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Volatility Trading Strategies

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Volatility Strategies

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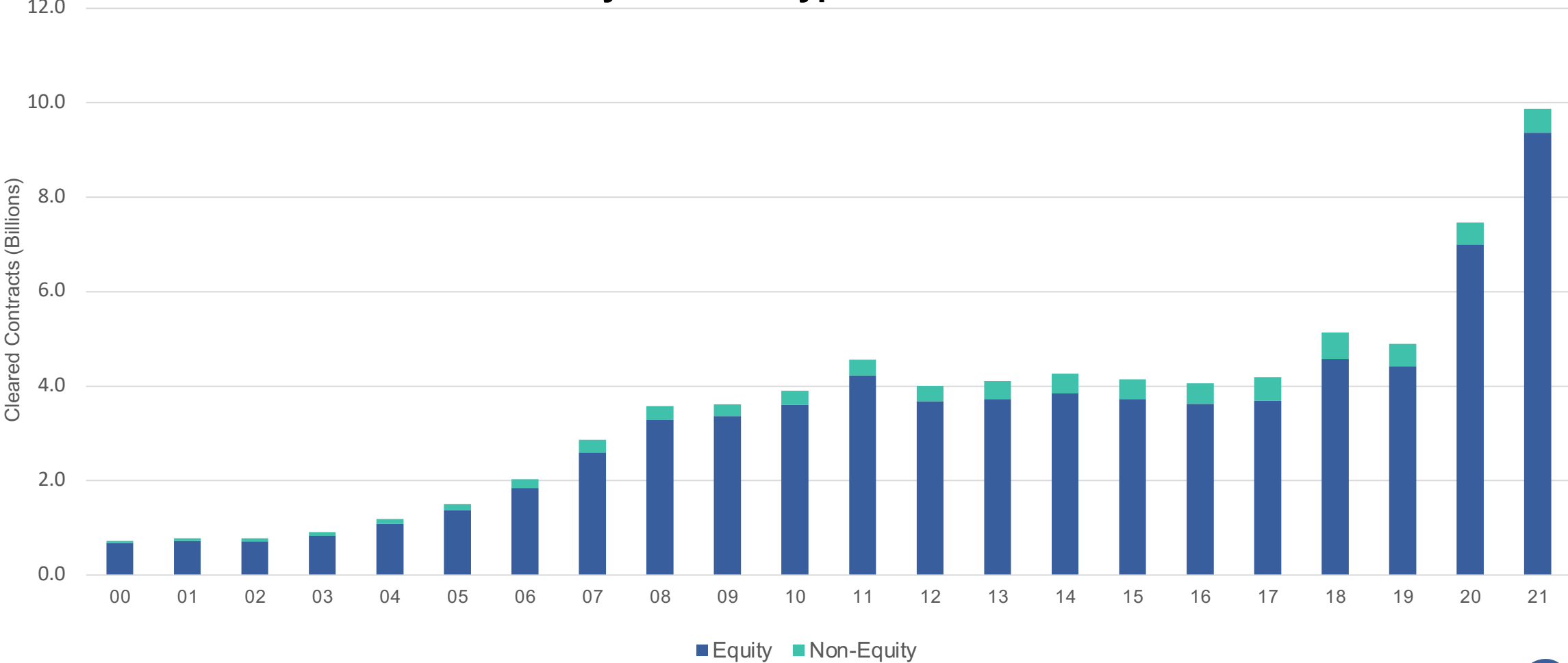
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Annual Options Volume 2000-2021

OCC Annual Contract Volume by Contract Type



Long Straddle and Long Strangle



Long Straddle Characteristics

Can take advantage of a potential large market move and/or rising implied volatility

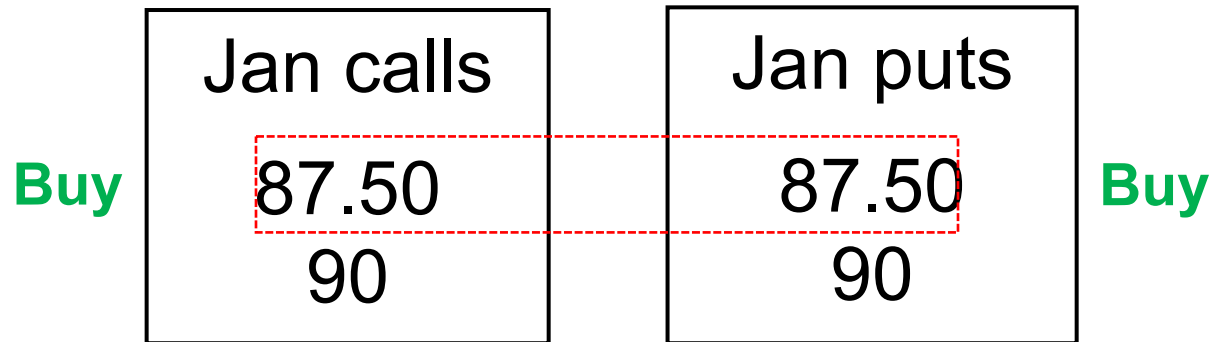
- Combines naked long call with naked long put (same month and strike)
- Limited risk up or down
- Unlimited upside reward / Limited downside reward to zero
- Theta (time decay) is working against you, as is decreasing levels of implied volatility



