Trading Strategies

FRM Part I

1 A story: giving up a little to shape the result

- Owner fears a fall: pay a premium, set a floor
- Owner expects calm: sell some upside for income
- Saver wants safety plus growth: a protected note
- Trader has a view on the move: spreads, combinations

IN THE LESSON

- Think about three people.
- The first owns a house she loves and worries about fire.
- She pays an insurer a small fee and knows the worst that can happen.
- The second owns a flat that he expects to stay about the same in value.
- He is paid a fee to promise to sell it at a fixed price.
- The third wants to keep her savings safe but still share in a rising market.
- Each gives up a little to shape the outcome.
- Trading strategies do this with options, and a fourth person, with a view on how far a price will move, can build a bet from the same pieces.

2 The four ingredients and the one rule

- Ingredients: share, zero-coupon bond, call, put
- Call pays max(S − K, 0); put pays max(K − S, 0)
- Payoff = value at expiry, before the premium
- Profit = payoff − net premium paid

IN THE LESSON

- Every strategy in this lesson is built from four ingredients.
- The share, which gains or loses one for one with its price.
- The zero coupon bond, which pays a fixed amount on a fixed date.
- A call option, which gives the right to buy at the strike price, and so pays the larger of zero or the price minus the strike.
- And a put option, which gives the right to sell, and pays the larger of zero or the strike minus the price.
- The payoff is what the position is worth at expiry, before any premium.
- The profit is the payoff minus the net premium paid.
- Forgetting the premium is the most common error.

3 The protective put: a floor under the asset

- Long asset + long put on the same asset
- The put sets a floor: no value below the strike
- Max loss = purchase price − strike + premium
- Upside kept, less the premium: like insurance

IN THE LESSON

- Start with the protective put.
- It is a long position in an asset, plus a long put on the same asset.
- Say you own a share and fear a sharp fall, but do not want to sell.
- You buy a put.
- The put sets a floor.
- At expiry, however far the share has fallen, you can sell it at the strike price, so your value cannot drop below the strike.
- The most you can lose is the purchase price, minus the strike, plus the premium you paid.
- The price of the protection is that premium.
- It works like insurance.
- The cost is that the premium trims your gain in every scenario.

4 Example 1: a protective put

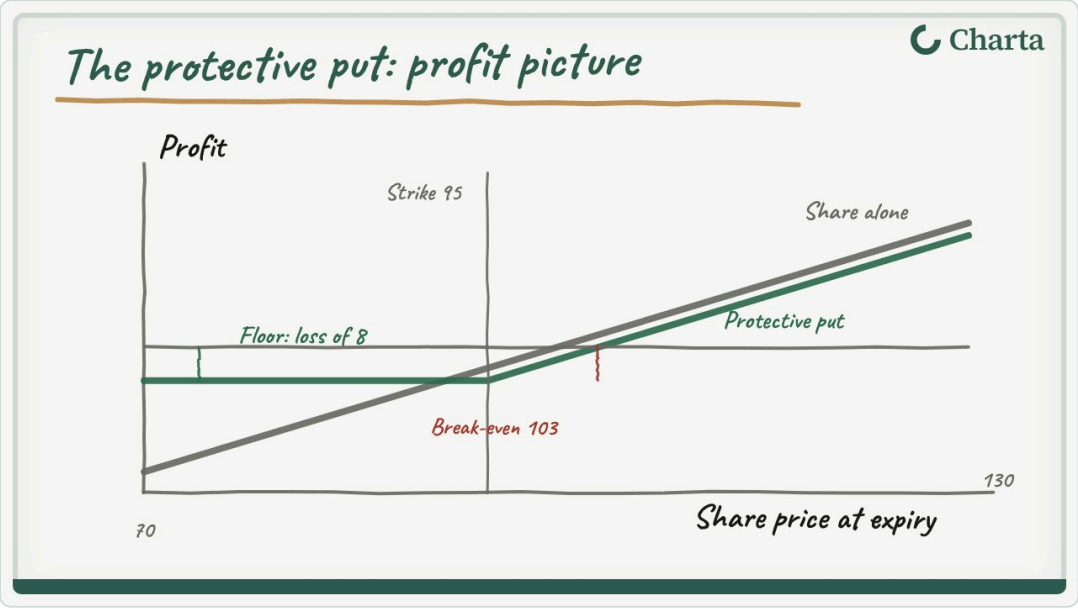
Illustration: share bought at 100, put with strike 95 costs 3 (total cost 103)

Share falls to 80	80 + 15 − 103	**−8**
Share crashes to 60	60 + 35 − 103	**−8**
Share stays at 100	100 + 0 − 103	**−3**
Share rises to 120	120 + 0 − 103	**+17**
Break-even price	100 + 3	**103**

IN THE LESSON

- Example one.
- You buy a share at one hundred dollars and a put with a strike of ninety five for three dollars.
- These are made up numbers.
- Your total cost is one hundred and three.
- Suppose the share falls to eighty.
- The share is worth eighty and the put pays fifteen.
- Eighty plus fifteen minus one hundred and three is a loss of eight.
- Suppose it crashes to sixty.
- The share is worth sixty, the put pays thirty five, and the loss is again eight.
- That is the floor: one hundred minus ninety five plus three.
- If the share stays at one hundred, the put expires worthless, and you lose just the premium, three.
- If it rises to one hundred and twenty, you gain seventeen.
- The break-even price is one hundred plus three, one hundred and three.

