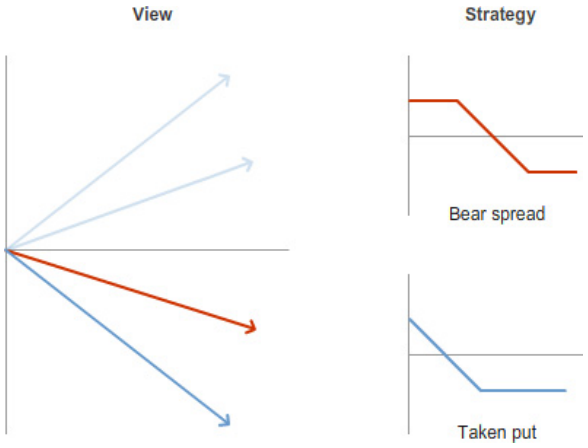
Topic 1: Strategy overview

The taken put option can be used to protect a holding of the underlying shares, or to profit from a fall in the share price.

Used in the second way, the taken put offers increasing profits as the share price falls, while limiting losses to the premium paid.

But what if you think the stock's price will fall only moderately. Is there a better strategy?



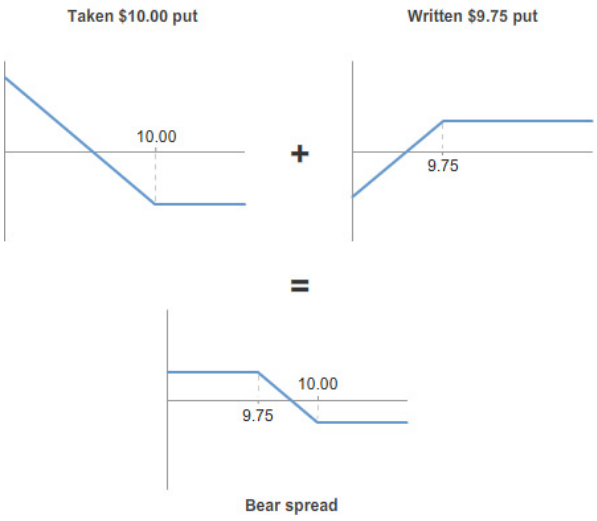
*These diagrams are conceptual in nature and not drawn exactly to scale.

Construction

The bear spread offers a way of gaining exposure to a moderate fall in the share price but for a lower cost than the taken put.

The bear put spread involves the purchase of one put and the sale of another put with a lower strike price and the same expiry.

The spread is typically entered with the share price around the strike of the bought option.



Example
With XYZ shares at $10.00, you enter the following strategy:

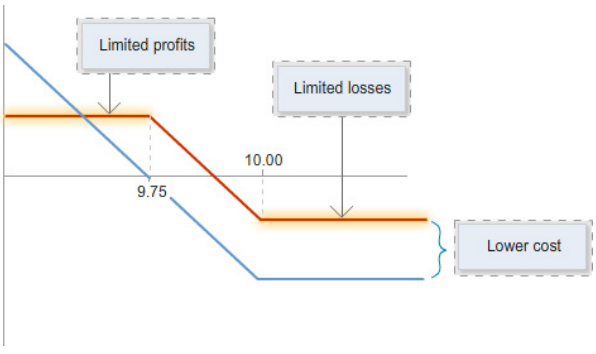
- Take one XYZ 1000 put @ $0.26
- Write one XYZ 975 put @ $0.15

Limited profits, low cost

The sale of the lower strike put means your potential profits are limited.

However, the premium you receive for writing the put offsets the cost of the taken put. The net cost of the spread in our example is $0.11. This the most you can lose.

In return for accepting a cap on your potential gains, you can profit from a fall in the share price for a lower cost than an outright taken put.



Volatility

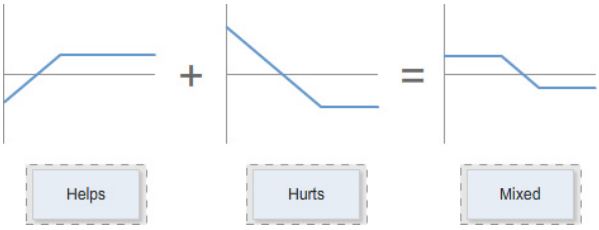
Strategy	Price outlook	Volatility outlook
Taken put	Strongly bearish	Rise/fall
Bear spread	Moderately bearish	Neutral

The bear spread reflects a view that volatility will stay steady or increase slightly.