Long Straddle Defined

Buy one **call** option and **Buy** one **put** option

- Same underlying
- Same expiration dates
- Same strike prices (typically at-the-money)



Buying 1 Jan 87.50 call and 1 Jan 87.50 put

Long Straddle Example

XYZ @ \$87.50 45 Days to Expiration

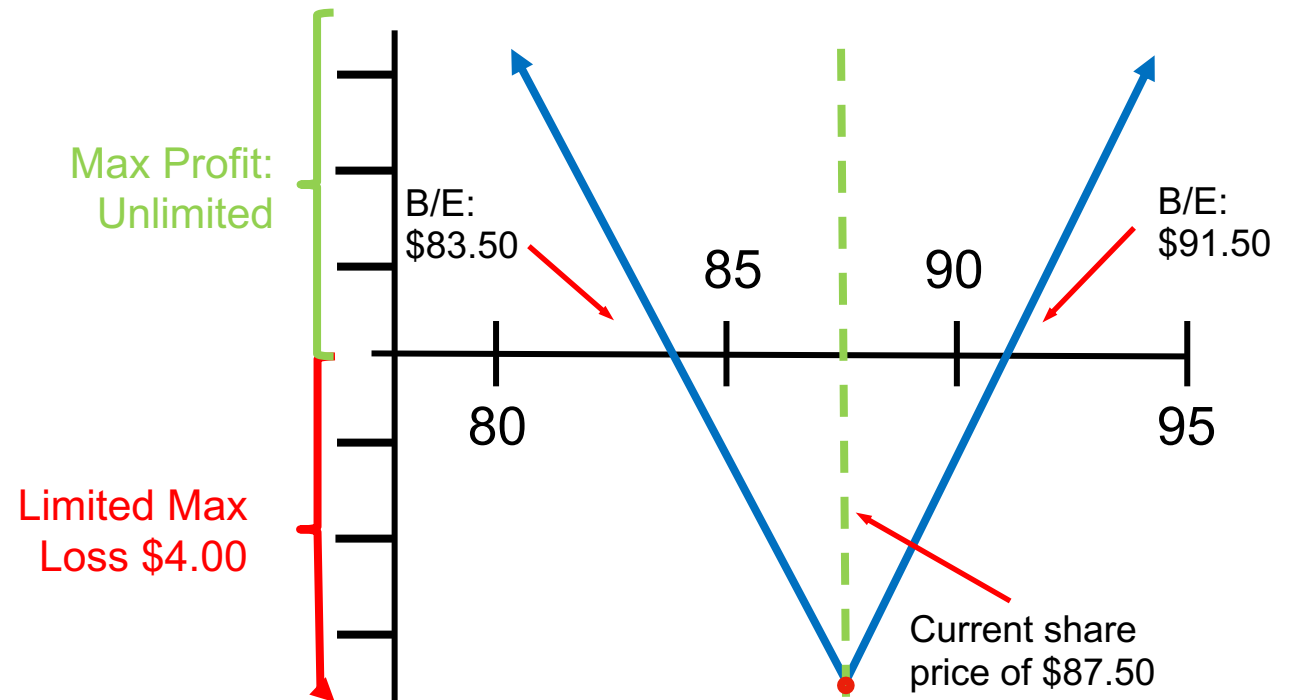
Buying 1 45-day 87.50 straddle for \$4.00

Maximum Gain:	Upside theoretically unlimited / downside to zero
Maximum Risk:	\$400 (100% of investment)
Break-even:	\$83.50 and \$91.50

Not including commissions

Long Straddle Example

- Buy 1 87.50 Call \$1.90
 - Buy 1 87.50 Put \$2.10
- Net Debit \$4.00**



Not including commissions

Long Strangle Characteristics

Can take advantage of a potential large market move and/or rising implied volatility

- Combines naked long OTM call with a naked long OTM put (different strikes / same month)
- May be profitable if the stock makes a **sharp** move up or down
- Limited risk up or down
- Costs less than the straddle but needs a greater move in the underlying to be profitable
- Volatility is a BIG player
- Time ISN'T on your side (Decay)

Long Strangle Example

XYZ @ \$87.50 45 Days to Expiration

Buy 1 45-day **90.00** Call \$ 1.20

Buy 1 45-day **85.00** Put \$ 1.30

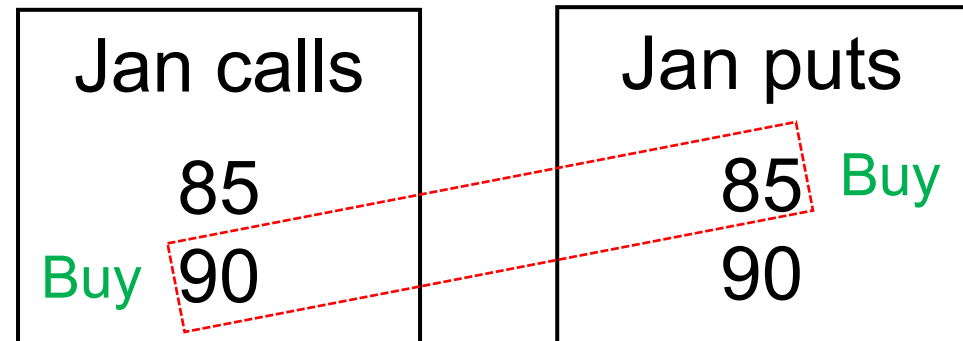
} **Net Debit \$ 2.50**

Maximum Gain: Unlimited to Upside / Limited downside to zero

Maximum Risk: \$250 (100% of investment)

