

Week 3 Slides



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Topic Summary

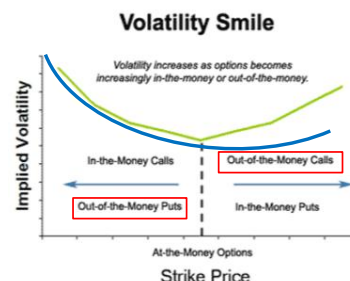
- Option Skew
- The VIX
- VIX Relationship to SPX
- Implied Volatility vs Historical Volatility
- The Vertical Spreads
- The Iron Condor

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Option Skew

- Options at different strikes have different IV's.
- Skew refers generally to differences in relative volatility of ATM options versus OOM options.
- The volatility “smile” describes the relative shape of IV skew (OOM put options vs ATM puts).
- When there is fear in the market, traders buy puts in the indices to protect portfolios, so the put prices are bid higher, and will generally have more premium than the calls. Therefore, we say that the puts trade **richer** than calls (as in blue line). This is called “normal” skew.
- For individual stocks, skew can be relatively forward, flat or inverted.
- We look at skew when we open new option trades to take advantage of it.
- Generally, liquidity is better in OOM options vs. ITM options (bigger volume).



Option Skew

Most equity indices show Put skew to the downside:



Traders pay more for downside protection (normal skew)

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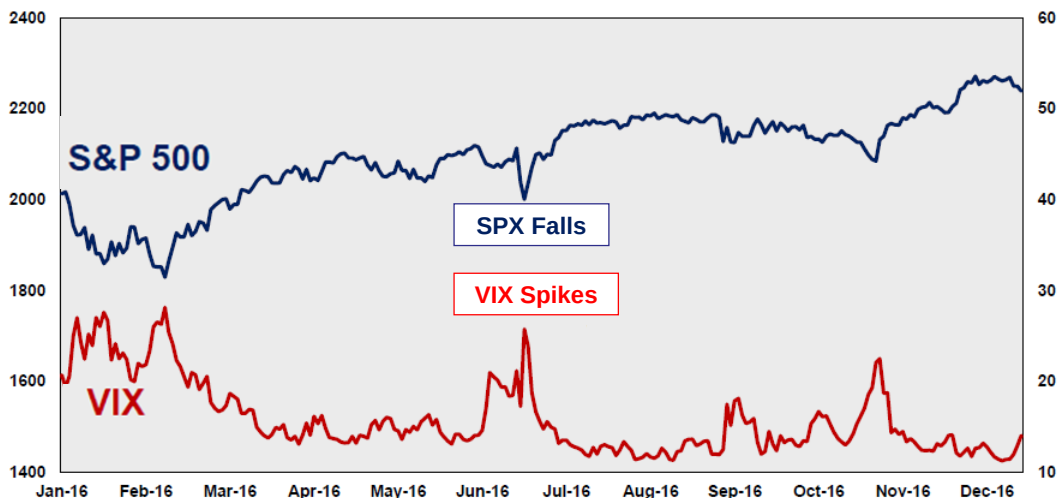
The VIX

- VIX is the market's 30-day forward look at S&P 500 Implied Volatility
- It is a weighted estimate of Implied Volatility of the S&P 500 (SPX) options based on option prices with a net duration of around 30 days. Computed from a weighted blend of prices of near-the money SPX options with between 23 and 37 days to expiry (approximates a 30 day forward vol).
- VIX is often called the “fear” gauge because it spikes during a market selloff when there is fear and traders buy SPX puts for protecting their portfolios.
- The VIX is mean reverting. Its long term mean is around 18.
- When the SPX is making a big move down, the VIX is usually spiking.
- The VIX itself is not tradable. VIX futures are tradable, and VIX options are tradable, but they are based on VIX futures prices, not the VIX index itself.
- There are some ETF's that you can trade which follow the VIX; VXX, UVXY.