The taken put will benefit from an increase in the volatility of the underlying stock, while the written put will be hurt.

A significant rise/fall in volatility therefore does not affect the bear spread in the same way that it benefits or hurts the outright taken put.

Time decay



Time decay has a mixed effect on the bear spread. It hurts the taken put, and helps the written put.

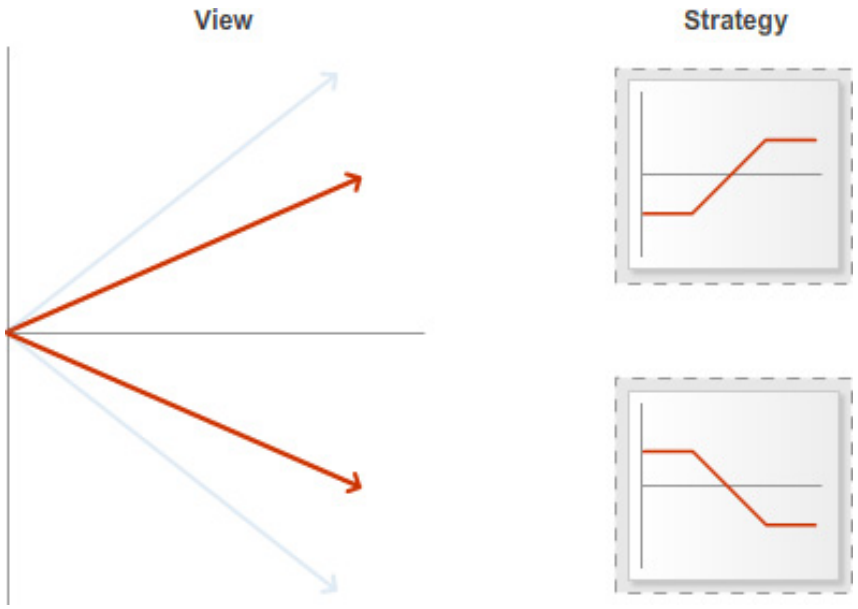
Because time decay benefits one leg and hurts the other, its overall effect on the bear spread is less severe than on the taken put.

Bull spread, bear spread

The bear spread in a falling market is the equivalent strategy to the bull spread in a rising market.

Both strategies reflect a view that the share price will move moderately in the relevant direction. Both offer limited profits and limited losses.

The bull spread was covered in Module 5.



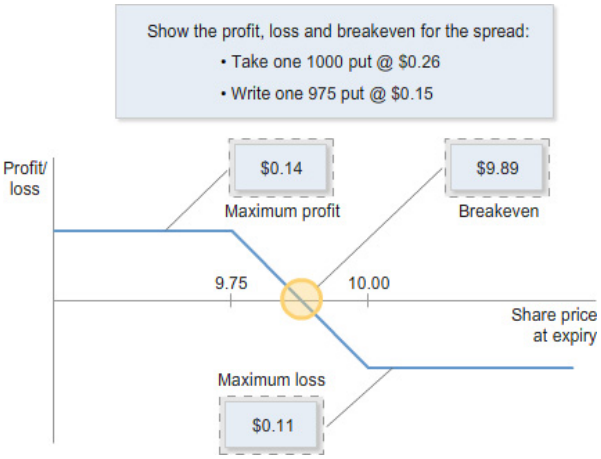
Topic 2: Profits, losses and breakeven

Maximum profit, maximum loss, breakeven

The most you can lose is the net cost of the bear spread: the premium you pay for the taken put, less the premium you receive for the written put.

Your maximum profit is the difference between the strike prices of the two options, less the cost of the strategy.

The breakeven point is the upper strike price less the net cost of the strategy.

