key Contract Specifications

RealVol futures are expected to be cash settled, listed for approximately eight weeks at a time, and expiring every Friday.

Uses

RealVol futures will allow market participants to hedge against, invest in, or trade realized volatility. They will be useful particularly for hedging the volatility component of standard options, trading in concert with RealVol options, spreading with implied volatility instruments, and enhancing a portfolio's risk/reward characteristics.

RealVol Indices

There are many RealVol daily indices on each underlying asset (40 in total), and while they can all be used to guide investment decisions, only one will be used to settle RealVol futures (the 21-day realized volatility, symbol VOL). For a complete description of all RealVol indices, please request a RealVol index brochure at demandderivatives.com.

RealVol Formula

At the heart of the RealVol indices is the RealVol formula. It is a simple, modified standard deviation formula that sets the degrees of freedom to zero, the mean to zero, and the annualization factor to a constant 252 trading days.

RealVol Time Frames

RealVol indices come in two forms:
1. A daily version
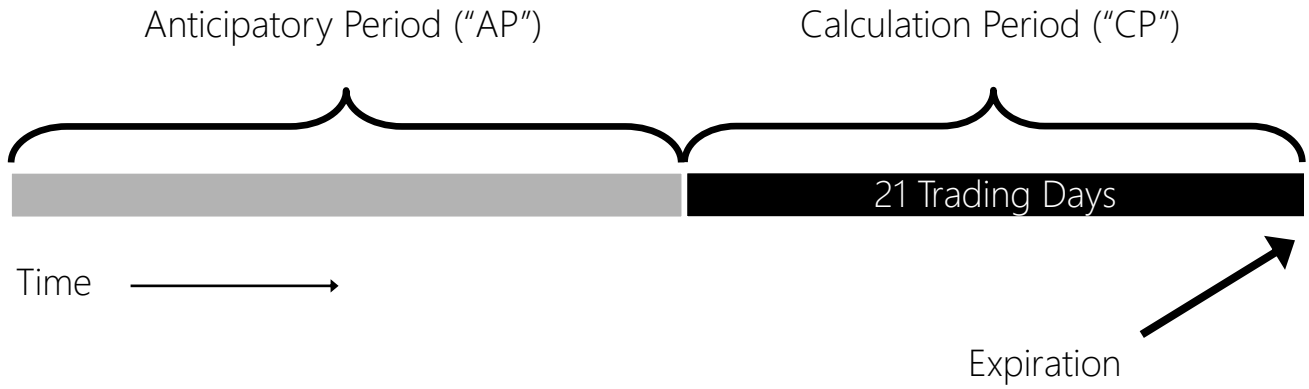2. A real-time version

RealVol Daily Indices

RealVol daily indices are based on only daily data of the underlying asset (i.e., open, high, low, and close).
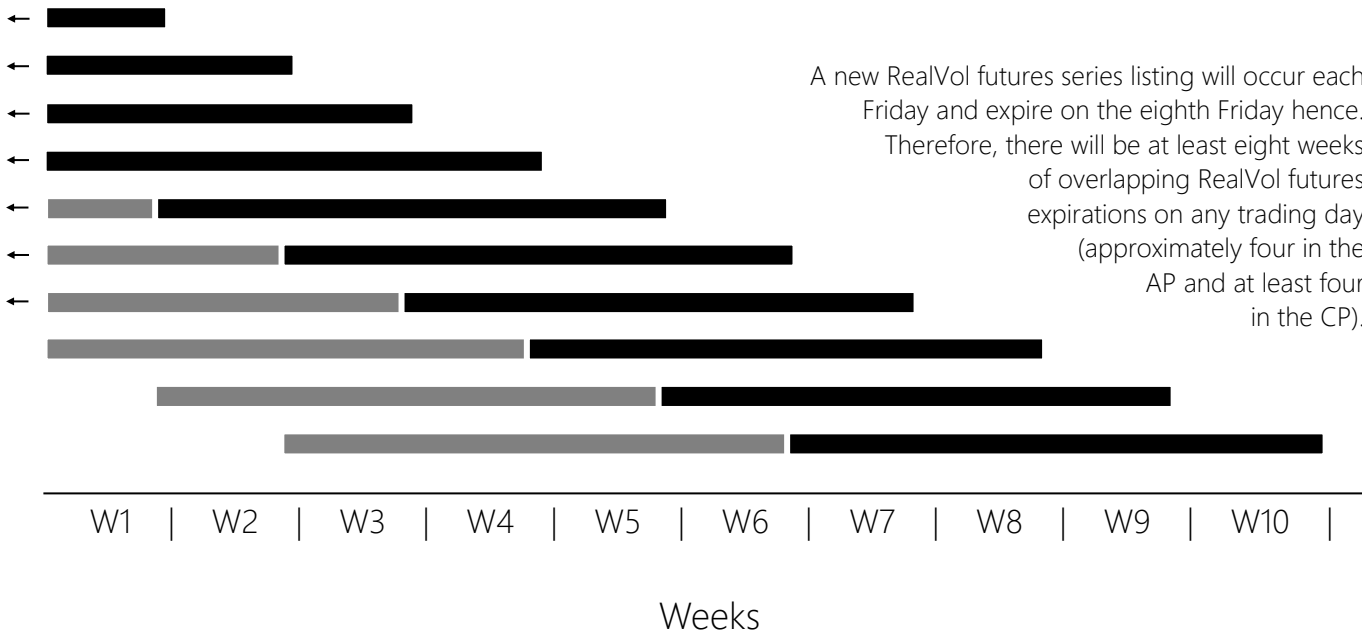
RealVol Real-Time Index