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VIX Relationship to SPX (in 2016)



Data Source: Bloomberg

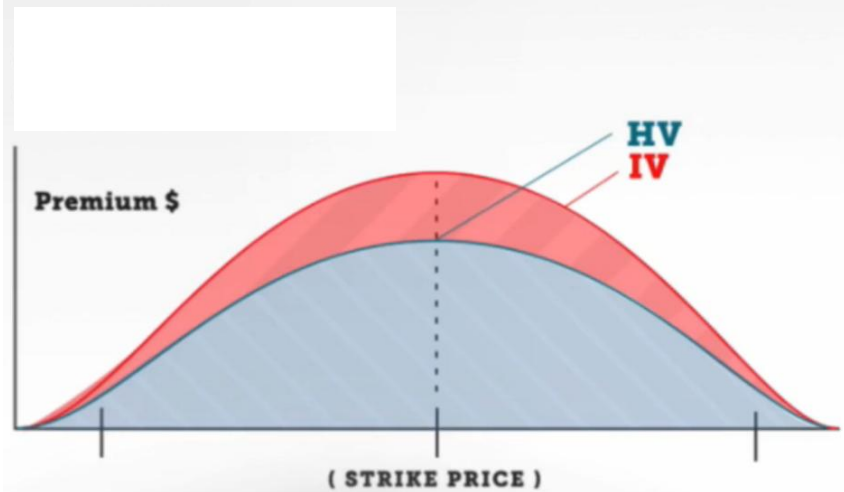
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Implied Vol vs. Historical Vol

If Implied Vol is overstated compared to Historical Vol, option sellers have an edge over buyers.

Since 1990 IV overstated
83% of the days



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Getting Edge by Selling Volatility

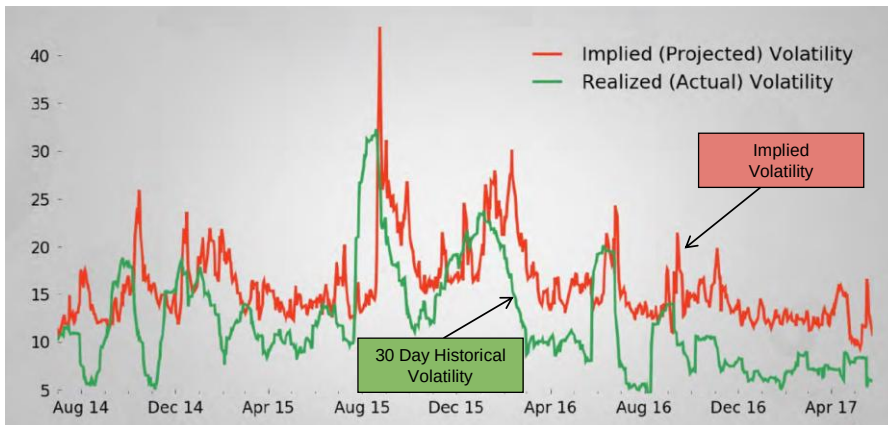
Volatility's Impact



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Implied Vol vs. Realized Volatility