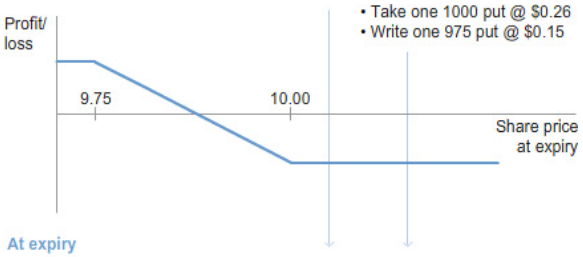


Calculating your profit/loss at expiry

Your profit or loss at expiry will be the value of the spread less the cost of the strategy.

The value of the spread at expiry is simply the value of the taken put less the value of the written put.

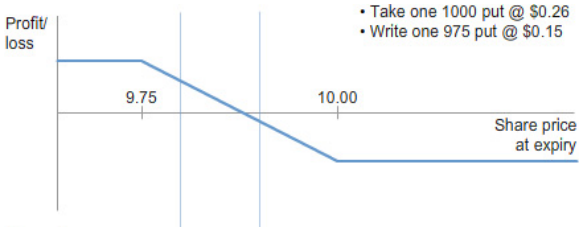
Scenario 1: Share price above upper strike
If the share price at expiry is above the strike price of the taken put, the spread will have a value of zero, as both options will expire worthless.



At expiry		
Share price	10.05	10.15
Taken 1000 put	0.00	0.00
Written 975 call	0.00	0.00
Spread value	0.00	0.00
Spread cost	0.11	0.11
Profit/loss	(0.11)	(0.11)

You make the maximum possible loss, the net cost of the strategy.

Scenario 2: Share price between strikes
If the share price at expiry is between the strikes of the two puts, you may make either a profit or a loss, depending on how far the share price has fallen.



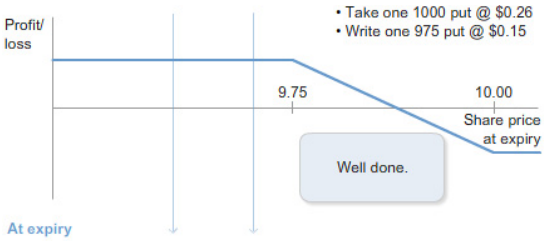
At expiry				
Share price	9.80	9.90	10.05	10.15
Taken 1000 put	0.20	0.10	0.00	0.00
Written 975 call	0.00	0.00	0.00	0.00
Spread value	0.20	0.10	0.00	0.00
Spread cost	0.11	0.11	0.11	0.11
Profit/loss	0.09	(0.01)	(0.11)	(0.11)

The written put is out of the money and will expire worthless, while the taken put is in the money and will be worth intrinsic value. The value of the spread is therefore the same as the value of the put.

Your profit/loss will be the value of the put less the cost of the spread.

Scenario 3: Share price below lower strike

If the share price at expiry is below the strike of the written put, you will make the maximum profit. This is the difference between the strikes less the cost of the spread.



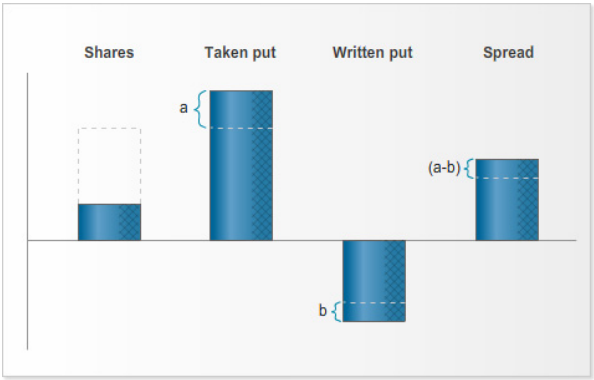
At expiry

Share price	9.60	9.70	9.80	9.90	10.05	10.15
Taken 1000 put	0.40	0.30	0.20	0.10	0.00	0.00
Written 975 call	0.15	0.05	0.00	0.00	0.00	0.00
Spread value	0.25	0.25	0.20	0.10	0.00	0.00
Spread cost	0.11	0.11	0.11	0.11	0.11	0.11
Profit/loss	0.14	0.14	0.09	(0.01)	(0.11)	(0.11)

Your profit remains the same no matter how far below the strike price of the written option the share price has fallen. For every cent the share price has fallen, the increase in value of your taken put is offset by the increase in value of the written put.