Break-even: \$82.50 and \$92.50

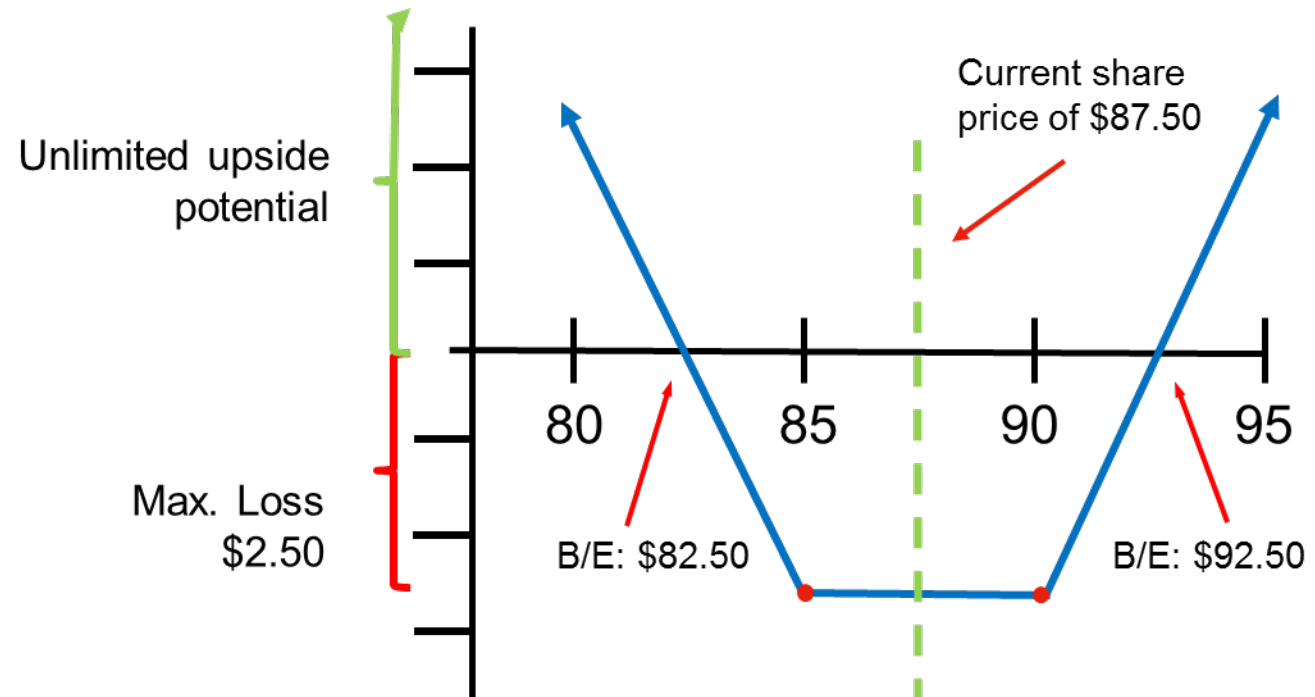
Not including commissions



Long Strangle Example

Buy 1 45-day **90.00** Call \$ 1.20
Buy 1 45-day **85.00** Put \$ 1.30

} **Net Debit \$ 2.50**



Not including commissions

Short Straddle vs. Short Iron Butterfly



Short Straddle Characteristics

Can take advantage of a neutral to range bound security and/or falling implied volatility

- Combines naked short ATM call with a naked short ATM put (same strike same month)
- May be profitable if the stock stays rangebound around the short strikes
- Unlimited upside risk / downside risk to zero
- Income generation
- Time IS on your side (Decay) as is a decrease in IV

Short Straddle Example

XYZ @ \$87.50 45 Days to Expiration

Selling 1 45-day 87.50 call at \$1.90

Selling 1 45-day 87.50 put for \$2.10

} **Net Credit \$ 4.00**

- Maximum Gain: \$400
- Maximum Risk: Unlimited upside risk / downside risk to zero
- Break-even: \$83.50/91.50 (net credit minus / plus strike)