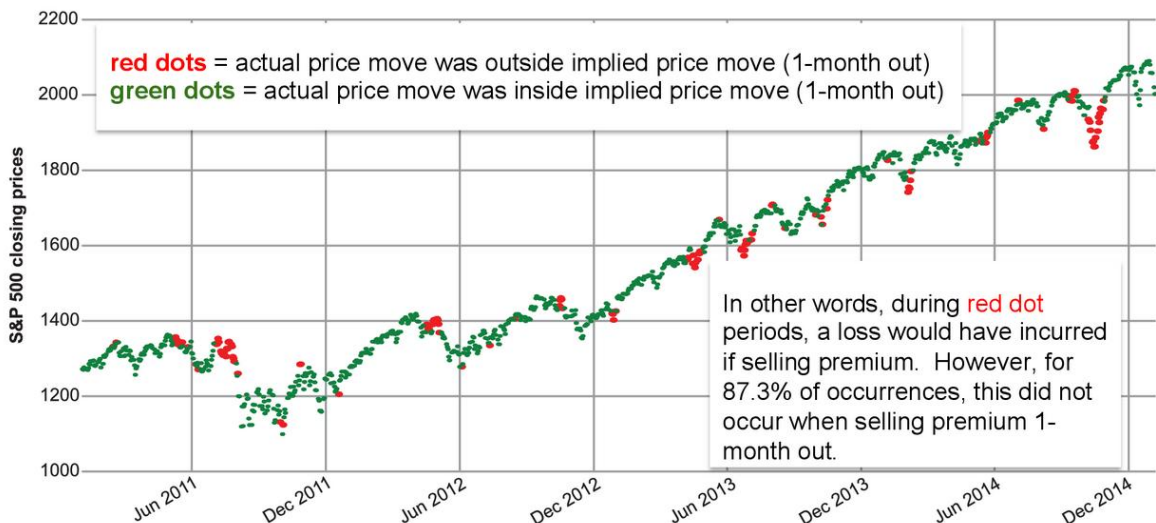


Implied Vol was overstated compared to Historical Vol most of the time over this 3-year period

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Is the 1-Month Expected Move in SPX Overstated?



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Data source: Market Measures, 2/6/15, "Implied vs Actual IVs | Different Timespans"

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Results of selling strangles in the 4 major indices

- When selling 1 SD strangles, the theoretical % profitable trades is 68% .
- Every index over-performed the theoretical expected number when selling premium at 1SD.

12 year results of selling 1 σ strangles with 45 days to expiration

	S&P 500 SPY	Russell IWM	Nasdaq QQQ	Dow DIA
% profitable at exp.	81%	85%	77%	83%
% profitable (managed at 50%)	90%	92%	89%	91%
Avg. Profit (at exp.)	\$64	\$80	\$20	\$56
Avg. Profit (managed at 50%)	\$42	\$59	\$17	\$42

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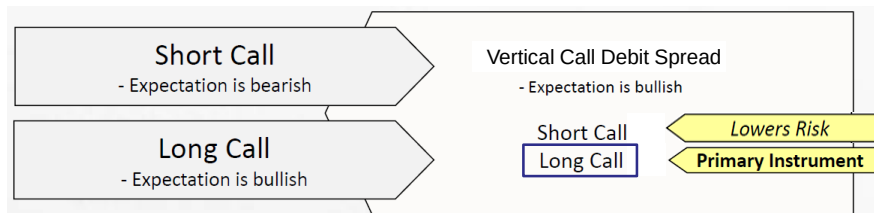
Vertical Spreads

- A vertical spread uses either puts or calls (not both), in the same expiry.
- One option is bought, and the other is sold.
- If the sold option is worth more than the bought option, it is a vertical CREDIT spread, and if the sold option is further out of the money than the bought option, it is a vertical DEBIT spread.
- Another way to state this: If you collect more from the short option than you paid for the long option, it is put on for a credit, otherwise it is a debit.
- The vertical spread is always risk defined; you can calculate easily what your max profit and max loss is on the trade before you enter it.
- These calculations are also done for you automatically when you place the trade so you don't have to calculate it.

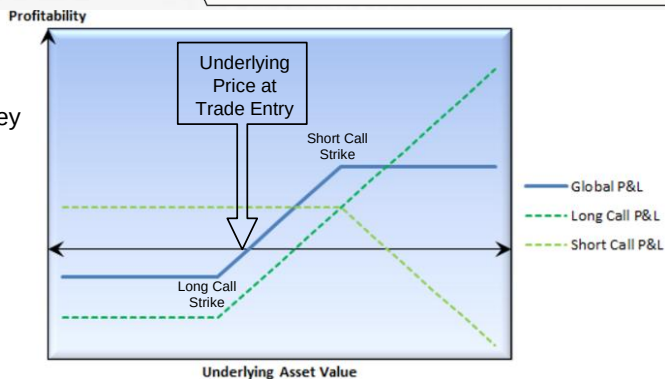
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P/L Graph – Vertical Call Debit Spread



