

The Option Pit Method

Understanding and Trading VIX



What we will cover in PART 1

- What VIX is and what it is not
- What VIX measures
- The nature of volatility
- A look at the SPX straddle for an Easy VIX
- Ways to trade VIX profitably

What the heck is the VIX?



VIX Facts

- VIX has not gone below 8% or above 100% since 2008
- You cannot buy it or sell it
- What it measures changes every week
- It does not measure fear or complacency
- The long term average for VIX is around 20

More VIX facts

- Options on VIX only settle to VIX cash once per week
- The VIX Index is generated from SPX options with a bid and an offer
- At least 100 option series make up the VIX
- The time to calculate VIX is measured in minutes

VIX measures SPX 30 day implied volatility

- Why 30 days? Well, that was all that was available when VIX was invented.
- The calendar is very important to trading VIX
- Most importantly: VIX DOES NOT MEASURE IV of options expiring this week or next week in the SPX
- VIX uses the IV of the SPX options with 23 to 37 days to expiration.



VIX is a volatility direction with a limit



Definition of Volatility

- Basically the range of a stock over a certain period of time
 - In the case of the VIX, we are talking about the SPX only
 - There are RVX (Russell 2000) and TYVIX (10-Year Treasury Note) among others
 - There is a VIX for AAPL and a VIX for GOOGL

So what is Volatility?

- A 15% volatility on a \$100 stock for 1 year would give us a range of \$85 to \$115 with a 68.2% degree of confidence.
 - *We can approximate this using an SPX straddle for 30 days*
 - The IV of the straddle uses the best estimate of market movement for the term with a high degree of confidence



What is the SPX straddle doing?

| Expiry | Oct02(W) | Oct04(W) | Oct06(W) | Oct09(W) | Oct11(W) | Oct13(W) | Oct16(W) | Oct18(W) | Oct20(AM) | Oct20 | Oct23(W) | Oct25(W) | Oct27(W) |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-------|----------|----------|----------|
| Sigma | 5.51 | 6.38 | 6.84 | 6.45 | 6.77 | 7.03 | 6.77 | 7.06 | 7.20 | 7.30 | 7.13 | 7.30 | 7.52 |
| Sigma Chg | -0.72 | -0.30 | -0.24 | -0.25 | -0.20 | -0.12 | -0.11 | -0.06 | -0.06 | -0.07 | -0.06 | -0.09 | -0.06 |
| Vol | | | | | | | | | | | | | |

| Last | Chg | Pct | Last Size | Bid | Ask | Size | Underlying Pos | SIM | Delta | Gamma | Theta | Vega | P&L | TrdP&L |
|--------|-------|-------|-----------|------|------|------|----------------|-----|-------|-------|-------|------|-----|--------|
| 505.58 | -1.46 | -0.06 | | 0.00 | 0.00 | 0x0 | | | -13 | | 21 | -45 | 0 | 0 |

| Volun | Delta | IV | Vol | Bid | Theo | Ask | SIM | Pos | PnL | Last | Strike | Last | PnL | Pos | SIM | Bid | Theo | Ask | Vol | IV | Delta | Volun | OI |
|-------|-------|----|--------|--------|--------|-----|-----|-----|-------|------|--------------------|-------|-----|-----|-----|-------|-------|-------|-----|-------|-------|-------|------|
| 87.41 | 12.22 | | 100.60 | 101.30 | 102.00 | | | | | | SPXW(W) Oct27 2410 | 5.42 | | | | 5.40 | 5.50 | 5.60 | | 12.22 | 12.59 | 21 | 829 |
| 86.63 | 11.98 | | 95.90 | 96.75 | 97.60 | | | | | | SPXW(W) Oct27 2415 | 5.90 | | | | 5.70 | 5.80 | 5.90 | | 11.95 | 13.39 | 90 | 8085 |
| 85.67 | 11.75 | | 91.30 | 92.00 | 92.70 | | | | | | SPXW(W) Oct27 2420 | 5.95 | | | | 6.10 | 6.20 | 6.30 | | 11.75 | 14.33 | 33 | 5823 |
| 84.73 | 11.48 | | 87.00 | 87.25 | 87.50 | | | | | | SPXW(W) Oct27 2425 | 6.20 | | | | 6.40 | 6.55 | 6.70 | | 11.50 | 15.24 | 55 | 2500 |
| 83.70 | 11.24 | | 82.40 | 82.65 | 82.90 | | | | | | SPXW(W) Oct27 2430 | 6.90 | | | | 6.80 | 6.95 | 7.10 | | 11.24 | 16.28 | 10 | 955 |
| 82.57 | 10.99 | | 77.90 | 78.10 | 78.30 | | | | 78.40 | | SPXW(W) Oct27 2435 | 7.40 | | | | 7.30 | 7.40 | 7.50 | | 10.99 | 17.43 | 2 | 1944 |
| 81.31 | 10.75 | | 73.30 | 73.55 | 73.80 | | | | | | SPXW(W) Oct27 2440 | 7.86 | | | | 7.80 | 7.90 | 8.00 | | 10.74 | 18.68 | 4 | 2036 |
| 79.96 | 10.51 | | 68.90 | 69.15 | 69.40 | | | | 69.80 | | SPXW(W) Oct27 2445 | 8.50 | | | | 8.30 | 8.45 | 8.60 | | 10.51 | 20.04 | 125 | 1890 |
| 78.53 | 10.25 | | 64.50 | 64.70 | 64.90 | | | | 66.50 | | SPXW(W) Oct27 2450 | 9.34 | | | | 8.90 | 8.99 | 9.10 | | 10.25 | 21.47 | 116 | 3943 |
| 76.99 | 9.99 | | 60.10 | 60.35 | 60.60 | | | | 59.80 | | SPXW(W) Oct27 2455 | | | | | 9.50 | 9.60 | 9.70 | | 9.99 | 23.02 | | 540 |
| 75.30 | 9.73 | | 55.80 | 56.00 | 56.20 | | | | 56.30 | | SPXW(W) Oct27 2460 | 9.80 | | | | 10.10 | 10.24 | 10.40 | | 9.74 | 24.66 | 15 | 795 |
| 73.42 | 9.48 | | 51.50 | 51.75 | 52.00 | | | | 50.20 | | SPXW(W) Oct27 2465 | 10.50 | | | | 10.90 | 11.00 | 11.10 | | 9.47 | 26.57 | 10 | 740 |
| 71.34 | 9.23 | | 47.30 | 47.55 | 47.80 | | | | 47.25 | | SPXW(W) Oct27 2470 | 11.70 | | | | 11.70 | 11.85 | 12.00 | | 9.24 | 28.66 | 36 | 1130 |
| 69.17 | 8.95 | | 43.20 | 43.45 | 43.70 | | | | 43.85 | | SPXW(W) Oct27 2475 | | | | | 12.60 | 12.70 | 12.80 | | 8.95 | 30.83 | | 3711 |
| 66.77 | 8.67 | | 39.20 | 39.39 | 39.60 | | | | 38.70 | | SPXW(W) Oct27 2480 | 14.10 | | | | 13.50 | 13.65 | 13.80 | | 8.68 | 33.24 | 9 | 1620 |
| 64.10 | 8.42 | | 35.30 | 35.50 | 35.70 | | | | | | SPXW(W) Oct27 2485 | 14.53 | | | | 14.60 | 14.75 | 14.90 | | 8.42 | 35.90 | 1 | 236 |
| 61.24 | 8.14 | | 31.40 | 31.64 | 31.90 | | | | | | SPXW(W) Oct27 2490 | | | | | 15.70 | 15.89 | 16.10 | | 8.14 | 38.76 | | 1020 |
| 58.09 | 7.88 | | 27.80 | 27.99 | 28.20 | | | | 27.22 | | SPXW(W) Oct27 2495 | | | | | 17.10 | 17.24 | 17.40 | | 7.88 | 41.91 | | 372 |
| 54.72 | 7.61 | | 24.30 | 24.50 | 24.70 | | | | 25.00 | | SPXW(W) Oct27 2500 | | | | | 18.50 | 18.70 | 18.90 | | 7.61 | 45.28 | | 2556 |
| 50.99 | 7.36 | | 21.00 | 21.15 | 21.30 | | | | | | SPXW(W) Oct27 2505 | 20.10 | | | | 20.20 | 20.40 | 20.60 | | 7.36 | 48.97 | 139 | 506 |
| 47.04 | 7.10 | | 17.90 | 18.04 | 18.20 | | | | 18.50 | | SPXW(W) Oct27 2510 | 22.70 | | | | 22.10 | 22.30 | 22.50 | | 7.12 | 52.96 | 65 | 578 |
| 42.84 | 6.86 | | 15.00 | 15.14 | 15.30 | | | | 15.70 | | SPXW(W) Oct27 2515 | 23.20 | | | | 24.20 | 24.40 | 24.60 | | 6.86 | 57.15 | 64 | 269 |
| 38.48 | 6.64 | | 12.40 | 12.54 | 12.70 | | | | 12.75 | | SPXW(W) Oct27 2520 | | | | | 26.60 | 26.80 | 27.00 | | 6.64 | 61.51 | | 88 |
| 34.08 | 6.43 | | 10.10 | 10.24 | 10.40 | | | | 10.45 | | SPXW(W) Oct27 2525 | | | | | 29.20 | 29.45 | 29.70 | | 6.44 | 65.92 | | 78 |
| 29.76 | 6.24 | | 8.10 | 8.25 | 8.40 | | | | 8.50 | | SPXW(W) Oct27 2530 | | | | | 32.20 | 32.45 | 32.70 | | 6.26 | 70.33 | | 121 |
| 25.52 | 6.09 | | 6.40 | 6.55 | 6.70 | | | | 6.60 | | SPXW(W) Oct27 2535 | | | | | 35.50 | 35.75 | 36.00 | | 6.12 | 74.58 | | 36 |

