

Spreads

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Spreads

Options involve risks and are not suitable for everyone. Prior to buying or selling options, an investor must receive a copy of *Characteristics and Risks of Standardized Options*. Individuals should not enter into options transactions until they have read and understood the risk disclosure document, *Characteristics and Risks of Standardized Options*, available by calling 1-888-OPTIONS or by visiting OptionsEducation.org." Copies may be obtained by contacting your broker or The Options Industry Council at One North Wacker Drive, Chicago, IL 60606.

In order to simplify the computations, commissions, fees, margin interest and taxes have not been included in the examples used in these materials. These costs will impact the outcome of all stock and options transactions and must be considered prior to entering into any transactions. Investors should consult their tax advisor about any potential tax consequences.

Any strategies discussed, including examples using actual securities and price data, are strictly for illustrative and educational purposes only and are not to be construed as an endorsement, recommendation, or solicitation to buy or sell securities. Past performance is not a guarantee of future results.

Presentation Overview

- Spread basics
- Vertical spread basics
- Call spreads
 - bull call spread
 - bear call spread
- Put spreads
 - bear put spread
 - bull put spread
- Time spreads
- Pricing spreads in marketplace

Spread Basics

- **Spread**
 - position having both long and short options
 - same type (calls or puts)
 - same underlying stock or ETF
- **Long and short sides of a spread are called “legs”**
- **Each leg**
 - opening transaction
 - limits (or hedges) risk of the other(s) to some degree

Spread Basics

- **Spreads can be bullish, bearish or neutral**
 - depends on construction, not whether calls or puts
- **Spreads are established at a net debit or net credit**
 - differential between leg prices
- **Net debit = long leg costs more than received for short**
 - debit spread → investor who pays net debit is long the spread
- **Net credit = more received for short leg than paid for long**
 - credit spread → investor receiving net credit is short the spread

Spread Basics

- **Focus on differential in leg prices**
 - to price spread for trading in or out
 - after position established to track profit or loss
- **Investor may trade in or out with spread order**
 - buy/sell legs at same time at net debit or net credit
 - execution of order may involve 1 or 2 transactions

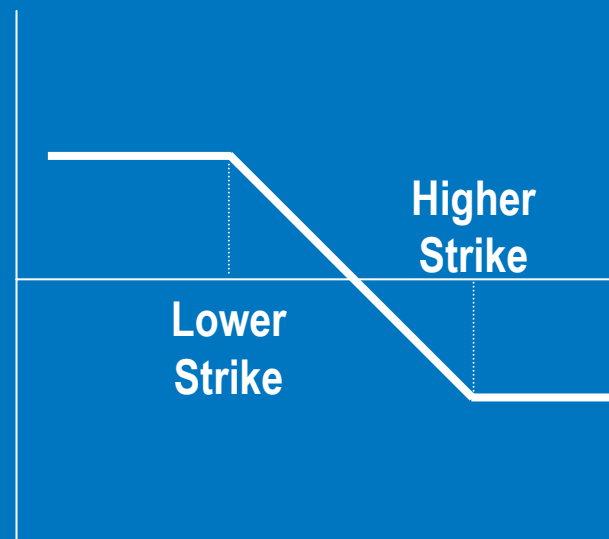
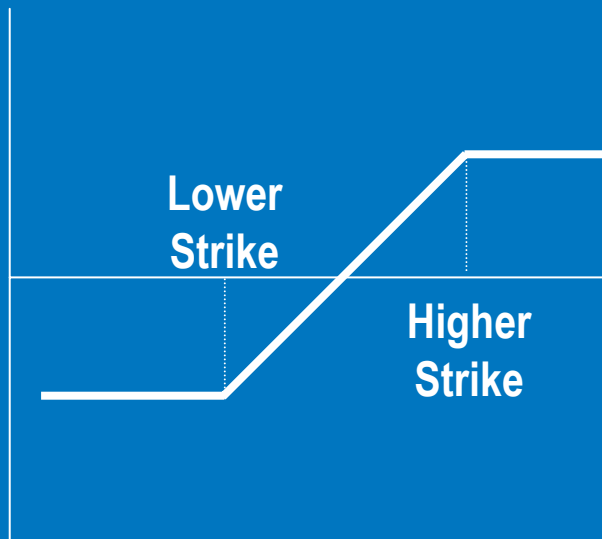
Spread Basics

- **Legging into or out of spread position**
 - investor chooses to buy/sell one leg at a time
 - very risky
 - legging into position → buy long option first
 - legging out of position → close short option first
- **Investors**
 - trading spreads may require higher level of approval
 - check with broker

Why Spreads?