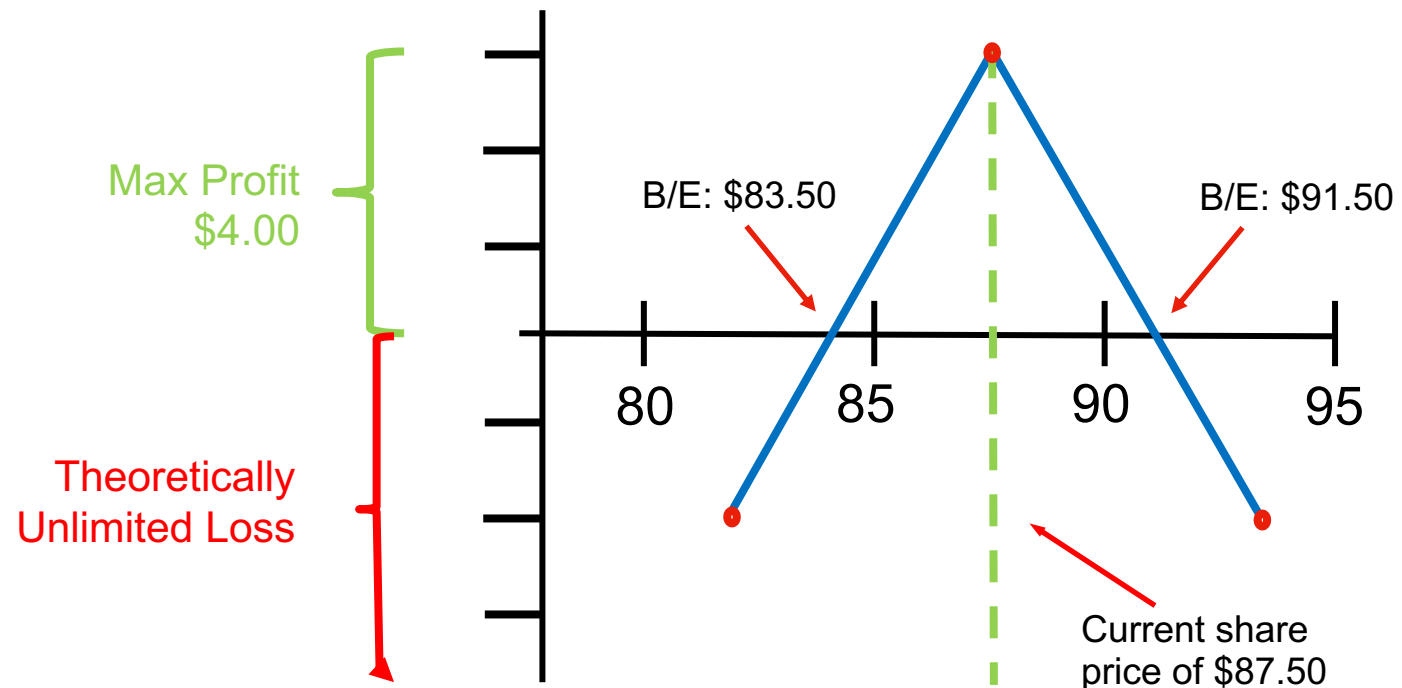
Not including commissions

Short Straddle Example

Sell 87.50 call at \$1.90

Sell 87.50 put at \$2.10

} **Net Credit \$ 4.00**



Not including commissions

What is a Long Butterfly?

Combination of either:

- Bull call spread + Bear call spread
- Bear put spread + Bull put spread

Consists of:

- 3 Options series
- Traditional butterfly either all calls or all puts
- Strikes equal distance apart
- Always a net debit

Why Butterflies?

- Defined risk
- Cost
- Delta neutral
- Positive theta (time decay)
- Ability to sell high IV with limited risk
- Bullish/ Bearish/ Neutral



Short Iron Butterfly Characteristics

Can take advantage of a neutral to range bound security and/or falling implied volatility

- Combines a long OTM strangle and a short ATM straddle (same month)
- Can also be viewed as selling a bull put credit spread and selling a bear call credit spread
- Maximum profit achieved at short strikes at expiration
- Limited risk up / down
- Income generation
- Time IS on your side (Decay) as is flat or decreasing levels of IV