Pricing the SPX Straddle

- Generally VIX will move when the IV's of the options move
 - If the SPX straddle is contracting, VIX usually drops
 - If the SPX straddle is expanding, VIX usually increases

A simple way to follow this performance is the Sigma in the SPX on the target terms.

What is the SPX straddle doing?

| Expiry | Oct02(W) | Oct04(W) | Oct06(W) | Oct09(W) | Oct11(W) | Oct13(W) | Oct16(W) | Oct18(W) | Oct20(AM) | Oct20 | Oct23(W) | Oct25(W) | Oct27(W) | | | | | | | | | | |
|-----------|----------|----------|-----------|----------|----------|----------|----------------|----------|-----------|-------|--------------------|----------|----------|--------|-----|-------|-------|-------|-----|-------|-------|-------|------|
| Sigma | 5.51 | 6.38 | 6.84 | 6.45 | 6.77 | 7.03 | 6.77 | 7.06 | 7.20 | 7.30 | 7.13 | 7.30 | 7.52 | | | | | | | | | | |
| Sigma Chg | -0.72 | -0.30 | -0.24 | -0.25 | -0.20 | -0.12 | -0.11 | -0.06 | -0.06 | -0.07 | -0.06 | -0.09 | -0.06 | | | | | | | | | | |
| Vol | | | | | | | | | | | | | | | | | | | | | | | |
| Last | Chg | Pct | Last Size | Bid | Ask | Size | Underlying Pos | SIM | Delta | Gamma | Theta | Vega | P&L | TrdP&L | | | | | | | | | |
| 505.58 | -1.46 | -0.06 | | 0.00 | 0.00 | 0x0 | | | -13 | | 21 | 45 | 0 | 0 | | | | | | | | | |
| Volun | Delta | IV | Vol | Bid | Theo | Ask | SIM | Pos | PnL | Last | Strike | Last | PnL | Pos | SIM | Bid | Theo | Ask | Vol | IV | Delta | Volun | OI |
| 87.41 | 12.22 | | 100.60 | 101.30 | 102.00 | | | | | | SPXW(W) Oct27 2410 | 5.42 | | | | 5.40 | 5.50 | 5.60 | | 12.22 | 12.59 | 21 | 829 |
| 86.63 | 11.98 | | 95.90 | 96.75 | 97.60 | | | | | | SPXW(W) Oct27 2415 | 5.90 | | | | 5.70 | 5.80 | 5.90 | | 11.95 | 13.39 | 90 | 8085 |
| 85.67 | 11.75 | | 91.30 | 92.00 | 92.70 | | | | | | SPXW(W) Oct27 2420 | 5.95 | | | | 6.10 | 6.20 | 6.30 | | 11.75 | 14.33 | 33 | 5823 |
| 84.73 | 11.48 | | 87.00 | 87.25 | 87.50 | | | | | | SPXW(W) Oct27 2425 | 6.20 | | | | 6.40 | 6.55 | 6.70 | | 11.50 | 15.24 | 55 | 2500 |
| 83.70 | 11.24 | | 82.40 | 82.65 | 82.90 | | | | | | SPXW(W) Oct27 2430 | 6.90 | | | | 6.80 | 6.95 | 7.10 | | 11.24 | 16.28 | 10 | 955 |
| 82.57 | 10.99 | | 77.90 | 78.10 | 78.30 | | | | 78.40 | | SPXW(W) Oct27 2435 | 7.40 | | | | 7.30 | 7.40 | 7.50 | | 10.99 | 17.43 | 2 | 1944 |
| 81.31 | 10.75 | | 73.30 | 73.55 | 73.80 | | | | | | SPXW(W) Oct27 2440 | 7.86 | | | | 7.80 | 7.90 | 8.00 | | 10.74 | 18.68 | 4 | 2036 |
| 79.96 | 10.51 | | 68.90 | 69.15 | 69.40 | | | | 69.80 | | SPXW(W) Oct27 2445 | 8.50 | | | | 8.30 | 8.45 | 8.60 | | 10.51 | 20.04 | 125 | 1890 |
| 78.53 | 10.25 | | 64.50 | 64.70 | 64.90 | | | | 66.50 | | SPXW(W) Oct27 2450 | 9.34 | | | | 8.90 | 8.99 | 9.10 | | 10.25 | 21.47 | 116 | 3943 |
| 76.99 | 9.99 | | 60.10 | 60.35 | 60.60 | | | | 59.80 | | SPXW(W) Oct27 2455 | | | | | 9.50 | 9.60 | 9.70 | | 9.99 | 23.02 | | 540 |
| 75.30 | 9.73 | | 55.80 | 56.00 | 56.20 | | | | 56.30 | | SPXW(W) Oct27 2460 | 9.80 | | | | 10.10 | 10.24 | 10.40 | | 9.74 | 24.66 | 15 | 795 |
| 73.42 | 9.48 | | 51.50 | 51.75 | 52.00 | | | | 50.20 | | SPXW(W) Oct27 2465 | 10.50 | | | | 10.90 | 11.00 | 11.10 | | 9.47 | 26.57 | 10 | 740 |
| 71.34 | 9.23 | | 47.30 | 47.55 | 47.80 | | | | 47.25 | | SPXW(W) Oct27 2470 | 11.70 | | | | 11.70 | 11.85 | 12.00 | | 9.24 | 28.66 | 36 | 1130 |
| 69.17 | 8.95 | | 43.20 | 43.45 | 43.70 | | | | 43.85 | | SPXW(W) Oct27 2475 | | | | | 12.60 | 12.70 | 12.80 | | 8.95 | 30.83 | | 3711 |