- **Spread strategies can offer investors unique tradeoffs**
- **For a particular market forecast, spreads may offer**
 - better risk vs. reward ratios
 - higher profit potentials
 - versus outright purchase or sale of single options
- **Time decay and changing implied volatility**
 - some spreads can protect you
 - other spreads may take advantage

Vertical Spreads



Vertical Spreads

- **Vertical spread**
 - buy one option = long leg
 - sell another option = short leg
 - all calls or all puts
 - same underlying stock and expiration month
 - different strike prices
 - always 1 : 1 ratio (long : short)
- **Call vertical spreads = bull call spread and bear call spread**
- **Put vertical spreads = bear put spread and bull put spread**

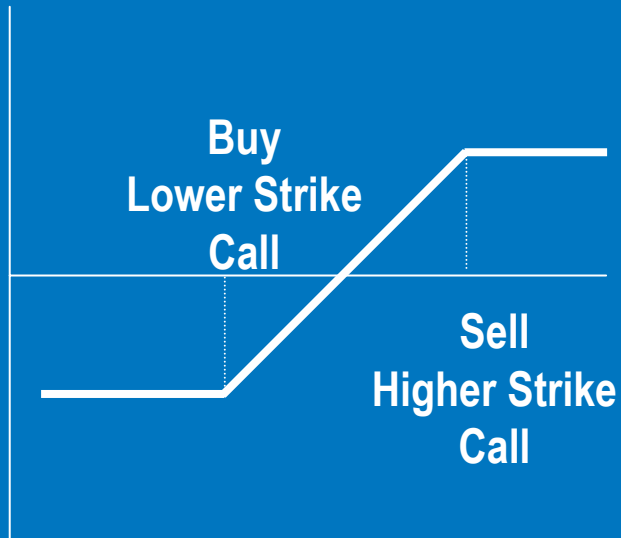
Vertical Spreads

- **Vertical spread characteristics**
 - limited loss potential
 - limited profit potential
 - reduced sensitivity to underlying price changes
 - break-even point between strike prices
- **Maximum spread value at expiration**
 - difference in strike prices (differential) x \$100
 - both options in-the-money
 - realized: legs closed at intrinsic value or via exercise/assignment

Vertical Spreads

- **Minimum spread value at expiration**
 - zero (both options out-of-the-money and with no value)
- **Spreads often referred to by strike differential**
 - \$5.00 spread = difference in strikes of \$5.00
 - \$10.00 spread = difference in strikes of \$10.00
- **Example**
 - buy 1 XYZ June 50.00 call and sell 1 XYZ June 55.00 call
 - bull call vertical spread – \$5.00 spread

Call Vertical Spreads



Bull Call Spread



Bear Call Spread

Bull Call Spread

- **To establish bull call spread**
 - buy call with given strike and sell call with higher strike
 - always a debit spread
- **Example**
 - buy 1 XYZ June 50.00 call - \$3.75
 - sell 1 XYZ June 55.00 call + \$1.50

**\$2.25
net debit**
- **Position**
 - long 1 XYZ June 50.00 call and short 1 XYZ June 55.00 call
 - long 1 XYZ June 50.00 / 55.00 call spread

Not including commissions

Bull Call Spread

- **Moderately bullish...as stock price continues to increase**
 - long call value rises → profit
 - short call value rises → loss
 - eventually profits on long offset by short losses → limited profit
- **Double hedge**
 - short call reduces cost and downside risk of long call
 - long call covers and reduces upside risk of short
- **If very bullish → maybe buy call or buy stock**

Bull Call Spread at Expiration

Long XYZ June 50.00 / 55.00 call spread → \$2.25 debit

- **Maximum profit**

- strike difference – net debit paid
- underlying at or above higher (short) strike
- example: \$5.00 (differential) - \$2.25 (debit) = \$2.75 (\$275.00)

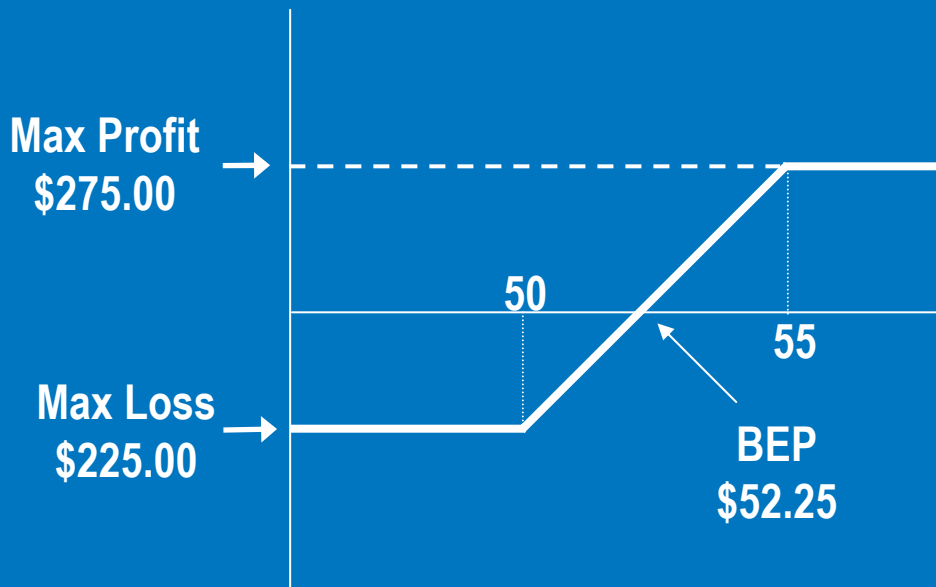
- **Maximum loss**

- limited to net debit paid
- underlying at or below lower (long) strike
- example: \$2.25 debit paid (\$225.00)