Before expiry

You can close out your position on market at any time - you don't have to wait until expiry.



If the share price falls as expected, both put options should increase in value.

The taken put should rise in value by more than the written put, due to the difference in the deltas of the two options. The net effect is that the spread increases in value.

The delta of the taken put in our example might be around -0.45, and the delta of the written put around -0.3, giving a position delta of -0.15.

If the stock price falls by $0.10, the spread should rise in value by about $0.015.

Topic 3: Benefits, risks and other features

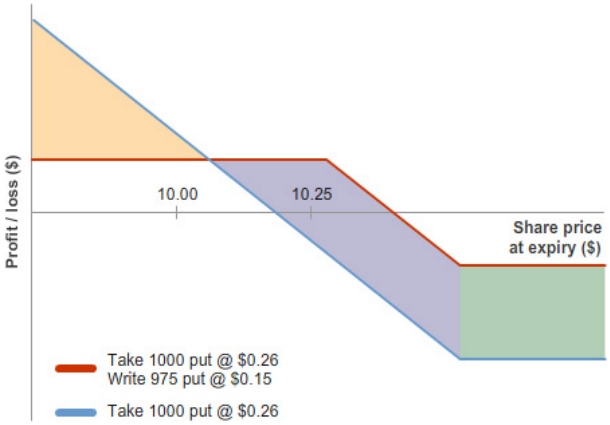
Put spread vs. taken put

The main benefit of the put spread compared to the taken put is the lower cost.

If, against your expectations, the share price rises, you will lose less than had you bought the put.

The trade-off for this is that your profits are capped. If the share price falls significantly, you do not have the profit potential the taken put offers.

The spread produces a better result than the taken put if the share price rises, or falls moderately.



Early exercise

If the share price falls only moderately, there is a low risk of early exercise, as the written option will generally be out of, or around, the money.

However, if the stock price falls well below the strike price of the written put, the risk of early exercise increases.

If your written put is exercised, you will have to buy the underlying shares. However, if you do not wish to hold the shares, you can always sell them straight away by exercising your taken put.

This involves a degree of administration, which will be coordinated by your broker.

No margins

You do not have to pay margins on a bear put spread.

Although the strategy includes a written option, your risk is limited.

The most you can lose is the cost of the spread, which you pay at the time you enter the position.

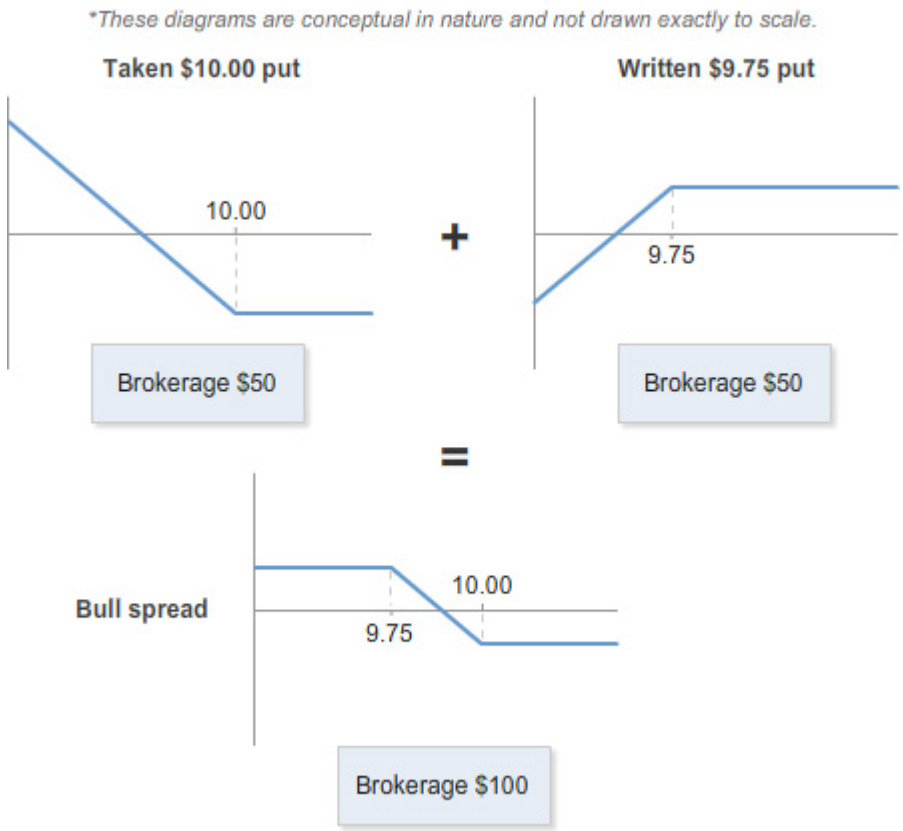
Risk	Margins payable	Strategy
Limited	No	Put spread
Unlimited	Yes	Written put