| 66.77 | 8.67 | | 39.20 | 39.39 | 39.60 | | | | 38.70 | | SPXW(W) Oct27 2480 | 14.10 | | | | 13.50 | 13.65 | 13.80 | | 8.68 | 33.24 | 9 | 1620 |
| 64.10 | 8.42 | | 35.30 | 35.50 | 35.70 | | | | | | SPXW(W) Oct27 2485 | 14.53 | | | | 14.60 | 14.75 | 14.90 | | 8.42 | 35.90 | 1 | 236 |
| 61.24 | 8.14 | | 31.40 | 31.64 | 31.90 | | | | | | SPXW(W) Oct27 2490 | | | | | 15.70 | 15.89 | 16.10 | | 8.14 | 38.76 | | 1020 |
| 58.09 | 7.88 | | 27.80 | 27.99 | 28.20 | | | | 27.22 | | SPXW(W) Oct27 2495 | | | | | 17.10 | 17.24 | 17.40 | | 7.88 | 41.91 | | 372 |
| 54.72 | 7.61 | | 24.30 | 24.50 | 24.70 | | | | 25.00 | | SPXW(W) Oct27 2500 | | | | | 18.50 | 18.70 | 18.90 | | 7.61 | 45.28 | | 2556 |
| 50.99 | 7.36 | | 21.00 | 21.15 | 21.30 | | | | | | SPXW(W) Oct27 2505 | 20.10 | | | | 20.20 | 20.40 | 20.60 | | 7.36 | 48.97 | 139 | 506 |
| 47.04 | 7.10 | | 17.90 | 18.04 | 18.20 | | | | 18.50 | | SPXW(W) Oct27 2510 | 22.70 | | | | 22.10 | 22.30 | 22.50 | | 7.12 | 52.96 | 65 | 578 |
| 42.84 | 6.86 | | 15.00 | 15.14 | 15.30 | | | | 15.70 | | SPXW(W) Oct27 2515 | 23.20 | | | | 24.20 | 24.40 | 24.60 | | 6.86 | 57.15 | 64 | 269 |
| 38.48 | 6.64 | | 12.40 | 12.54 | 12.70 | | | | 12.75 | | SPXW(W) Oct27 2520 | | | | | 26.60 | 26.80 | 27.00 | | 6.64 | 61.51 | | 88 |
| 34.08 | 6.43 | | 10.10 | 10.24 | 10.40 | | | | 10.45 | | SPXW(W) Oct27 2525 | | | | | 29.20 | 29.45 | 29.70 | | 6.44 | 65.92 | | 78 |
| 29.76 | 6.24 | | 8.10 | 8.25 | 8.40 | | | | 8.50 | | SPXW(W) Oct27 2530 | | | | | 32.20 | 32.45 | 32.70 | | 6.26 | 70.33 | | 121 |
| 25.52 | 6.09 | | 6.40 | 6.55 | 6.70 | | | | 6.60 | | SPXW(W) Oct27 2535 | | | | | 35.50 | 35.75 | 36.00 | | 6.12 | 74.58 | | 36 |

Using the VIX

- Positioning and trading VIX is a game of pricing the expected SPX straddle range over time.
 - If we think the movement range will decline, VIX should decline
 - If we think the movement range will increase, VIX should increase

***BUT.... We can't trade
the VIX index!***

VIX Futures

We can trade the VIX futures and the VIX options, with a settlement every week!

All the VIX options are priced off of the local future that tracks a 30 day forward underlying!

| VIX | | | | | | | | | | | | |
|--|------|--------|--------|----------|-------|-------|----------------|--------|-------|-------|------------------|----------------------|
| CBOE Volatility Index (VIX) Futures (OCT 17) | | | | | | | | | | 12.13 | -0.045 -0.37% | B: 12.10 A: 12.15 |
| Symbol | Days | Exp | Last X | Net Chng | Bid X | Ask X | Size | Volume | Open | High | Low | |
| VIX40V7 | 6 | OCT 17 | 10.80 | -0.075 | 10.75 | 10.85 | 27 x 10 | 64 | 10.95 | 10.95 | 10.80 | |
| VIX41V7 | 13 | OCT 17 | 11.45 | -0.075 | 11.35 | 11.55 | 31 x 29 | 11 | 11.50 | 11.50 | 11.45 | |
| VIXV7 <small>ACTIVE</small> | 20 | OCT 17 | 12.13 | -0.045 | 12.10 | 12.15 | 1,439 x 1,4... | 24,247 | 12.20 | 12.30 | 12.05 | |
| VIX43V7 | 27 | OCT 17 | 12.15 | -0.20 | 12.20 | 12.40 | 30 x 26 | 2 | 12.35 | 12.35 | 12.15 | |
| VIX44X7 | 34 | NOV 17 | 12.50 | -0.10 | 12.45 | 12.65 | 30 x 29 | 14 | 12.40 | 12.50 | 12.40 | |

Let's walk through an example of a VIX trade

The Problem Trading VIX



Understanding the volatility that drives the number in VIX is just one part of a puzzle.

Trading VIX options successfully depends mostly on the:

- VIX futures
- VVIX
- Calendar
- Skew

Any of those help to optimize a VIX trade for a given day of the week. And that is what you will learn!

Questions?