Not including commissions

Bull Call Spread at Expiration

Long XYZ June 50.00 / 55.00 call spread → \$2.25 debit



Break-even point

lower strike + debit paid

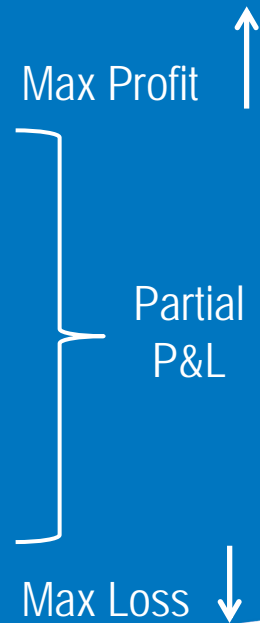
$$\$50.00 + \$2.25 = \$52.25$$

Not including commissions

Bull Call Spread at Expiration

Results at Expiration

XYZ Price	Long 50 Call Value	Short 55 Call Value	Spread Value	Net Debit Paid	Spread P&L
\$56.00	\$6.00	− \$1.00	\$5.00	− \$2.25	\$2.75
\$55.00	\$5.00	0	\$5.00	− \$2.25	\$2.75
\$54.00	\$4.00	0	\$4.00	− \$2.25	\$1.75
\$53.00	\$3.00	0	\$3.00	− \$2.25	\$0.75
\$52.25	\$2.25	0	\$2.25	− \$2.25	0
\$52.00	\$2.00	0	\$2.00	− \$2.25	− \$0.75
\$51.00	\$1.00	0	\$1.00	− \$2.25	− \$1.25
\$50.00	0	0	0	− \$2.25	− \$2.25



Not including commissions

Bear Call Spread

- **To establish bear call spread**
 - buy call with given strike and sell call with lower strike
 - always a credit spread

- **Example**

- sell 1 XYZ June 50.00 call + \$3.75
 - buy 1 XYZ June 55.00 call - \$1.50
- } **\$2.25 net credit**

- **Position**

- short 1 XYZ June 50.00 call and long 1 XYZ June 55.00 call
- short 1 XYZ June 50.00 / 55.00 call spread

Not including commissions

Bear Call Spread

- **Moderately bearish...as stock price continues to decrease**
 - long call value decreases → loss
 - short call value decreases → profit
 - losses on long offset by profits on short
 - if all calls expire out-of-the-money → keep net credit
- **Hedge**
 - long call covers and reduces upside risk of short call
- **If very bearish → maybe buy put**

Bear Call Spread at Expiration

Short XYZ June 50.00 / 55.00 call spread → \$2.25 credit

- **Maximum profit**

- limited to net credit received
- underlying at or below lower (short) strike
- example: \$2.25 credit received (\$225.00)

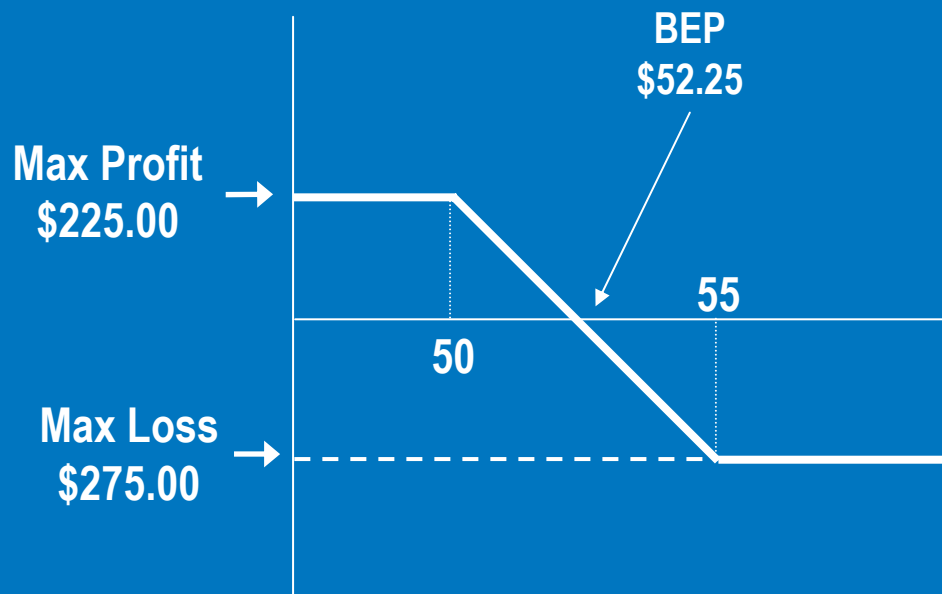
- **Maximum loss**

- strike difference – net credit received
- underlying at or above higher (long) strike
- example: \$5.00 (differential) - \$2.25 (credit) = \$2.75 (\$275.00)