Short Iron Butterfly Example

XYZ @ \$87.50 45 Days to Expiration

Selling 1 45-day 87.50 straddle at \$4.00

Buying 1 45-day 85/90 strangle for \$2.50

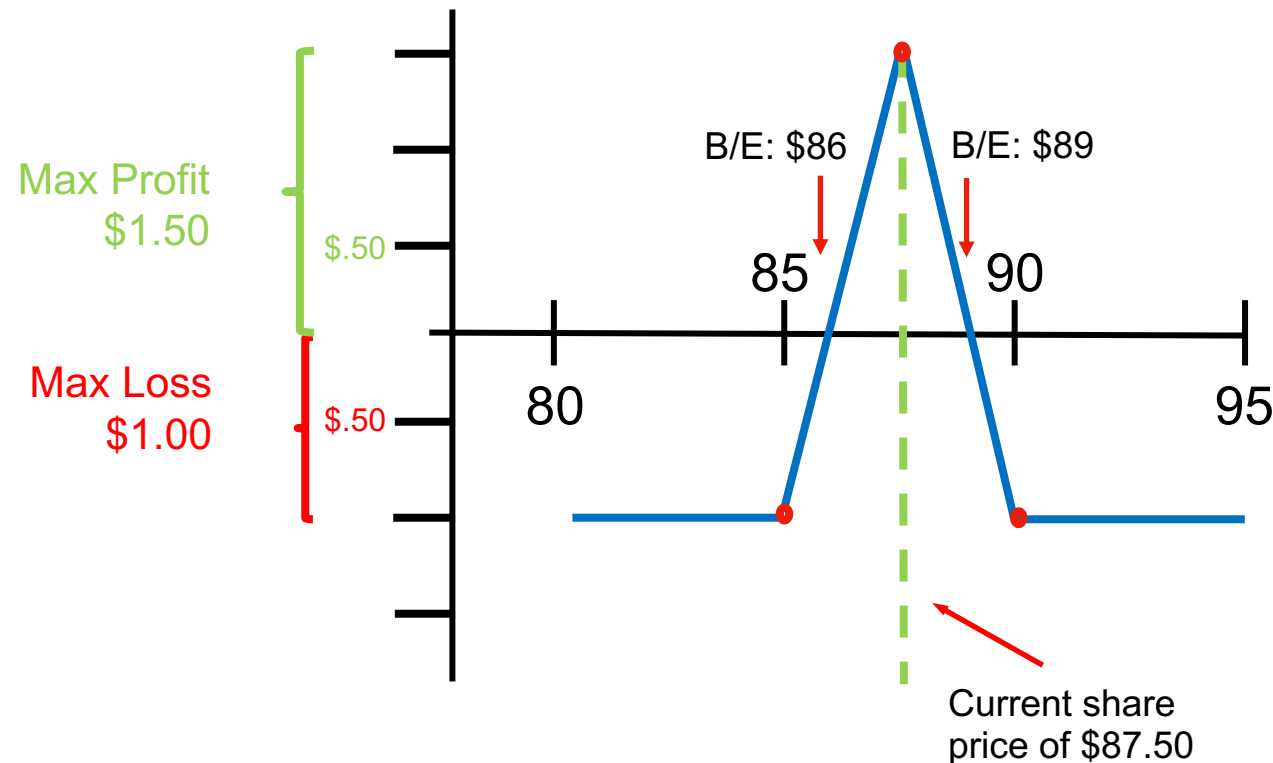
} **Net Credit \$ 1.50**

- Maximum Gain: \$1.50
- Maximum Risk: \$1.00 ($\$87.50 - 85.00 - \1.50)
- Upper break-even: Short strike + credit received ($87.50 + 1.50 = 89.00$)
- Lower break-even: Short strike – credit received ($87.50 - 1.50 = 86.00$)
- Assignment risk at expiration

Short Iron Butterfly Example

Sell 87.50 straddle at \$4.00
Buy 85/90 strangle for \$2.50

} **Net Credit \$ 1.50**



Not including commissions

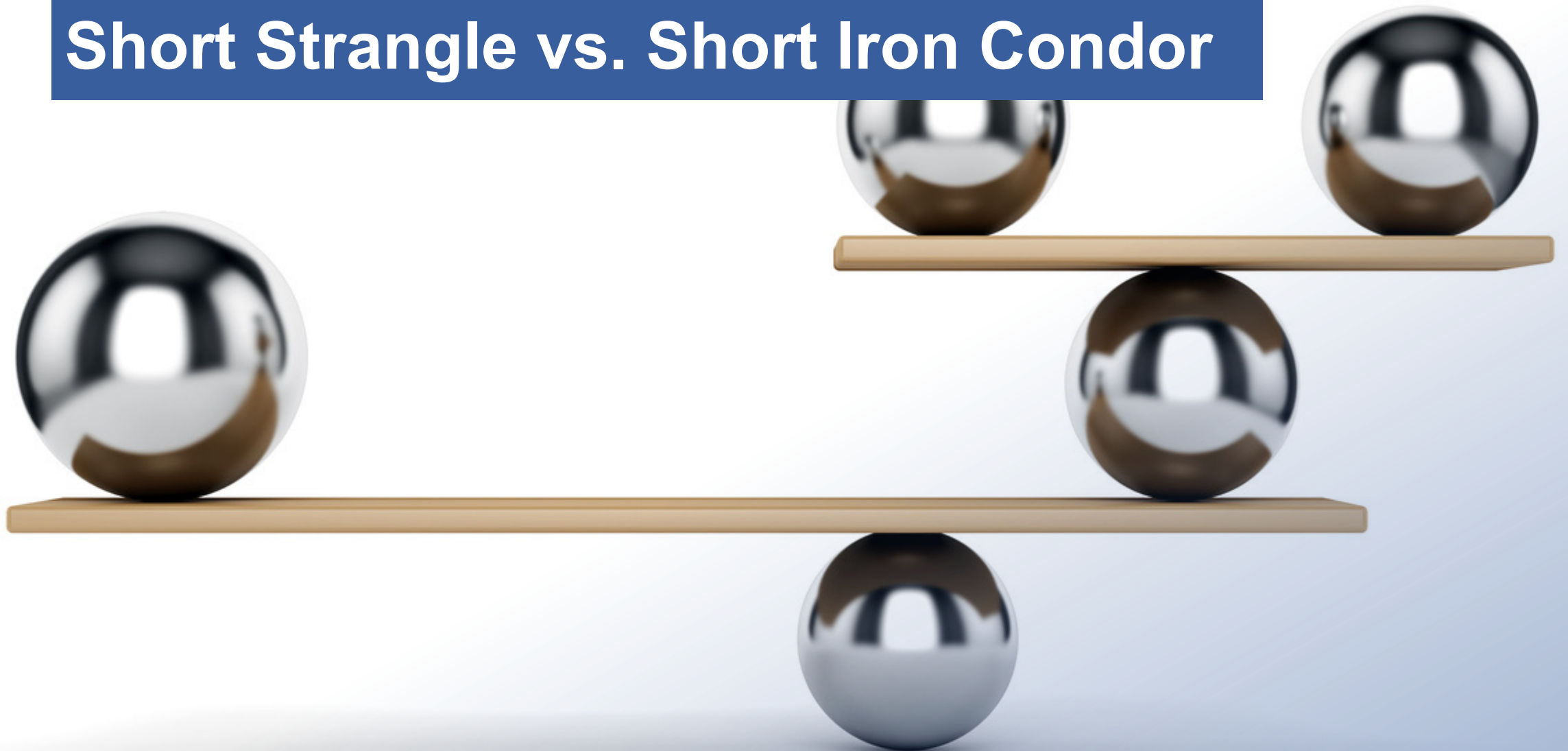
Short Straddle / Short Iron Butterfly Greeks

Greek	Effect	Comments
Delta	Varies	If using ATM options / near neutral. Can also be structured directionally.
Gamma	Negative	When the underlying price rises both positions become more short. When the underlying price falls both positions become more long.
Theta	Positive	The extrinsic value of options decreases over time, leading to decreasing options prices.
Vega	Negative	A decrease in IV is beneficial as it leads to lower option prices.