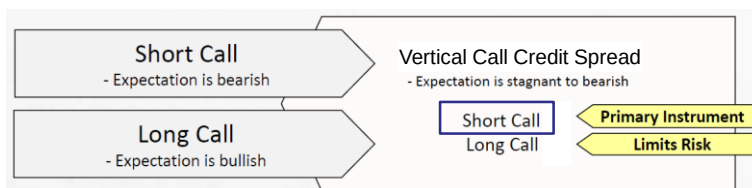
- Bullish Trade
- Buy call close to the money
- Sell call OTM



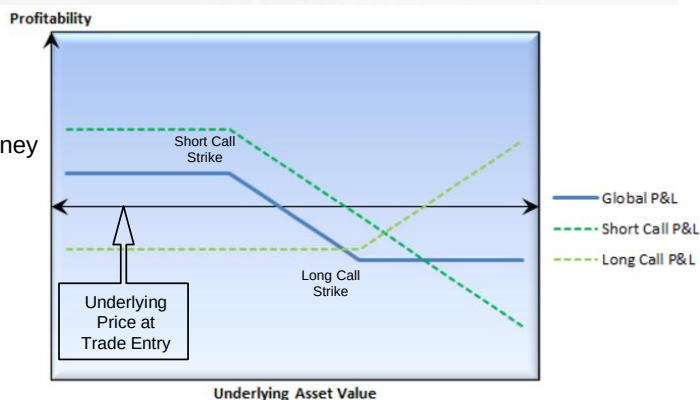
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P/L Graph – Vertical Call Credit Spread



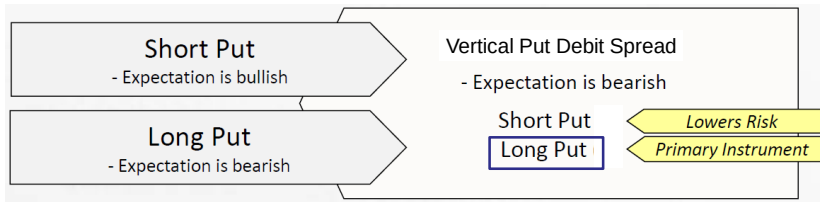
- Bearish Trade
- Sell call close to the money
- Buy call OTM



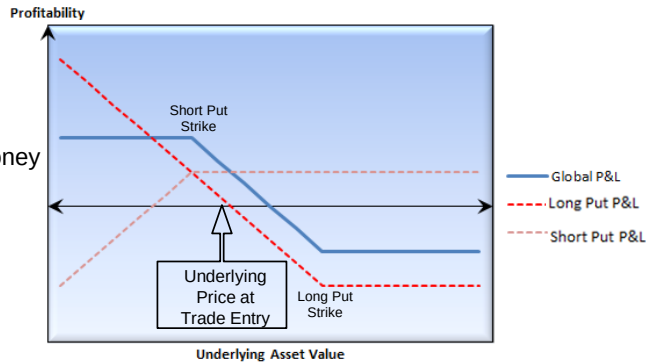
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P/L Graph – Vertical Put Debit Spread



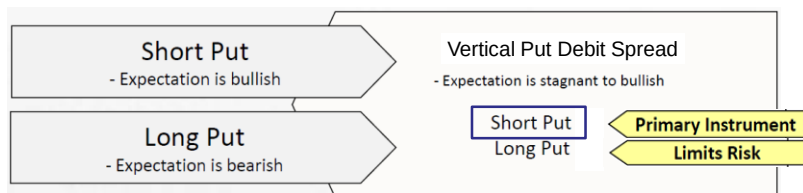
- Bearish Trade
- Buy put close to the money
- Sell put OTM



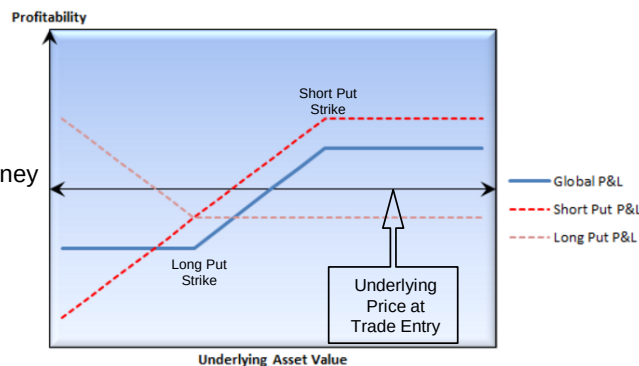
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P/L Graph – Vertical Put Credit Spread