What you will learn Part 2

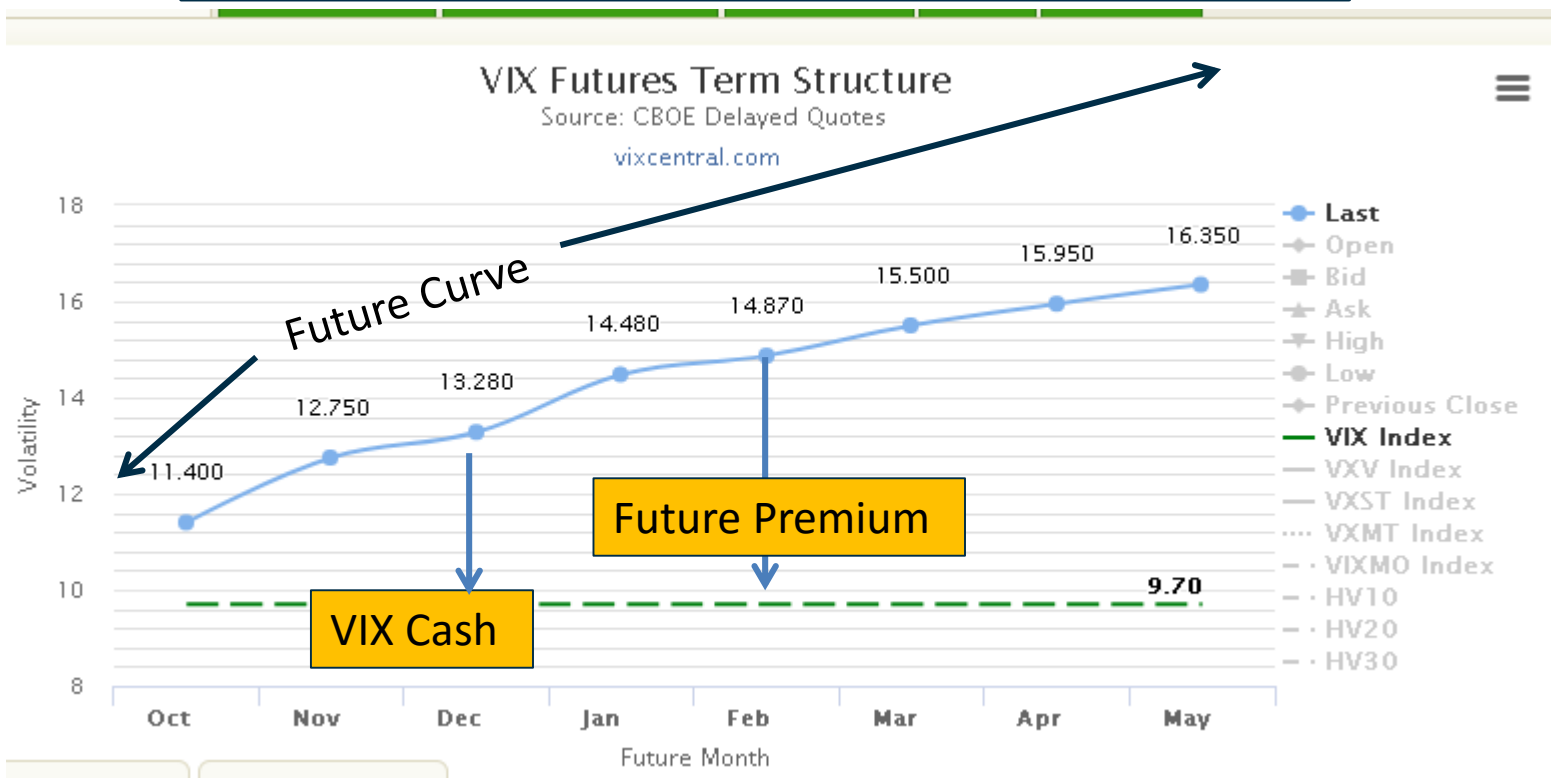
- VIX futures
- Contango and Backwardation
- Vol Gravity and the Easy Direction
- Degrees of Backwardation
- Setting up VIX trades using with an Iron Condor

VIX futures products

- These products use VIX futures as an underlying:
 - VXX, UVXY, SVXY, ZIV
 - And the options
 - VIX options
- This product uses VIX cash as an underlying one day per week on settlement
 - VIX options (Weeklys and Serials)

VIX futures in Contango

To make VIX easy you need to learn to read this chart first

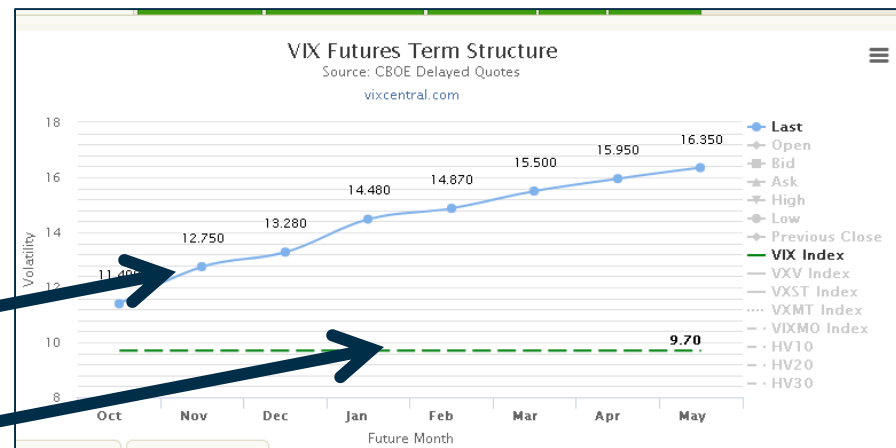


Back month is higher than the front month

The Secret of Trading VIX

- To get this answer we look at the VIX futures since ANY VIX TRADING IS A FUNCTION OF THE VIX FUTURES

You must understand the VIX futures



To Trade the VIX

Nature of VIX

- Making sense of this for VIX cash is just a SPX trade!

By using VIX we can avoid the trouble of “path dependency”

-just a fancy phrase for the mkt moving too much in one direction

- Basic to Advanced Iron Condor and Butterfly strategy (OP Gold, Plat and Pro)
 - except we have gamma to contend with
 - A VIX trade is the direction of volatility futures mirroring the VIX cash on some delta

Volatility (VIX) as a DIRECTION



What is “normal”

- $V = 1 / \sqrt{T}$ Think V Increasing WITH TIME but is less steep
 - So future prices for VIX should be higher in the future under *normal circumstances*
 - this is also a reason traders like “selling volatility”
 - just because it is supposed to be higher, does not mean that it will be higher
 - insurance is priced more expensively, not less

How the VIX moves

- VIX cash moves like few products
 - it tends to crash up fast
 - and melt down not as fast
- The VIX futures tend to move on a “delta” to VIX cash
 - The 30 day future moves around 50% of the cash move in contango

VIX Future Delta

| CBOE Volatility Index (VIX) Futures (NOV 17) | | | | | | | | | | | | |
|--|------|--------|--------|----------|-------|-------|-----------|--------|-------|-------|-------|--|
| 12.05 +.425 +3.66% B: 12.00 A: 12.05 | | | | | | | | | | | | |
| Symbol | Days | Exp | Last X | Net Chng | Bid X | Ask X | Size | Volume | Open | High | Low | |
| VXX7 | 1 | NOV 17 | 12.05 | +425 | 12.00 | 12.05 | 766 x 336 | 39,699 | 11.64 | 12.22 | 11.60 | |
| VX47X7 | 8 | NOV 17 | 11.90 | +30 | 11.75 | 12.00 | 23 x 32 | 16 | 11.70 | 11.90 | 11.70 | |
| VX48X7 | 15 | NOV 17 | 12.00 | +25 | 11.85 | 12.00 | 23 x 10 | 20 | 11.85 | 12.00 | 11.85 | |
| VX49Z7 | 22 | DEC 17 | 12.25 | +20 | 12.10 | 12.30 | 25 x 32 | 32 | 12.10 | 12.25 | 12.10 | |
| VX50Z7 | 29 | DEC 17 | 12.65 | +20 | 12.50 | 12.75 | 25 x 30 | 50 | 12.50 | 12.65 | 12.45 | |

Note how the futures move at different rates relative to the VIX cash
 the 29 day future is around 50% of the cash move
 the 1 day future is around 90% of the cash move
 less than 30 days gains close to 10% per week in contango

These moves are approximate and are rarely exact but very close to what we can expect

How VIX moves

- So we can sort moves in VIX to a
 - Shock
 - or Erosion



- And this sets up our basic trade strategy

When do we trade for shock and When do we trade for erosion?