Risk vs. Reward

	Short Straddle	Short Iron Butterfly
Profit Potential	Higher	Lower
Max loss potential	Higher	Lower
Trading range to profit	Wider	Narrow
IV exposure	Short	Short

Short Strangle vs. Short Iron Condor



Short Strangle Characteristics

Can take advantage of a neutral to range bound security and/or falling implied volatility

- Combines naked short OTM call with a naked short OTM put (different strikes / same month)
- May be profitable if the stock stays rangebound between the break-evens
- Unlimited upside risk / downside risk to zero
- Income generation
- Time IS on your side (Decay) as is a decrease in IV

Short Strangle Example

XYZ @ \$87.50 45 Days to Expiration

Sell 1 45-day **90.00** Call \$ 1.20

Sell 1 45-day **85.00** Put \$ 1.30

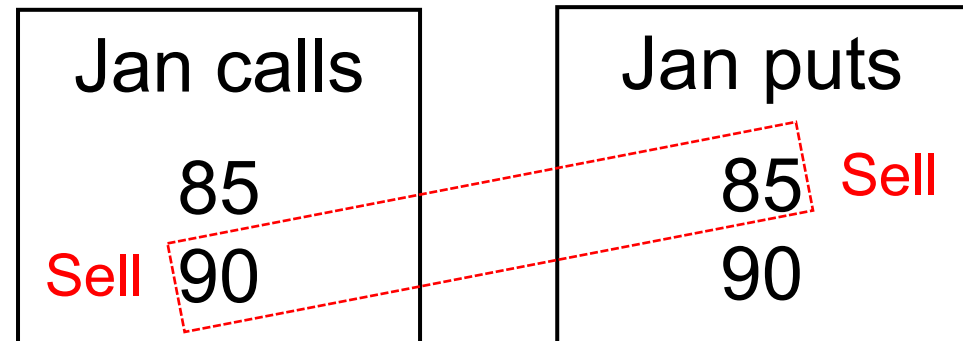
} **Net Credit \$ 2.50**

Maximum Gain: \$250 Credit received

Maximum Risk: Unlimited upside risk / downside risk to zero

Break-even: \$82.50 and \$92.50

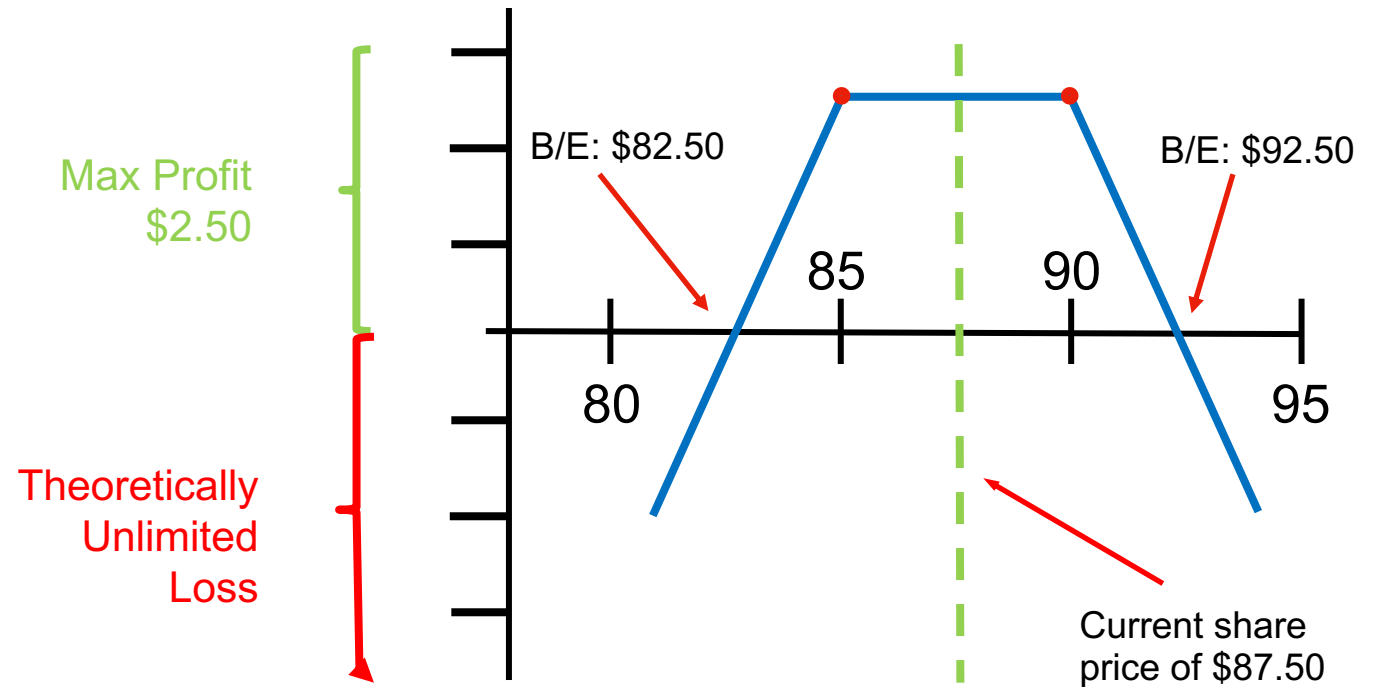
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Short Strangle Example