Not including commissions

Bear Call Spread at Expiration

Short XYZ June 50.00 / 55.00 call spread → \$2.25 credit



Break-even point

lower strike + credit received

$$\$50.00 + \$2.25 = \$52.25$$

Not including commissions

Bear Call Spread at Expiration

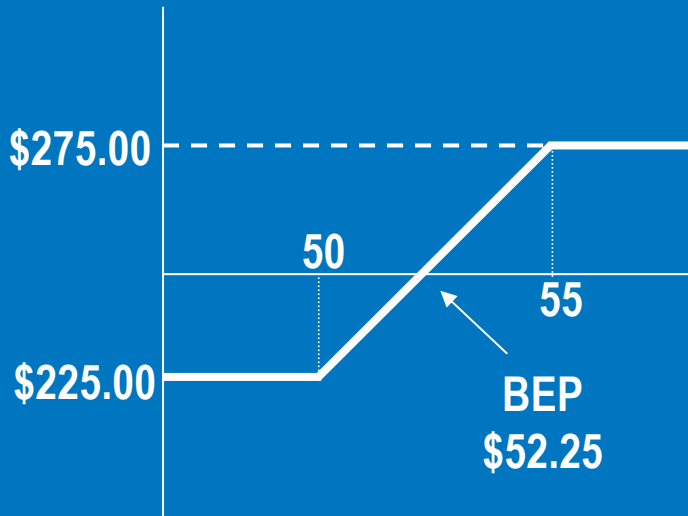
Results at Expiration

XYZ Price	Short 50 Call Value	Long 55 Call Value	Spread Value	Net Credit Received	Spread P&L
\$56.00	− \$6.00	\$1.00	− \$5.00	\$2.25	− \$2.75
\$55.00	− \$5.00	0	− \$5.00	\$2.25	− \$2.75
\$54.00	− \$4.00	0	− \$4.00	\$2.25	− \$1.75
\$53.00	− \$3.00	0	− \$3.00	\$2.25	− \$0.75
\$52.25	− \$2.25	0	− \$2.25	\$2.25	0
\$52.00	− \$2.00	0	− \$2.00	\$2.25	\$0.25
\$51.00	− \$1.00	0	− \$1.00	\$2.25	\$1.25
\$50.00	0	0	0	\$2.25	\$2.25

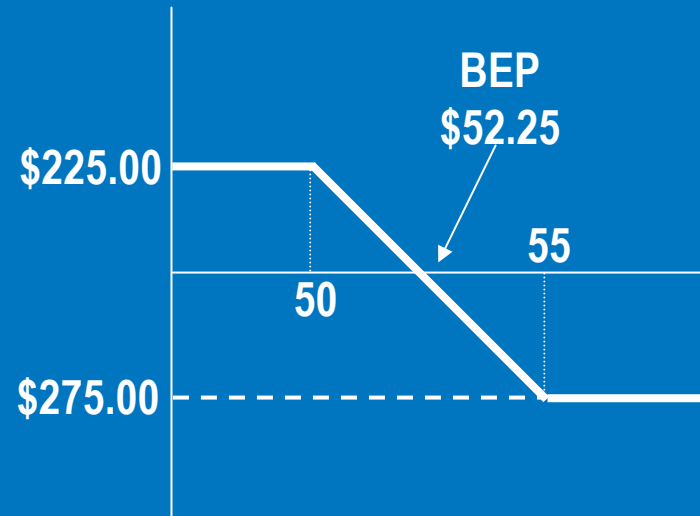


Not including commissions

Bull vs. Bear Call Spread



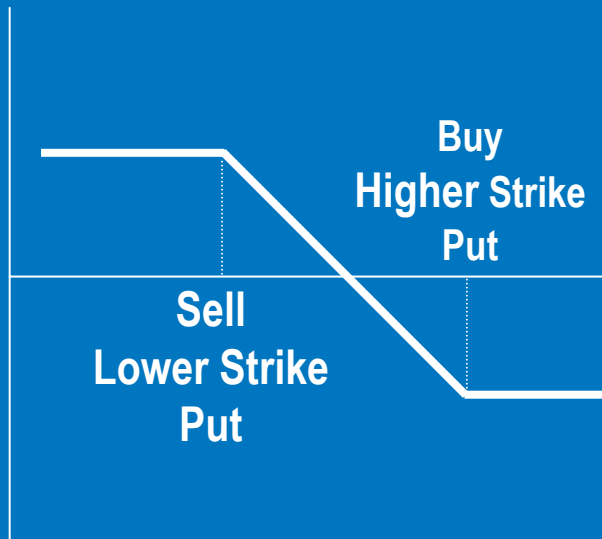
50/55 Bull Call Spread
Long 50/55 Call Spread