Shock and Erosion

- VIX futures move at two speeds
 - shock which tend to happen fast so we need to position “shock” trades short term
 - fast move in the VIX cash pulling the futures*
 - here we focus on the short end of VIX curve
 - erosion which tend to happen with time so we need longer term gains
 - futures moving to cash by *GRAVITY*
 - here we focus on mid to short end depending on the Contango

VIX futures and Vol Gravity

VIX Term Months

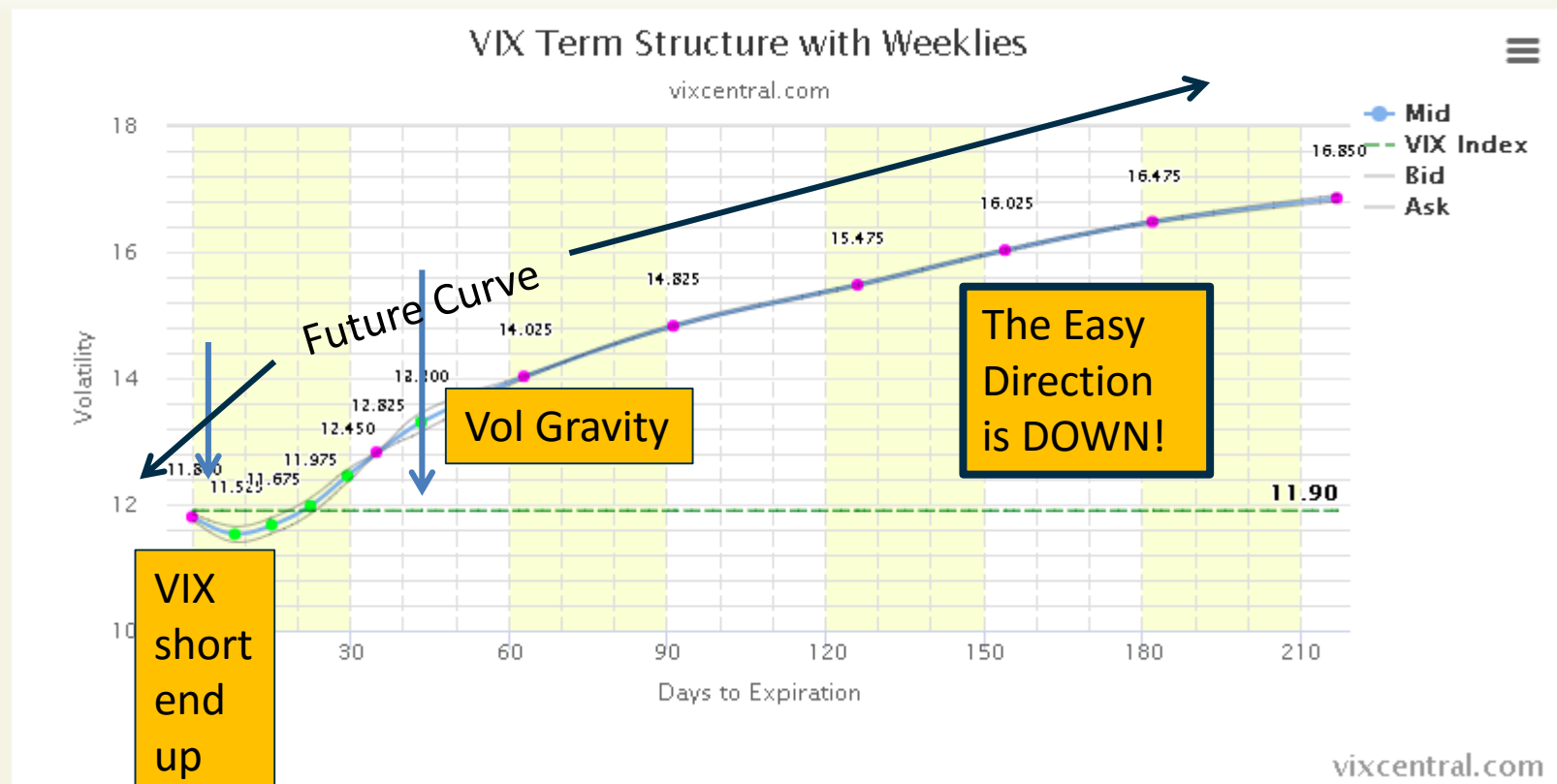
VIX Term All

Historical Prices

Contango

Help

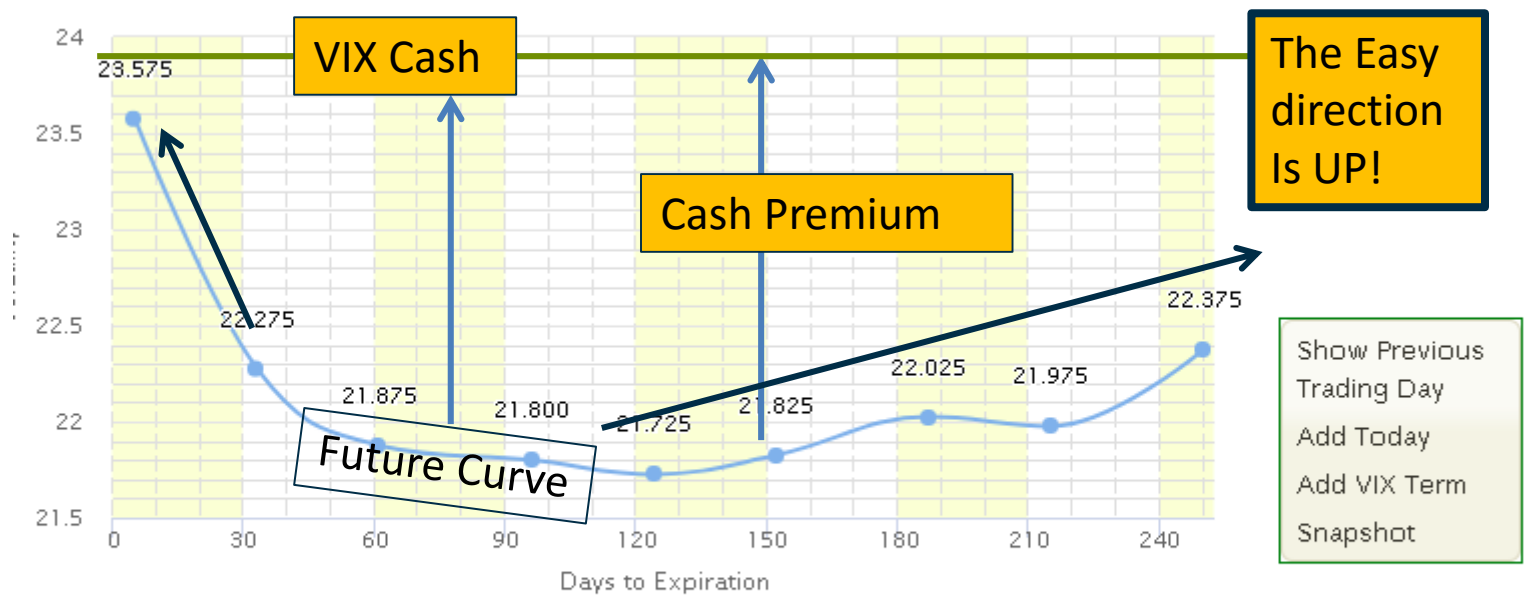
Blogroll



Vol gravity tells you where the futures go at expiration

VIX futures in Backwardation

To make VIX easy you need to learn backwardation



vixcentral.com

Previous Date
Get Prices
Next Date
One Date per Graph
Multiple Dates per Graph

VIX futures and Vol Gravity

- Most successful VIX trading is based on Vol Gravity since the futures HAVE to move to the cash over time
 - The futures ARE the underlying for the OPTIONS
