Topics

How To Time The Market Using Volatility

How To Trade Volatility ETFs For Profit
Topics

VIX Cycle
VIX Futures Curve
Volatility Curve
Volatility Signals
VIX Cycle
Reason For VIX Cycle

- Hedging costs money
- Investors want to minimize hedging costs
- Long term trends for stocks are positive
- Regulators primary mandate is to suppress volatility
- Fair value of VIX Futures
- VIX is mean reverting
- VIX All-Time Mean is about 20 (19.83 latest)
Backwardation
85% of the time the VIX Futures Curve is in Contango
Why Contango so positive?

VIX Distribution is Skewed. VIX Cycle!
Since 2004, VIX < 20 about 85% of the time
Since 1990, VIX < 20 only 60% of the time
The Importance of Backwardation

Backwardation means investors expect volatility to decline in the future.

SPX drawdowns end after Backwardation
38% after 1 day
60% after 2 days
68% after 3 days
77% after 5 days
88% after 10 days
The Importance of Contango

• Trading Volatility
  • Volatility ETFs like VXX and XIV are composed of VX1 and VX2 futures
  • Contango will automatically add value to XIV and reduce from VXX
  • Backwardation will automatically add value to VXX and reduce from XIV
  • Contango good for XIV
  • Backwardation good for VXX

• Timing the Market
  • Contango means that the market is trending up and those periods are far longer than flat to trending down periods
  • Contango is good for SPY
  • Backwardation is bad for SPY
VIX Futures Not The Whole Story

Volatility ETFs

Retail

VIX Futures

SPX Futures

Institutions

$170B

$40B

SPX Options
VIX VXST VXV VVIX
Volatility Curve

VIX Spot Indexes
- VXST
- VIX
- VXV
- VXMT

VIX Futures
- VX1 – VX8
Term Structure Indicators

\[ VDelta = VIX - VXST \]
\[ \text{Roll Yield} = \left( \frac{VX1}{VIX} \right) - 1 \]
\[ \text{Contango} = \left( \frac{VX2}{VX1} \right) - 1 \]
\[ \text{Contango Roll} = \left( \frac{VX2}{VIX} \right) - 1 \]
\[ \text{Vratio} = \frac{VXV}{VIX} \]
Volatility Curve Formatios

“Rally” Formation
“Drawdown” Formation
“End of Drawdown” Formation
“Bear Market” Formation
Rally Formation

Volatility Curve

2015-12-06 Futures 11:59:59 pm Spots 12:06:43 am

Volatility

VDelta > 0.5 Roll Yield > 5% Contango > 5% Contango Roll > 10% VRatio > 1.1
Drawdown Formation

Volatility Curve

2016-01-02  Futures: 03:56:11 pm  Spots: 12:07:29 am

Volatility

VDelta < 0  Roll Yield - 0%  Contango < 5%  Contango Roll < 10%  VRatio < 1.1
End of Drawdown Formation

Volatility Curve

VDelta < -0.5  Roll Yield < 0%  Contango < 0%  Contango Roll < 0%  VRatio < 1.0
Bear Market Formation

Volatility Curve

2016-01-16  Futures: 11:59:38 pm  Spot: 11:09:51 am

VDelta < -1.0  Roll Yield < -5%  Contango < -5%  Contango Roll < -10%  VRatio < 0.9
VIX Contango Oscillator

Aggregates Medium Term Volatility Expectations
VIX, VX1 and VX2

VCO = VIX - 45 + 1000 * Contango

Fairly accurate for market timing
VIX Term Roll Oscillator

Aggregates Short, Medium and Long Term Volatility Expectations
VXST, VIX, VX1, VX2 and VXV

Not accurate for market timing
Measures overall sentiment
<table>
<thead>
<tr>
<th>Term Structure</th>
<th>Short Term (1W)</th>
<th>Medium Term (1M)</th>
<th>Long Term (3M)</th>
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<tbody>
<tr>
<td>VIXST, VIX</td>
<td>VIX, VX1, VX2</td>
<td>VX2, VXV</td>
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# Term Structure Signals

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<td>&gt; 25</td>
<td>&gt; 50</td>
<td>&gt; 1</td>
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**Good for SPY, XIV**  
**Warning for SPY, XIV**  
**Bad for SPY, XIV**
Other Volatility Signals

• Volatility Risk Premium
• Volatility Momentum
• Volatility Speed
• Volatility Mean Reversion
• Current Positioning (Put/Call Ratio)
Volatility Risk Premium

• Compares Historical Volatility vs Expected Volatility
• Most popular
• VRP = VIX – HV10
• Key Levels: 0, 10
• Different Flavors
• It has problems
Volatility Momentum

• Compares VIX vs its trend
• VForce = VIX/MA50 – 1
• Key Levels -20%, 0%, 10%
• Good Exit Indicator
• Different flavors
Volatility Speed

• Measures Volatility of Volatility
• VVIX = Expected Vol of Vol
• VHV = Historical Vol of Vol
• VATR = VIX Average True Range
• When VVIX rises, VIX rises
• When VVIX falls, VIX falls
• When VATR falls, VIX falls
• Key Levels: VVIX 80, 100, 120
• Key Levels: VATR 3%, 9%
• Trend Exhaustion
Mean Reversion

• VIX Distribution is heavily skewed
• Short volatility when it reaches Extremes (Measured by Percentiles)
• Works 80% of the time
• Problem is some spikes last too long
Current Positioning

- Looks at Put Call Ratio of the SPX index
- Market loves to punish put holders
- Most immediate indicator
- Trend Exhaustion Indicator
### Volatility Signals Summary

#### Direction Signals
- VCO
- VTRO
- Contango
- Contango Roll
- Vratio
- Vforce
- VRP

#### Trend Exhaustion Signals
- VDelta
- VATR
- VVIX
- PCR

### Color Coding
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- Good for SPY, XIV
- Bad for SPY, XIV
- Warning for SPY, XIV
- Good for SPY, XIV
Need to Use Multiple Signals

• There is no silver bullet
• Different markets often disagree
• You can’t rely on one signal
• Take multiple signals into account to develop and then confirm a thesis about the market direction