Trading costs

The spread can be costly in terms of brokerage.

If your broker charges 'per trade', you will pay brokerage on each leg when you enter the strategy. You will also be charged brokerage on each leg you close out.

As the spread is a strategy offering limited profit potential, it is particularly important to factor brokerage into your calculations. If you are trading a small number of contracts, costs can significantly reduce your profits.



Assume your broker charges $50 brokerage per trade.

Topic 4: Follow-up action

At expiry

You will need to take action on any legs that are in the money at expiry.

If the share price is below the strike price of the written put, you will need to close out both options. If you do not close out the written put, it will be exercised and you will have to buy the underlying shares.

If the share price is between the two strikes, the written put will expire worthless. You will need to sell the taken put.

If the share price is above the strike price of the bought put, no action is required, as both options will expire worthless.

Share price at expiry	Taken 1000 put		Written 975 put	
	Close out?		Close out?	
	No	Yes	No	Yes
$9.65	✗	✓	✗	✓
$9.85	✗	✓	✓	✗
$10.20	✓	✗	✓	✗

Before expiry

You can exit your position at any time prior to expiry.

Stock stays steady or rises

If the stock does not produce the price movement you expected, the spread will lose value as time passes. You may need to reassess your original view.

If you maintain your moderately bearish view, you can leave the strategy in place.

If your view on the stock has changed, you could consider taking the strategy off while the taken put still has some time value. The longer the stock price stays steady, the more time decay will damage your position.

The share price has not fallen as you expected. Identify the outcome for your bear spread if you were to either close out or maintain your position, given two subsequent price scenarios.

	Subsequent share price movement	
	Rises or remains steady	Weakens
Close out	Minimise loss	Miss out on profit
Hold position	Increased loss	Return to profit/reduced loss

Stock falls

If the stock price falls well below the strike of the written put, it is generally advisable to close out your position early. There is little to be gained by holding your position any longer.

The spread should be worth close to its maximum possible value, so you may make close to the maximum possible profit without having to hold the position until expiry.

The share price has fallen well below the strike of the written put. Identify the outcome for your bear spread if you were to either close out or maintain your position, given two subsequent price scenarios.

	Subsequent share price movement	
	Remains weak	Recovers
Close out	Profit	Profit
Hold position	Profit	Possible loss/ reduced profit

A second benefit of taking the strategy off early is that the risk of early exercise is removed.

What if the written put is exercised?

You must buy the underlying shares if your written put is exercised.

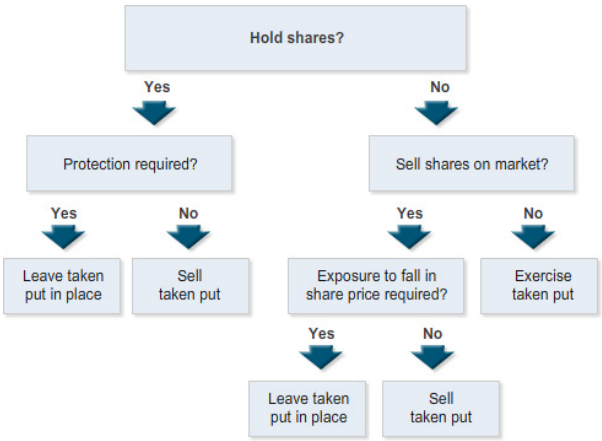
You then have to decide whether to hold or sell these shares.