 - WE NEED TO price the Easy Direction first since this is the lazy direction if market stays the same
 - Degrees of Contango and Backwardation show mkt sentiment

Basic Volatility Rule

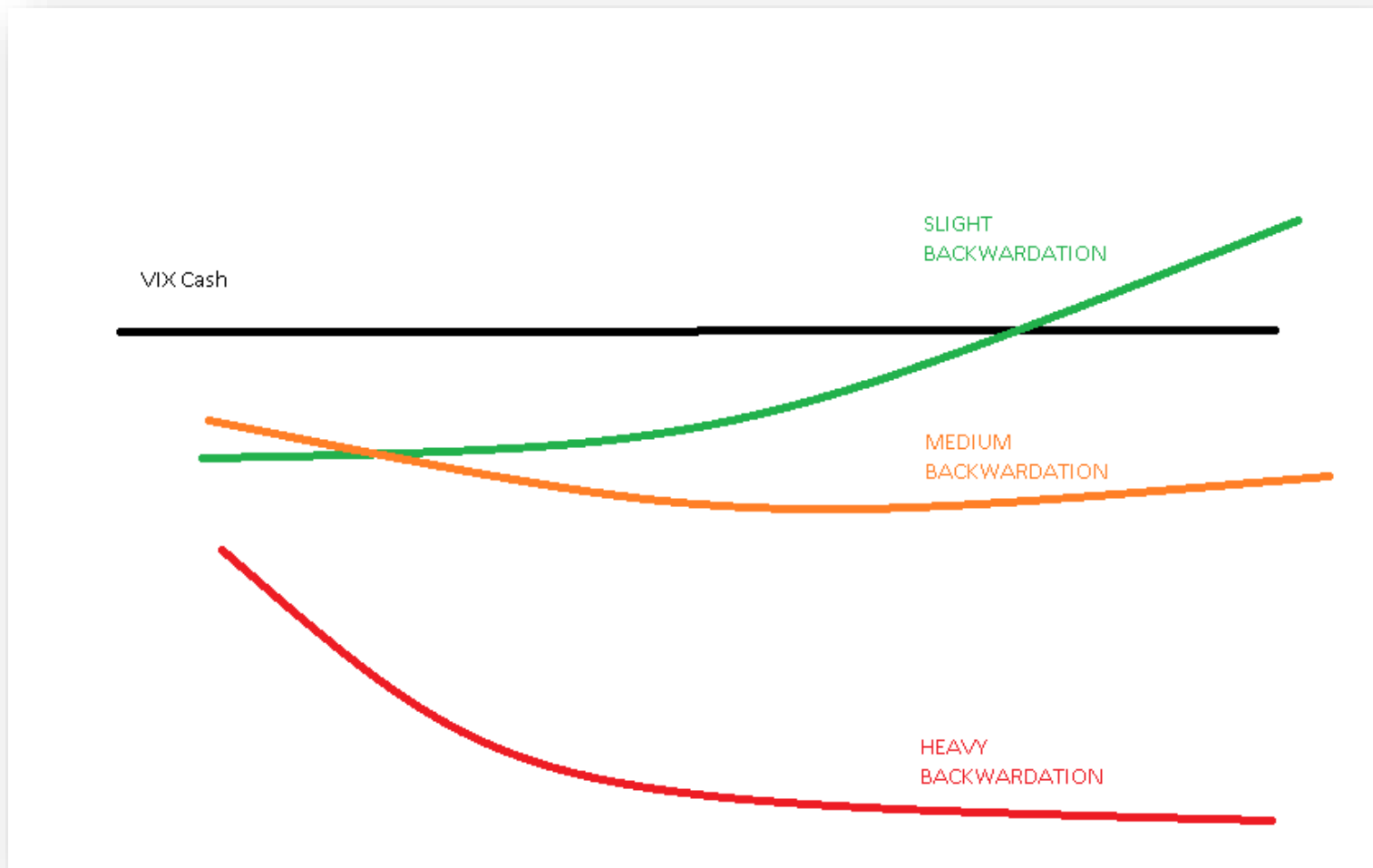
IV stays the same until it has a reason to change

15 years of Market Making taught me this since time makes all volatility revert

Tendency of IV to move to RV
So for VIX future to cash



VIX futures in backwardation



VIX in backwardation

- VIX in Zone 1 is mostly in Contango
- VIX in Zone 2 is mostly the Green Curve
- VIX in Zone 3 is mostly the Orange Curve
- VIX in Zone 4 is mostly Red Curve

- ***The nature of the backwardation will dictate the trade since VIX futures do certain things per Zone.***

Intro to Trading VIX options

- We start with degrees of contango or backwardation
 - Set up the direction of Vol Gravity (***We can do that!***)
 - Price the easy direction (***We can do that!***)
 - ***Pick the duration (How do we do that?)***
 - ***Use the right position for the term (How do we do that?)***
 - ***Estimate the risk and payout (How do we do that?)***