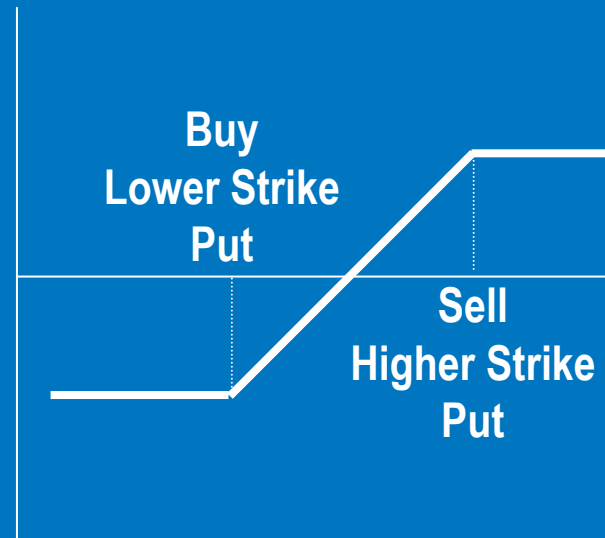
50/55 Bear Call Spread
Short 50/55 Call Spread

- **Bull call spread and bear call spread are reverse positions**
 - buy 50/55 call spread is a bullish position
 - sell 50/55 call spread is a bearish position

Put Vertical Spreads



Bear Put Spread



Bull Put Spread

Bear Put Spread

- **To establish bear put spread**
 - buy put with given strike and sell put with lower strike
 - always a debit spread

- **Example**

- buy 1 XYZ May 50.00 put - \$3.75
 - sell 1 XYZ May 45.00 put + \$1.75
- } **\$2.00 net debit**

- **Position**

- long 1 XYZ May 50.00 put and short 1 XYZ May 45.00 put
- long 1 XYZ May 50.00 / 45.00 put spread

Not including commissions

Bear Put Spread

- **Moderately bearish...as stock price continues to decrease**
 - long put value rises → profit
 - short put value rises → loss
 - eventually profits on long offset by short losses → limited profit
- **Double hedge**
 - short put reduces cost and upside risk of long put
 - long put covers and reduces downside side risk of short put
- **If very bearish → maybe buy put**

Bear Put Spread at Expiration

Long XYZ May 50.00 / 45.00 put spread → \$2.00 debit

- **Maximum profit**

- strike difference – net debit paid
- underlying at or below lower (short) strike
- example: \$5.00 (differential) - \$2.00 (debit) = \$3.00 (\$300.00)

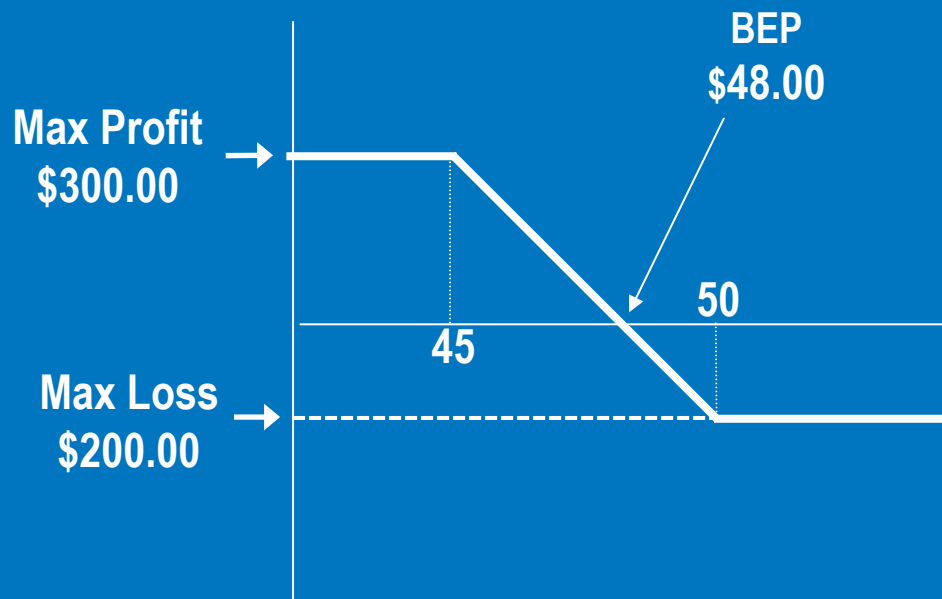
- **Maximum loss**

- limited to net debit paid
- underlying at or above higher (long) strike
- example: \$2.00 debit paid (\$200.00)