Sell 90.00 call for \$1.20
Sell 85.00 put for \$1.30

} **Net Credit** **\$ 2.50**



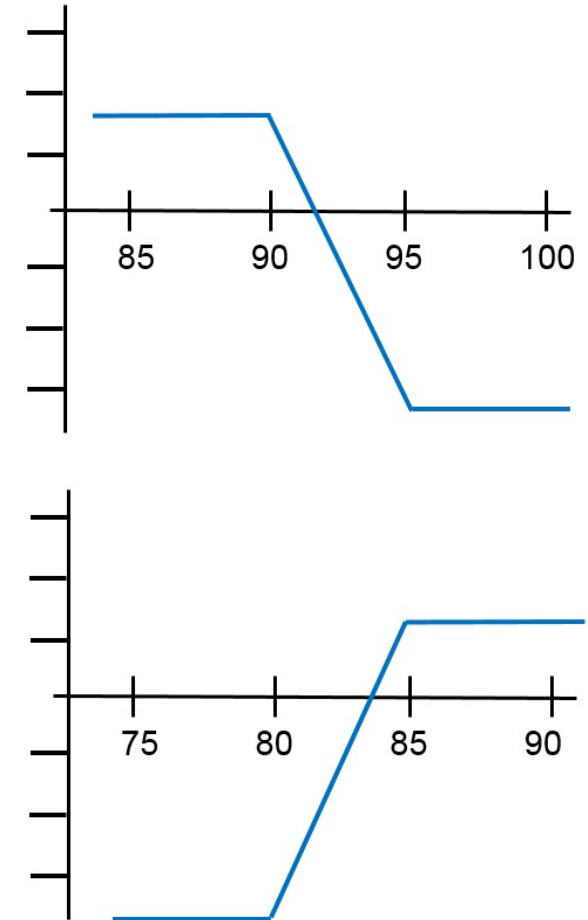
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What is a Short Iron Condor?

A Short Iron Condor is:

- The sale of a call credit spread
- *and*
- The sale of a put credit spread

*The same underlying, the same expiration month,
both spreads employing out-of-the-money options*



Short Iron Condor Characteristics

Can take advantage of a neutral to range bound security and/or falling implied volatility

- Combines long strangle with a short strangle (different strikes / same month)
- May be profitable if the stock stays rangebound between the break-evens
- Limited Risk / Difference in strikes less the credit received
- Income generation
- Time IS on your side (Decay) as is a decrease in IV

Iron Condor Example

XYZ @ \$88.50 28 Days to Expiration

Expected price range: \$85 to \$90

Sell the 90 – 95 call credit spread at \$1.70

Sell the 85 – 80 put credit spread at \$1.35

Net Credit \$3.05

- Selling an inside strangle / purchasing an outside strangle
- This is a *typical* Iron Condor

Iron Condor Example

XYZ @ \$88.50. Sell the 85-80 put credit spread and the 90-95 call credit spread at \$3.05