The RealVol real-time index will use the real-time underlying price to estimate the RealVol daily index throughout the current trading day. At the close of the underlying market, the RealVol daily and real-time indices are equal.

The Life of a RealVol® Futures Contract

Anticipatory Period ("AP")   Calculation Period ("CP")

21 Trading Days

Time ⟶

Expiration

Listing Pattern*

A new RealVol futures series listing will occur each Friday and expire on the eighth Friday hence. Therefore, there will be at least eight weeks of overlapping RealVol futures expirations on any trading day (approximately four in the AP and at least four in the CP).

W1 | W2 | W3 | W4 | W5 | W6 | W7 | W8 | W9 | W10 |

Weeks

*All time frames are approximate.

Comparison to Existing Products

Features	RealVol Futures (realized volatility)	VIX® Futures (implied volatility)	Volatility & Variance Swaps (realized volatility)	Delta-Neutral Hedging (realized volatility)
Expires to actual volatility or variance	✓	X Expires to a forecast	✓	? Path dependency does not provide "pure" volatility exposure
Appeals to retail traders	✓	X Difficult to understand	X No access	X Too complicated
Appeals to option market-makers	✓	X Not a good hedge For standard options	? May be difficult to execute quickly and at favorable prices	✓
Appeals to investment banks and institutions	✓	X Not a good hedge for banks' volatility exposure	✓	✓
Appeals to portfolio managers	✓	X No exposure to actual price movement	? Losses can be extreme for variance swaps	X Requires constant monitoring
Exchange-cleared (regulated with no credit risk)	✓	✓	X Subject to credit risk	✓
Difficult to manipulate index	✓	X Special opening quote at expiration that depends on liquidity	✓	✓
Transparency and price discovery	✓	✓	X No public quote	✓
Could be traded on all assets	✓	X Only on very liquid option markets	? Typically traded only in large size	✓
Easy to calculate	✓	X Formula is complex	✓	X Calculation requires execution prices and commissions for each transaction
Execution costs low	✓	✓	? No direct expense, but execution cost built into market quote	X Market spreads and commissions on all legs and follow-up trades

Detailed Information*

Symbol
VOLx (where "x" is the symbol of the underlying asset)

Contract Settlement
All RealVol futures contracts will settle to the corresponding 21-trading-day RealVol index (VOL) at expiration, which itself is based on the daily closing prices of an underlying asset, instrument, or security.

Index Price
RealVol indices, which are typically expressed as a percentage, will be quoted without the percentage sign; e.g., 23.45% is quoted as 23.45.

Contract Multiplier
$1,000

Tick Size
Outright — 0.05 points ($50)
Spreads — 0.01 points ($10)

First Trading Day
Eighth Friday prior to expiration Friday

Listing Pattern
Approximately 52 weekly contracts per year with eight or nine contracts listed on any given day.

Expiration Dates
Weekly on Fridays

Settlement Style
Cash

Settlement Value
Rounded to the closest 0.01 points

To be determined

RealVol LLC
a subsidiary of
Demand Derivatives Corp.
demandderivatives.com
info@demandderivatives.com
1-888-865-9267

A formula used to calculate the annualized standard deviation of continuously compounded daily returns, assuming zero degrees of freedom, a zero mean, and a constant 252 trading days in a year.

$$\mathbf{Vol} = 100 \bullet \sqrt{\frac{252}{n} \sum_{t=1}^{n} R_t^2}$$

Where

- Vol = realized volatility
- n = number of trading days in the period (in this case, normally 21)
- R_t = continuously compounded daily returns as calculated by the formula:

$$\mathbf{R_t} = Ln \frac{P_t}{P_{t-1}}$$

Where

- Ln = natural logarithm
- P_t = Underlying Reference Price at time t
- P_{t-1} = Underlying Reference Price at the time period immediately preceding time t

Adjustments
The RealVol indices will be adjusted as applicable, for stock dividends, certain other corporate events, market disruption events, and potentially others. Please find the brochure outlining the RealVol index at: demandderivatives.com.