Not including commissions

Bear Put Spread at Expiration

Long XYZ May 50.00 / 45.00 put spread → \$2.00 debit



Break-even point

higher strike – debit paid

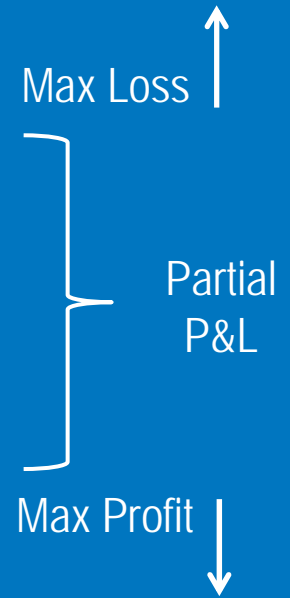
$$\$50.00 - \$2.00 = \$48.00$$

Not including commissions

Bear Put Spread at Expiration

Results at Expiration

XYZ Price	Long 50 Put Value	Short 45 Put Value	Spread Value	Net Debit Paid	Spread P&L
\$51.00	0	0	0	− \$2.00	− \$2.00
\$50.00	0	0	0	− \$2.00	− \$2.00
\$49.00	\$1.00	0	\$1.00	− \$2.00	− \$1.00
\$48.00	\$2.00	0	\$2.00	− \$2.00	0
\$47.00	\$3.00	0	\$3.00	− \$2.00	\$1.00
\$46.00	\$4.00	0	\$4.00	− \$2.00	\$2.00
\$45.00	\$5.00	0	\$5.00	− \$2.00	\$3.00
\$44.00	\$6.00	− \$1.00	\$5.00	− \$2.00	\$3.00



Not including commissions

Bull Put Spread

- **To establish bull put spread**

- buy put with given strike and sell put with higher strike
- always a credit spread

- **Example**

- sell 1 XYZ May 50.00 put + \$3.75
- buy 1 XYZ May 45.00 put - \$1.75



\$2.00
net credit

- **Position**

- short 1 XYZ May 50.00 put and long 1 XYZ May 45.00 put
- short 1 XYZ May 50.00 / 45.00 put spread

Not including commissions

Bull Put Spread

- **Moderately bullish...as stock price continues to increase**
 - long put value decreases → loss
 - short put value decreases → profit
 - losses on long offset by profits on short
 - if all puts expire out-of-the-money → keep net credit
- **Hedge**
 - long put covers and reduces downside risk of short put
- **If very bullish → maybe buy call or buy stock**

Bull Put Spread at Expiration

Short XYZ May 50.00 / 45.00 put spread → \$2.00 credit

- **Maximum profit**

- limited to net credit received
- underlying at or above higher (short) strike
- example: \$2.00 credit received (\$200.00)

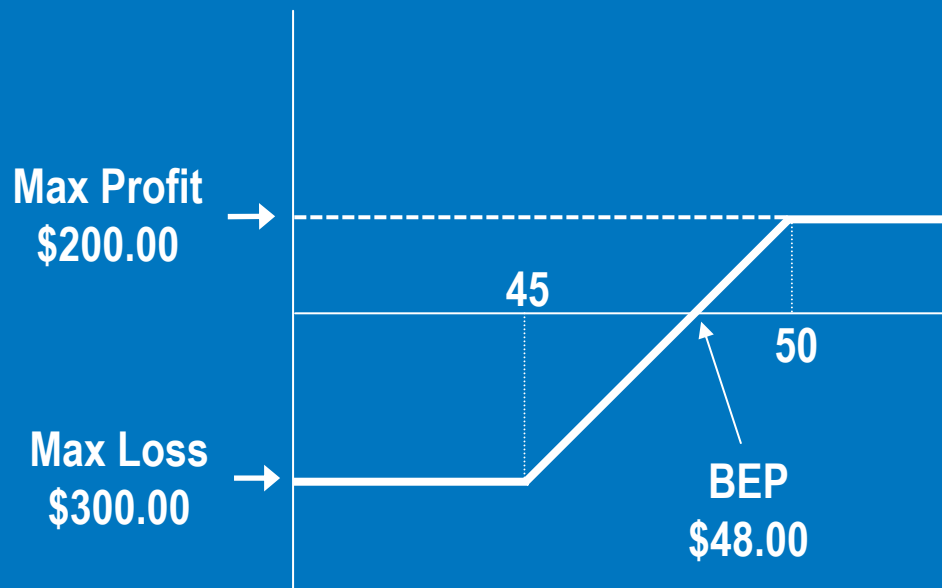
- **Maximum loss**

- strike difference – net credit received
- underlying at or below lower (long) strike
- example: \$5.00 (differential) - \$2.00 (credit) = \$3.00 (\$300.00)