Maximum Gain: \$305

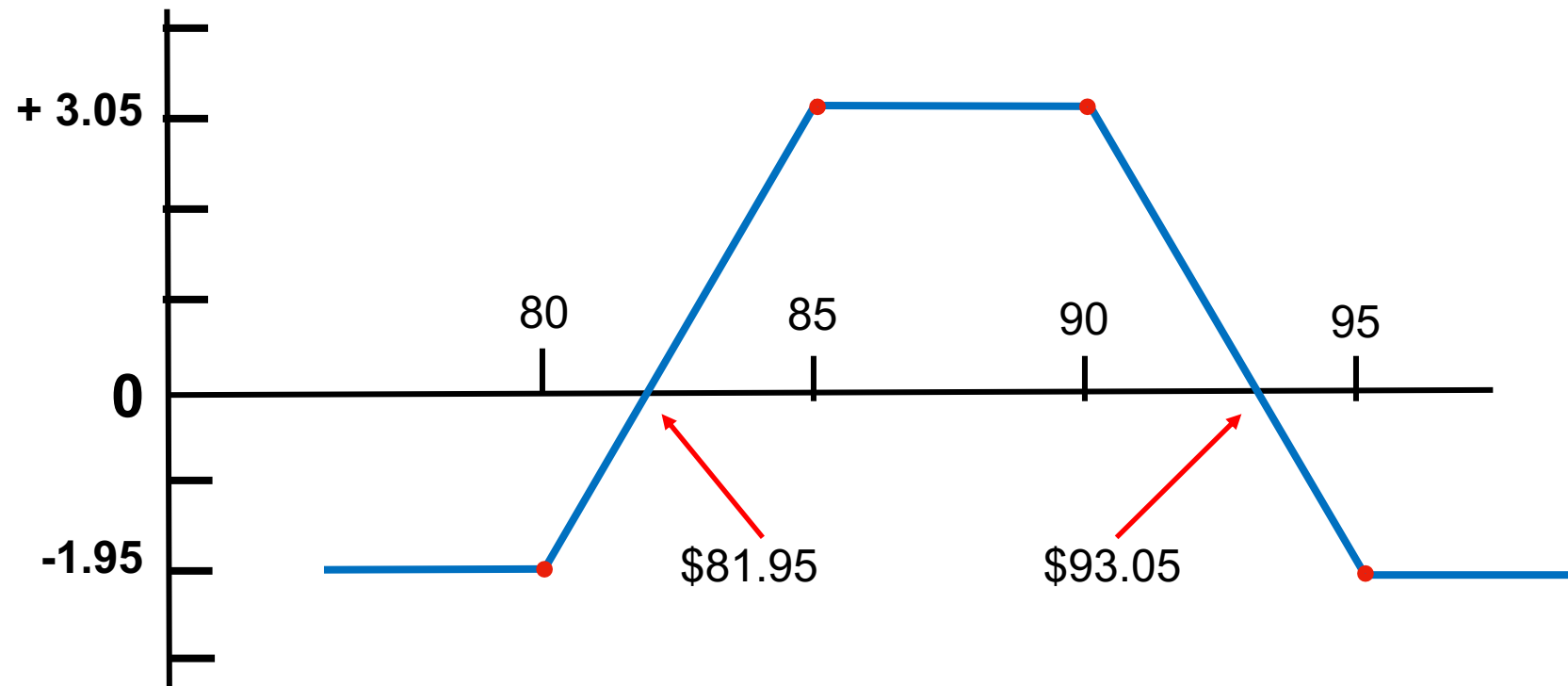
Maximum Risk: \$195 (Difference in strikes less the credit received)

break-even: \$93.05 and/or \$81.95

Not including commissions

Iron Condor P & L

Sell the **90-95 call credit spread** and
the **80-85 put credit spread** for a *net credit of \$3.05*



Short Strangle / Short Iron Condor Greeks

Greek	Effect	Comments
Delta	Varies	If using strikes equally distant from stock / near neutral. Can also be structured directionally.
Gamma	Negative	When the underlying price rises both positions become more short. When the underlying price falls both positions become more long.
Theta	Positive	The extrinsic value of options decreases over time, leading to decreasing options prices.
Vega	Negative	A decrease in IV is beneficial as it leads to lower option prices.

Risk vs. Reward

	Short Strangle	Short Iron Condor
Profit Potential	Higher	Lower
Max loss potential	Higher	Lower
Trading range to profit	Width of Strikes +/- credit	Narrower
IV exposure	Short	Short

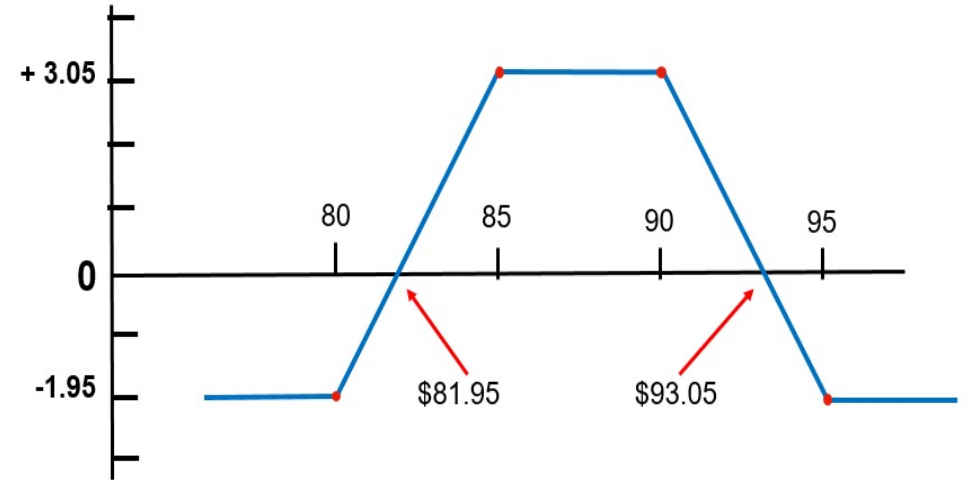
Characteristics of Spreads

Conclusions:

- Lower risk than selling naked short options
- Limited profit and loss potential
- More commissions
- Must have a specific time and price forecast
- Iron Condor - two chances to “get scared”

Other Considerations

- Commissions (in and out)
- Stock price between strikes at expiration



- e.g. XYZ at \$92.50. Short call is assigned; long call expires
 - New position: Short 100 shares
 - or
 - e.g. XYZ at \$81.00. Short put is assigned; long put expires
 - New position: Long 100 shares
- Iron Condor – either of above **could** happen

Key Points

- Long straddles and strangles are defined risk strategies used to take advantage of an outsized move in the underlying
- Short iron butterflies and short iron condors are defined risk strategies to sell high implied volatility or to take advantage of a range bound underlying
- Short straddles and strangles are undefined risk strategies to sell high implied volatility or to take advantage of a range bound underlying. There is the potential for increased profitability, but there is increased risk.
- All can be constructed directionally (bullish/bearish/neutral)
- Early assignment can change the risk profiles of these strategies

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