If you want to sell the shares, you can:

- exercise your taken put, or
- sell the shares on market.

If you do not exercise your taken put, you must decide whether to:

- close out the put on market, or
- leave it in place.



Topic 5: The bear call spread

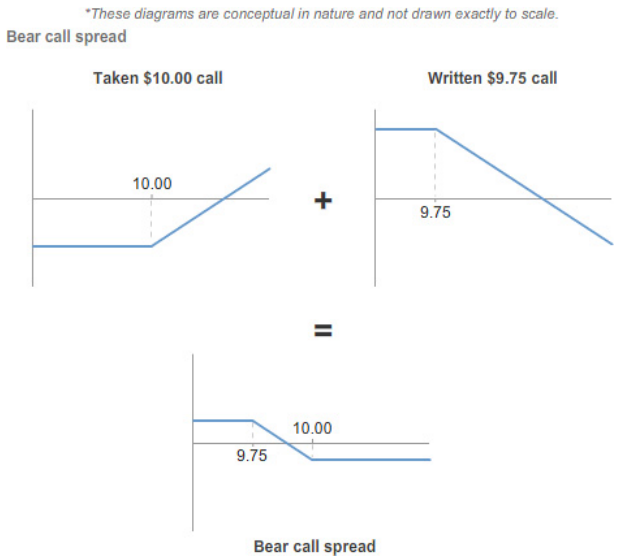
You can also construct the bear spread with call options.

As is the case with the bear put spread, you write the lower strike option and buy the higher strike option.

The strategy reflects the same moderately bearish outlook, and offers the same limited loss, limited profit exposure.

Example
With XYZ shares at $10.00, you enter the following strategy:

- Take one XYZ 1000 call @ $0.31
- Write one XYZ 975 call @ $0.45

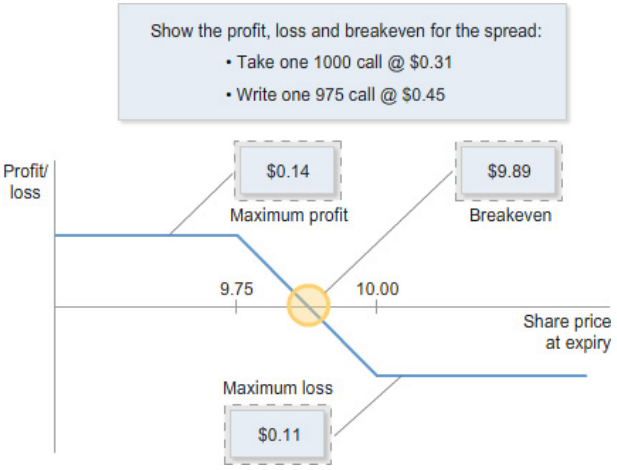


Maximum profit, maximum loss, breakeven

Your maximum profit is the amount you receive for the strategy: the premium you get for the written call, less the premium you pay for the taken call.

Your maximum loss is the difference between the strike prices of the two options, less the amount you receive for the strategy.

The breakeven point is the lower strike plus the amount you receive for the strategy.



Outcomes at expiry

If the share price at expiry is below the strike of the written call, both options expire worthless and you make your maximum profit.

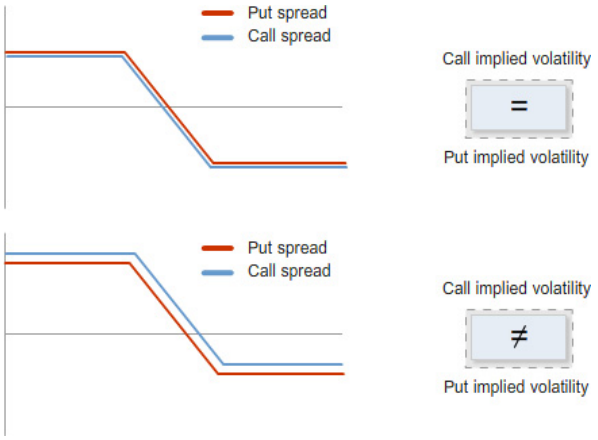
If the share price is above the strike of the taken call, both options are in the money and should be closed out. You make your maximum loss.