We will spend the next 3 classes answering those last questions

Setting up a VIX trade

Options Chain

| | Jun26(W) 86.16 6.30 VX26M19 0.00 | Jul03(W) 78.70 -16.60 VX27N19 0.00 | Jul10(W) 79.22 -4.60 VX28N19 0.00 | Jul17 77.58 -1.90 VXN19 15.62 | Jul24(W) 69.36 -9.00 VX30N19 0.00 | Aug21 62.83 -6.30 VXQ19 16.32 | Sep18 57.69 -5.70 VXU19 16.76 | Oct16 53.76 -5.90 VXV19 16.97 | Nov20 51.66 -9.60 VXX19 17.03 |
|--|--|--|---|---|---|---|---|---|---|
|--|--|--|---|---|---|---|---|---|---|

| cOI | c- | c | cMID- | cBID | cASK | STRIKE | pBID | pASK | pMID- | p- | p+ | pOI |
|---------|-----|------|--------|------|------|-----------------|------|------|--------|------|-----|---------|
| 6 | | 0.99 | | 5.00 | 5.20 | VIX Jul17 10.50 | | 0.05 | 74.68 | 0.02 | | |
| 445 | 10 | 0.99 | 56.75 | 4.60 | 4.70 | VIX Jul17 11.00 | | 0.05 | 66.77 | 0.02 | | 5,472 |
| 1 | | 0.99 | 50.14 | 4.10 | 4.20 | VIX Jul17 11.50 | | 0.05 | 59.63 | 0.02 | 1 | 4 |
| 201 | 7 | 0.95 | 61.33 | 3.60 | 3.80 | VIX Jul17 12.00 | | 0.05 | 52.99 | 0.03 | | 16,113 |
| 32 | 12 | 0.94 | 54.21 | 3.10 | 3.30 | VIX Jul17 12.50 | 0.05 | 0.10 | 58.05 | 0.07 | | 8,057 |
| 522 | | 0.88 | 60.80 | 2.75 | 2.85 | VIX Jul17 13.00 | 0.15 | 0.20 | 63.12 | 0.12 | 307 | 58,202 |
| 25 | 10 | 0.82 | 66.32 | 2.40 | 2.50 | VIX Jul17 13.50 | 0.30 | 0.35 | 68.22 | 0.19 | 17 | 14,844 |
| 13,437 | 128 | 0.76 | 67.60 | 2.05 | 2.15 | VIX Jul17 14.00 | 0.45 | 0.50 | 69.19 | 0.25 | 71 | 114,258 |
| 98 | 11 | 0.68 | 72.96 | 1.80 | 1.90 | VIX Jul17 14.50 | 0.65 | 0.75 | 72.84 | 0.31 | 60 | 10,534 |
| 9,340 | 484 | 0.62 | 75.38 | 1.55 | 1.65 | VIX Jul17 15.00 | 0.95 | 1.00 | 76.87 | 0.38 | 935 | 138,555 |
| 85,159 | 117 | 0.50 | 81.49 | 1.20 | 1.25 | VIX Jul17 16.00 | 1.55 | 1.60 | 81.53 | 0.49 | 80 | 128,331 |
| 67,147 | 278 | 0.40 | 85.30 | 0.90 | 1.00 | VIX Jul17 17.00 | 2.25 | 2.35 | 86.94 | 0.59 | 47 | 61,758 |
| 66,324 | 122 | 0.33 | 91.87 | 0.70 | 0.80 | VIX Jul17 18.00 | 3.00 | 3.20 | 92.11 | 0.67 | 13 | 21,221 |
| 47,339 | 101 | 0.28 | 98.22 | 0.60 | 0.65 | VIX Jul17 19.00 | 3.90 | 4.00 | 96.83 | 0.73 | 2 | 18,119 |
| 154,944 | 408 | 0.22 | 99.71 | 0.45 | 0.50 | VIX Jul17 20.00 | 4.80 | 4.90 | 102.26 | 0.77 | | 2,247 |
| 100,197 | 175 | 0.19 | 106.85 | 0.40 | 0.45 | VIX Jul17 21.00 | 5.70 | 5.80 | 105.47 | 0.81 | | 340 |
| 98,512 | 158 | 0.16 | 110.01 | 0.30 | 0.40 | VIX Jul17 22.00 | 6.60 | 6.80 | 110.90 | 0.83 | | 134 |
| 62,547 | 54 | 0.15 | 116.75 | 0.30 | 0.35 | VIX Jul17 23.00 | 7.60 | 7.70 | 115.34 | 0.86 | | 367 |
| 158,895 | 107 | 0.12 | 119.60 | 0.25 | 0.30 | VIX Jul17 24.00 | 8.50 | 8.70 | 118.37 | 0.88 | | 280 |

Hedging with VIX

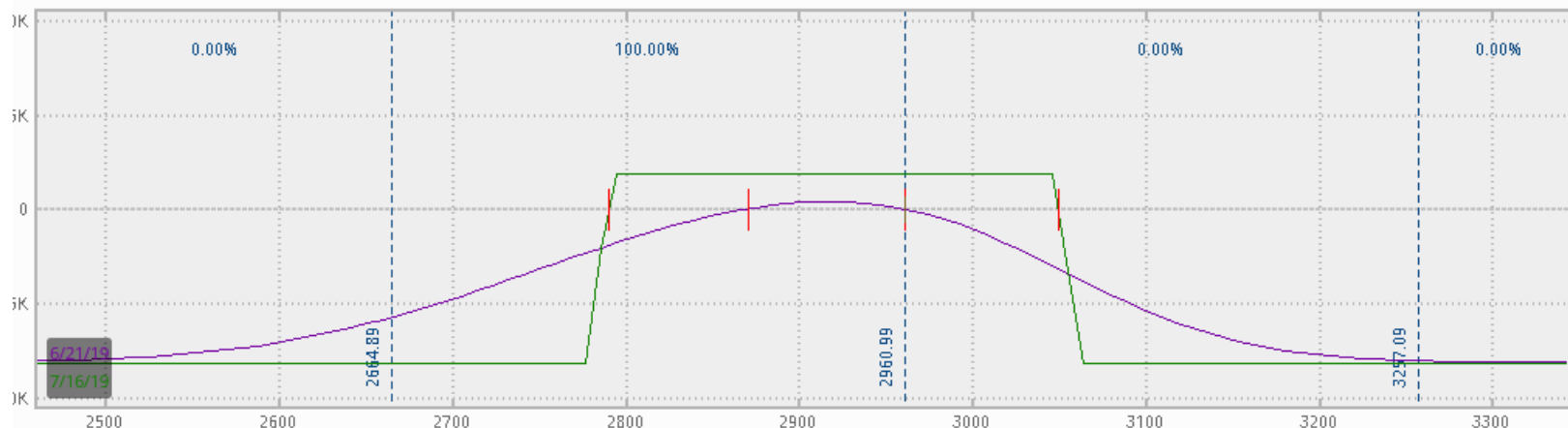
- The nature of VIX makes it a good hedge because:
 - Decays slowly
 - Relatively stable versus a SPY put
 - Call spreads are a low cost
 - Use a strangle? Let's try!