- Bullish Trade
- Sell put close to the money
- Buy put OTM



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Profit and Loss on the Vertical Spread

- A vertical spread is always directional; it is either bullish or bearish.
- For a credit spread, the max profit is the credit received, and the max loss is the width between strikes less the credit received.
 - Example: Sell 102 call for \$4.00, buy 104 call for \$3.50; credit is \$.50, or \$50 per contract and max loss is \$150 per contract (\$200-\$50).
- For a debit spread, max loss is the amount you paid to place the trade, and max profit is the width between strikes less the debit paid.
 - Example: Buy 102 call for \$4.00, sell 104 call for \$3.50; debit is \$.50 or \$50. The max loss is \$50 per contract and the max profit is \$1.50 per contract (\$200-\$50).
- Buying a debit spread has advantages over just buying a long option. By selling the OOM option, you reduce the cost of the trade (lower risk).

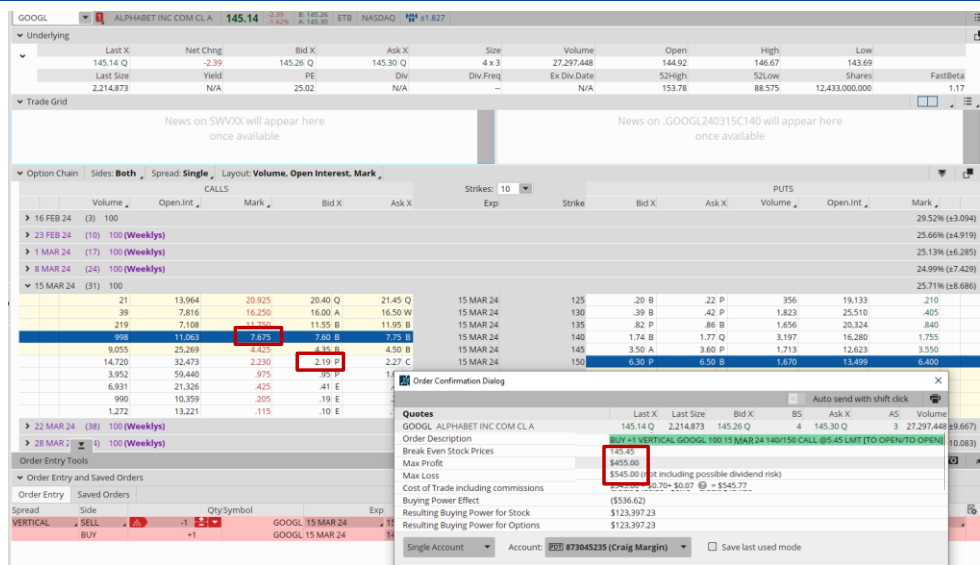
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Example of a Call Debit Spread

Buy the March 140 call for \$7.65 and sell the March 150 call for \$2.20. The spread price is a net debit of 5.45, or a debit of \$545 per contract.