If the share price is between the two strikes, you must close out the written call to avoid exercise. Your taken call will expire worthless.

Share price at expiry	Spread	
	Taken 1000 call	Written 975 call
$9.65	✗	✗
$9.85	✗	✓
$10.20	✓	✓

Why use calls?

If calls and puts are trading with similar implied volatilities, the bear put spread and the bear call spread should offer similar profit and loss potential.



If, however, there is a significant difference in implied volatility between calls and puts, one method of construction may offer a pricing advantage over the other. While this is not common, it is always worth checking whether the alternative construction will give you a better result.

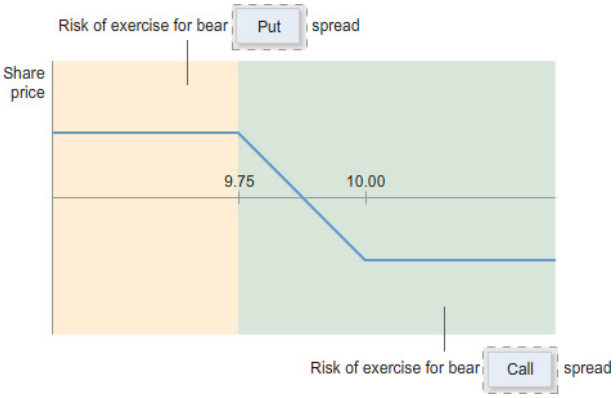
One advantage of the bear call spread, if at expiry the share price is below the lower strike, is that you need not close out either option. Both will expire worthless.

Another consideration is the relative liquidity of the relevant put and call series.

Disadvantages of the bear call spread

Risk of exercise

There is a higher risk of early exercise if you construct the bear spread with calls.



Assuming you enter the spread with the stock around the upper strike, the written call option is already well in the money.

Call options typically are not exercised ahead of expiry. However you need to be careful if the stock goes ex-dividend during the life of your strategy, as this is when the risk of early exercise is greatest.

If the stock has not fallen below the lower strike at expiry, you will have to take action to close out the short call, or you will be exercised.

Margins

The bear call spread is called a credit spread. The call you are selling is worth more than the call you are buying, so the spread is placed for a net credit.

Because of this, the bear call spread involves the payment of margins.

The bear put spread, in contrast, is a 'debit spread', in which your maximum loss is the premium you pay at the time of entering the strategy. No margins are payable.

	Options used to construct bear spread			
	Puts		Calls	
Spread type	✓ Debit	✗ Credit	✗ Debit	✓ Credit
Margins payable?	✗ Yes	✓ No	✓ Yes	✗ No
Profit potential	✓ Limited	✗ Unlimited	✓ Limited	✗ Unlimited
Loss potential	✓ Limited	✗ Unlimited	✓ Limited	✗ Unlimited
Risk of exercise if stock price above or below lower strike?	✗ Above	✓ Below	✓ Above	✗ Below

Summary

- The bear spread reflects a moderately bearish view on the underlying shares.
- It involves the purchase of one put option and the sale of another put with a lower strike and the same expiry.
- The sale of the lower strike put means your potential profits are limited. In return for accepting a cap on your potential gains, you can profit from a fall in the share price for a lower cost than an outright taken put.
- You do not have to pay margins on the bear put spread.
- At expiry, you will need to take action on any legs that are in the money.
- The bear spread can also be constructed using call options.
- You take the higher strike call and write the lower strike call.
- The bear call spread and the bear put spread usually offer similar profit and loss potential. However, you should check whether one method of construction offers a pricing advantage.
- There is a higher risk of early exercise if you construct the bear spread with calls.
- The bear call spread involves the payment of margins.

Practical examples of option strategies are given throughout these modules.

Prices used in the examples were calculated using an option pricing model, and are based on the following, unless otherwise specified:

- Underlying stock price: $10.00
- Volatility: 25%
- Risk free interest rate: 5%
- Days to expiry: 30
- The stock does not go ex-dividend during the life of the option
- American exercise style

Brokerage costs are not included in the examples. It is, however, important to take brokerage costs into account when trading options.

Please note that some payoff diagrams that appear in this course are conceptual in nature, and may not be drawn exactly to scale.