Not including commissions

Bull Put Spread at Expiration

Short XYZ May 50.00 / 45.00 put spread → \$2.00 credit



Break-even point

higher strike – credit received

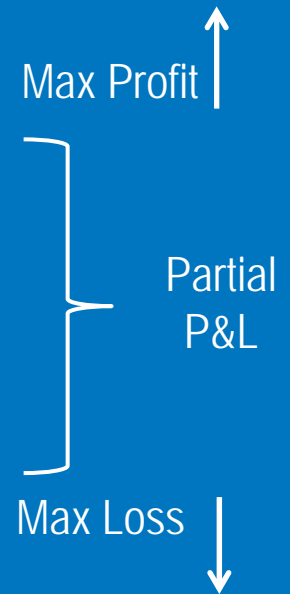
$$\$50.00 - \$2.00 = \$48.00$$

Not including commissions

Bull Put Spread at Expiration

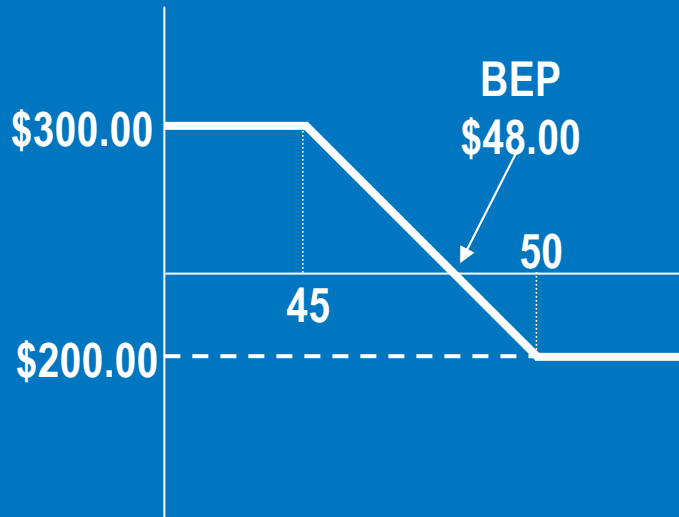
Results at Expiration

XYZ Price	Short 50 Put Value	Long 45 Put Value	Spread Value	Net Credit Received	Spread P&L
\$51.00	0	0	0	\$2.00	\$2.00
\$50.00	0	0	0	\$2.00	\$2.00
\$49.00	-\$1.00	0	-\$1.00	\$2.00	\$1.00
\$48.00	-\$2.00	0	-\$2.00	\$2.00	0
\$47.00	-\$3.00	0	-\$3.00	\$2.00	-\$1.00
\$46.00	-\$4.00	0	-\$4.00	\$2.00	-\$2.00
\$45.00	-\$5.00	0	-\$5.00	\$2.00	-\$3.00
\$44.00	-\$6.00	\$1.00	-\$5.00	\$2.00	-\$3.00

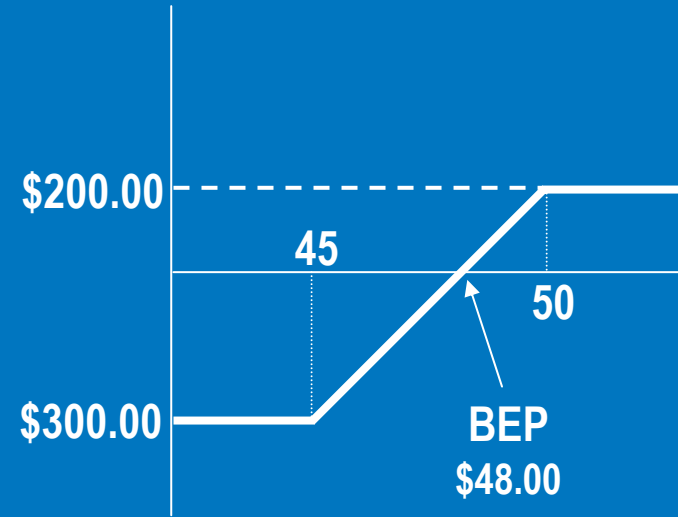


Not including commissions

Bear vs. Bull Put Spread



50/45 Bear Put Spread
Long 50/45 Put Spread



50/45 Bull Put Spread
Short 50/45 Put Spread

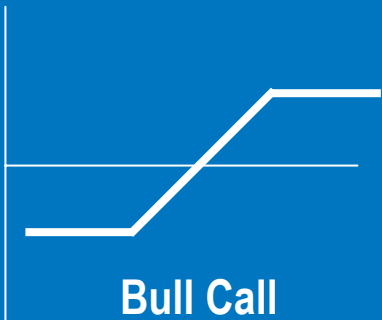
- **Bear put spread and bull put spread are reverse positions**
 - buy 50/45 put spread is a bearish position
 - sell 50/45 put spread is a bullish position

Time Decay and Volatility

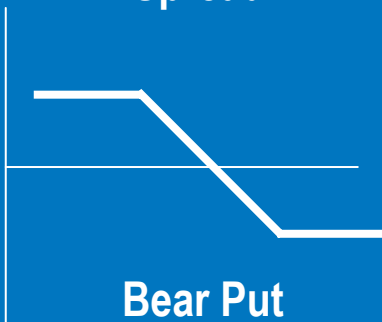
- **Effect of time decay depends largely on stock price vs. strikes**
 - between strikes → effect generally minimal
 - closer to long strike → losses should increase at faster rate as time passes
 - closer to short strike → profits should increase at faster rate as time passes
- **Effect of changing volatility depends on**
 - whether one or both legs are in-the-money
 - amount of time until expiration

Aggressive or Not?