BE: \$145.45
Max Profit: \$455
Max Loss: \$545



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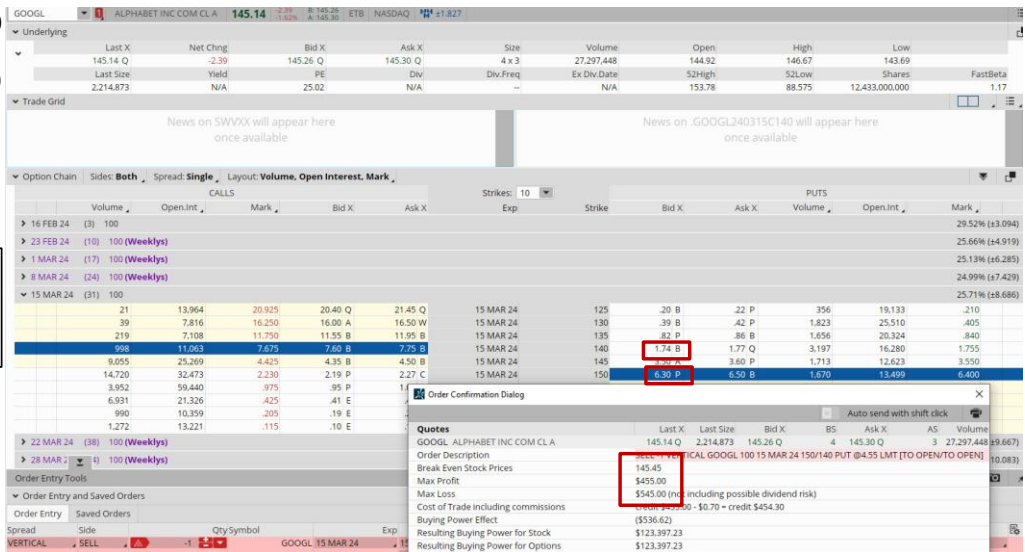
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Example of a Put Credit Spread (same strikes)

Sell the March 150 put for \$6.30 and buy the March 140 put for \$1.75. The spread price is a net credit of \$4.55, or a credit of \$455 per contract.

BE: \$145.45
Max Profit: \$455
Max Loss: \$545

Is this identical to call debit spread using the same strikes?



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Vertical Spreads – Bullish and Bearish

- If you sell a vertical call spread for a credit, you are bearish (short delta).
- If you buy a vertical call spread for a debit, you are bullish (long delta).
- If you sell a vertical put spread for a credit, you are bullish (long delta).
- If you buy a vertical put spread for a debit, you are bearish (short delta).

Outlook	Vertical Put Spreads	Vertical Call Spreads	Delta
Bullish	Sell for Credit	Buy for Debit	Positive
Bearish	Buy for Debit	Sell for Credit	Negative

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The Iron Condor

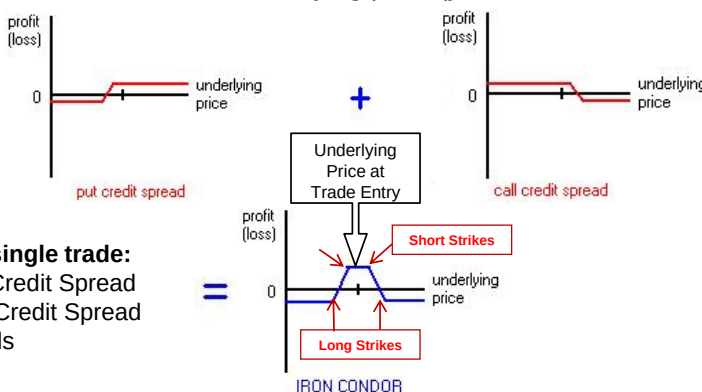
- The Iron Condor is a neutral trade; You want the underlying to move within a range.
- Uses a Vertical Put Credit Spread and a Vertical Call Credit Spread together as one trade.
- Max Profit is achieved if the underlying stays between the short strikes at expiration.
- Trade is entered for a credit (selling the Iron Condor).
- Roughly center the Iron Condor around the current underlying price (you can move it around to lean bullish or bearish).
- This is a 4-legged spread.
- Best used with high IV Rank.
- You have risk on both sides.



Entered as a single trade:

- Sell a Put Credit Spread
- Sell a Call Credit Spread
- 4 Legs totals

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Discussion Questions and Homework

- Which is better, a vertical debit spread or a vertical credit spread?
- Where does your risk lie when you sell an Iron Condor?
- Why would we expect Iron Condors to be best entered with high IV rank?
- How do Iron Condors make money if price stays stagnant?
- If you make the short strikes very far apart on the iron condor, do you get more or less credit? Have a higher or lower risk?

HOMEWORK:

1. If doing the tastylive Beginners Options Course, do:

Section 3: Basic Options Strategies Part 1.

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