| ▽ cOI | ▽ c_ | ▽ c_ | cMID_ | cBID | cASK | |
|---------|------|------|--------|------|------|-----|
| 6 | | 0.99 | | 5.00 | 5.20 | VIX |
| 445 | 10 | 0.99 | 56.75 | 4.60 | 4.70 | VIX |
| 1 | | 0.99 | 50.14 | 4.10 | 4.20 | VIX |
| 201 | 7 | 0.95 | 61.33 | 3.60 | 3.80 | VIX |
| 32 | 12 | 0.94 | 54.21 | 3.10 | 3.30 | VIX |
| 522 | | 0.88 | 60.80 | 2.75 | 2.85 | VIX |
| 25 | 10 | 0.82 | 66.32 | 2.40 | 2.50 | VIX |
| 13,437 | 128 | 0.76 | 67.60 | 2.05 | 2.15 | VIX |
| 98 | 11 | 0.68 | 72.96 | 1.80 | 1.90 | VIX |
| 9,340 | 484 | 0.62 | 75.38 | 1.55 | 1.65 | VIX |
| 85,159 | 117 | 0.50 | 81.49 | 1.20 | 1.25 | VIX |
| 67,147 | 278 | 0.40 | 85.30 | 0.90 | 1.00 | VIX |
| 66,324 | 122 | 0.33 | 91.87 | 0.70 | 0.80 | VIX |
| 47,339 | 101 | 0.28 | 98.22 | 0.60 | 0.65 | VIX |
| 154,944 | 408 | 0.22 | 99.71 | 0.45 | 0.50 | VIX |
| 100,197 | 175 | 0.19 | 106.85 | 0.40 | 0.45 | VIX |
| 98,512 | 188 | 0.16 | 110.01 | 0.30 | 0.40 | VIX |
| 62,547 | 54 | 0.15 | 116.75 | 0.30 | 0.35 | VIX |
| 158,895 | 107 | 0.12 | 119.60 | 0.25 | 0.30 | VIX |

SPX Iron Condors

Drag chart to pan Drag prices to change scale

Click chart for data



| Stk Price | Offset | Delta | Gamma | Theta | Vega | P/L Open | P/L Day | BP Effect |
|-----------|--------|--------|-------|--------|---------|--------------|--------------|---------------|
| 3257.09 | +10% | -2.56 | .07 | -11.07 | 52.61 | (\$8,050.91) | (\$8,050.91) | (\$10,000.00) |
| 2960.99 | \$0 | -18.92 | -.46 | 71.73 | -308.33 | (\$0.54) | (\$0.54) | (\$10,000.00) |
| 2664.89 | -10% | 25.62 | .14 | -74.20 | 159.61 | (\$5,755.38) | (\$5,755.38) | (\$10,000.00) |

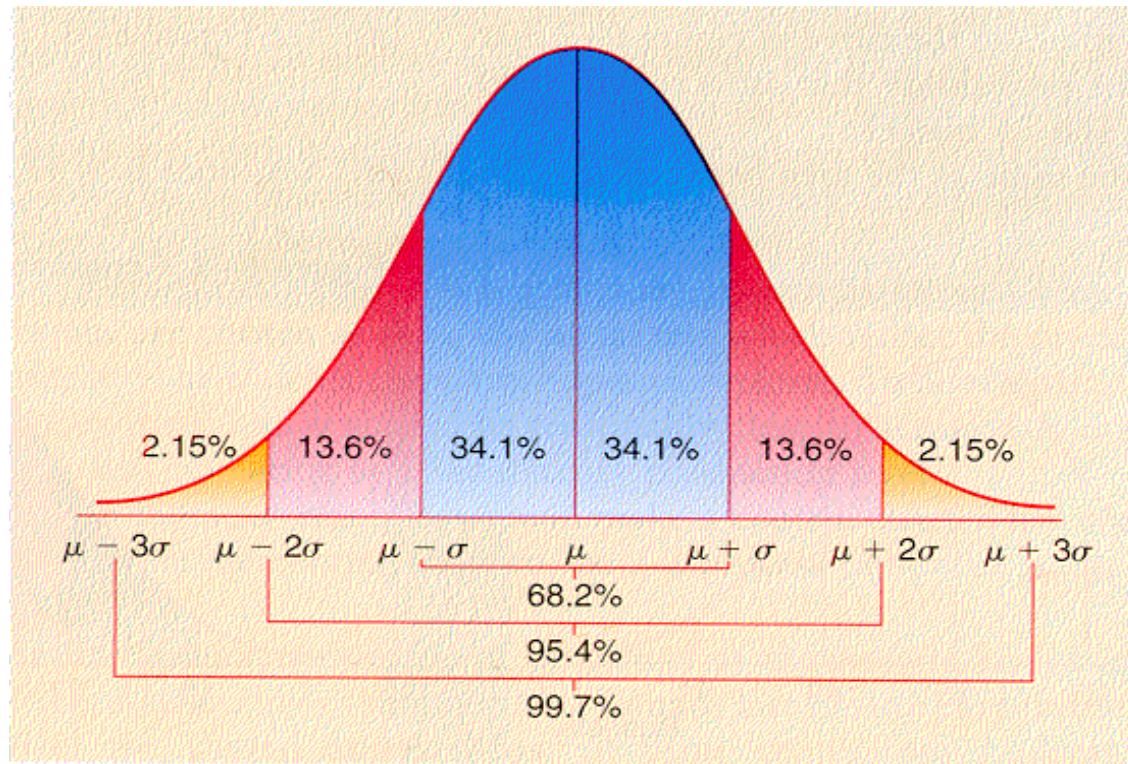
| ALL | Show All | All 1 Series | Single Symbol | Model: Bjersund-Stensland | Interest: 2.25% | Date: 06/21/2019 | Spread | Side | Qty | Symbol | Exp | Strike | Type | Price | Yield | Vol | Delta | BP Effect |
|---------------|----------|--------------|---------------|---------------------------|-----------------|------------------|--------|--------|--------|--------|--------------|--------|------|-------|-------|-----|-------|-----------|
| SPX | IND | SELL | 0 | SPX | 15 JUL 19 | 3050 | CALL | 1.85 | 10.65% | -18.92 | -\$10,000.00 | | | | | | | |
| SPX | BUY | +10 | SPX | 15 JUL 19 | 3060 | CALL | CREDIT | 10.63% | - | - | | | | | | | | |
| SPX | SELL | -10 | SPX | 15 JUL 19 | 2790 | PUT | 1.31 | 17.37% | - | - | | | | | | | | |
| SPX | BUY | +10 | SPX | 15 JUL 19 | 2780 | PUT | 1.31 | 17.72% | - | - | | | | | | | | |
| (\$10,000.00) | | | | | | | | | | | | | | | | | | |

Questions



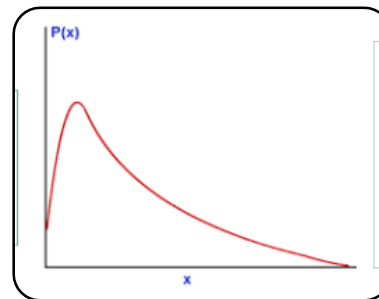
What is a Normal Distribution

- Assumes stocks have an equal chance of moving up or down at any given time



So what is volatility

- The IV of an option tells the range of an underlying on an annualized basis based on 1 standard deviation in a normal distribution.
 - Stocks moving up or down randomly every day fit a normal distribution.
 - Longer term stock movement fits a Lognormal distribution due to dividends and compounding (more to the right side)



Using the VIX

- So how does the VIX average 20 if SPX only move .30% a day on average?
 - Because we have to convert the daily move at some volatility and to do that we need to find the time interval of the move.
 - 1 day move = implied volatility/ sqrt 252 (sqrt of 256 is 16)
- We now know what volatility generates what type of move
 - 30 day move = VIX / SQRT 12