Debit Spreads



Bull Call Spread



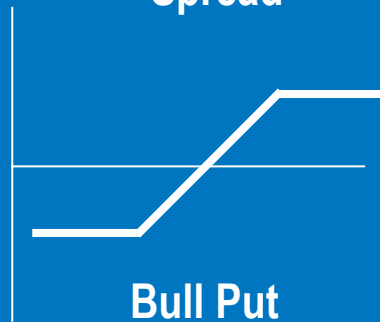
Bear Put Spread

Most aggressive = out-of-the-money
Least aggressive = in-the-money
When established

Credit Spreads



Bear Call Spread



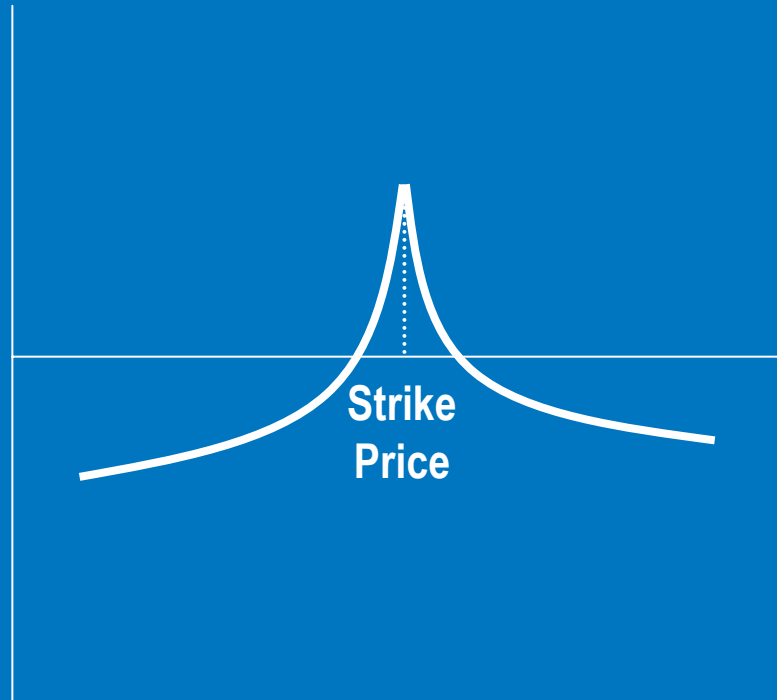
Bull Put Spread

Most aggressive = in-the-money
Least aggressive = out-of-the-money
When established

Selection Considerations

- **Debit spreads are frequently the preferred strategy choice**
 - when forecast predicts a 5% - 10% change in stock price
 - at or near option the options' expiration date
- **Credit spreads are a limited-risk method of attempting to profit from selling options**

Time Spreads



Time Spread

- **Time spread**
 - buy one far-term option = long leg
 - sell one near-term option = short leg
 - all calls or all puts
 - same underlying stock or ETF and same strike price
- **Always a debit spread**
 - far-term option will cost more than near-term with same strike
- **Neutral outlook**
 - may have bullish or bearish bias

Time Spread

- **Expectation**
 - neutral on underlying stock → stable at strike price
 - profit from decay of short near-term call
 - long far-term call retains time value
- **Maximum profit**
 - stock closes at strike price on near-term expiration
 - near-term option expires worthless
 - long far-term option retains as much time value as possible
- **Maximum loss = debit paid for spread**

Time Spread

- **Calculating maximum profit accurately in advance not possible**
 - if stock at strike on near-term expiration, what will long, far-term option be worth?
 - pricing model is best tool for estimating
- **As near-term expiration approaches**
 - if short-term option is in-the-money there is assignment risk
 - if assignment not acceptable consider closing entire spread position

Call Time Spread Example

- **Stock XYZ currently at \$50.00**
 - forecast: neutral over sixty days
- **Establish time spread**
 - buy 1 XYZ 60-day 50.00 call - \$3.75
 - sell 1 XYZ 30-day 50.00 call + \$2.50

**\$1.25
net debit**
- **Position**
 - long 1 XYZ 60-day 50.00 call and short 1 XYZ 30-day 50.00 call
 - long 1 XYZ 50.00 call time spread for \$1.25, or \$125.00 total

Not including commissions

Call Time Spread Example



Call Time Spread Example

At Near-term Expiration

- **XYZ below \$50.00 strike**
 - short call worthless
 - value of position = value of long far-term call (hold or sell)
- **XYZ at \$50.00 strike**
 - short call worthless
 - maximum position value = value of long far-term call (hold or sell)
- **XYZ above \$50.00 strike**
 - short call in-the-money
 - buy in short call or accept assignment (short stock)

Not including commissions

Bullish or Bearish Time Spreads

- **If slightly bullish on underlying stock**
 - use strike price above current stock price
 - stock price increase needed for strike to be at-the-money at near-term expiration
 - for call or put time spreads
- **If slightly bearish on underlying stock**
 - use strike price below current stock price
 - stock price decrease needed for strike to be at-the-money at near-term expiration
 - for call or put time spreads

Pricing Spreads in Marketplace

Buy XYZ May 60.00 / 65.00 Bull Call Spread

Option	Bid	Ask
XYZ May 60.00 call	\$4.00	\$4.10
XYZ May 65.00 call	\$1.00	\$1.10

- **At current market prices**

- buy \$4.10 + sell \$1.00 = \$3.10 debit
- should make a trade (fill depends on size)

- **Market wants to pay (for same spread)**

- buy \$4.00 + sell \$1.10 = \$2.90 debit
- less likely to make trade at these prices

- **Consider entering order for debit between \$2.90 - \$3.10**

- there could be disseminated spread markets
- your price would be publically displayed