5 The protective put: profit picture



IN THE LESSON

- Here is the profit picture.
- Along the bottom is the share price at expiry, up the side the profit.
- The grey diagonal is the share alone: a loss of thirty if it falls to seventy, a gain of thirty at one hundred and thirty.
- The green line is the protective put.
- On the left it is flat at minus eight.
- That is the floor.
- It bends at the strike of ninety five and then rises one for one, running parallel to the share but three dollars lower, because of the premium.
- It crosses zero at one hundred and three.
- So the protective put trades a small, certain give up for a cap on the loss.
- The shape looks just like a long call, as we will see.

6 The covered call: income, with the upside sold

- Long asset + short call on the same asset
- Premium received: only a small cushion on the downside
- Max gain = strike − purchase price + premium
- Suits a flat or mildly rising view; sell at strike
- Not a hedge against a large fall

IN THE LESSON

- Now the covered call.
- This is the asset plus a short call, meaning you sell a call option on something you already own.
- You receive a premium today.
- In return, you promise to sell the asset at the strike price if the buyer exercises.
- Covered means you hold the asset, so you can deliver it.
- The premium gives only a small cushion on the downside, and the gain is capped: the most you can make is the strike minus your purchase price, plus the premium, because above the strike the call you sold takes everything.
- So who wants this?
- An investor who expects a flat or mildly rising market, and is happy to sell at the strike.
- The usual mistake is to treat a covered call as a hedge against a large fall.
- It is not one.

7 Example 2: a covered call

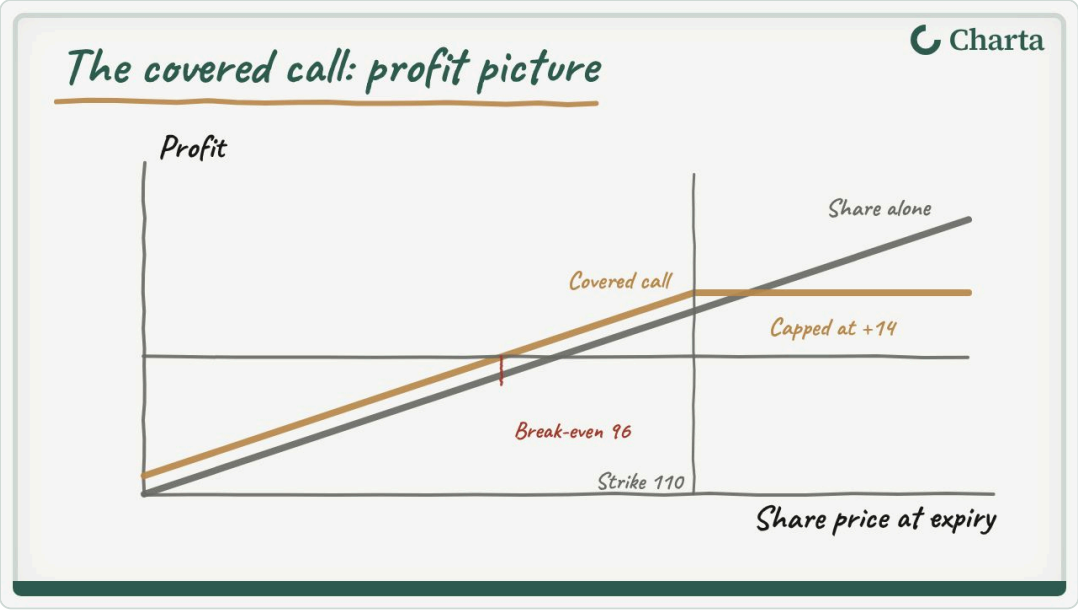
Illustration: share bought at 100, sell a call with strike 110 for 4

Share falls to 80	−20 + 4	**−16**
Share stays at 100	0 + 4	**+4**
Share rises to 110	+10 + 4	**+14**
Share jumps to 130	+30 − 20 + 4	**+14**
Break-even price	100 − 4	**96**

IN THE LESSON

- Example two.
- You own the share, bought at one hundred, and you sell a call with a strike of one hundred and ten for four dollars.
- If the share falls to eighty, you lose twenty on the share but keep the four, a loss of sixteen.
- Compare the protective put's loss of eight.
- If the share stays at one hundred, the call expires and you keep four, a profit of four.
- If it rises to one hundred and ten, you gain ten plus four, fourteen.
- If it jumps to one hundred and thirty, the share gains thirty, the call costs you twenty, and with the four you keep, the profit is still fourteen.
- That is the cap.
- The break-even is one hundred minus four, ninety six, so the cushion is only four.

8 The covered call: profit picture



IN THE LESSON

- Here is the covered call.
- The grey diagonal is the share alone.
- The gold line is the covered call.
- On the left it runs parallel to the share, four dollars higher, because of the premium received.
- That is the small cushion.
- It crosses zero at ninety six.
- It rises with the share up to the strike of one hundred and ten, where the profit reaches fourteen, and then it goes flat.
- Everything above the strike belongs to the buyer of the call.
- The shape is that of a short put, because a covered call equals a short put plus a bond.
- The investor gave away the upside for income, and kept almost all of the downside.

9 Protective put or covered call?

Both start from owning the asset

	Protective put | Covered call
Premium	Paid | Received
Downside	Floor | Small cushion
Upside	Kept (net) | Capped
View	Fear fall | Flat or mild
Acts like	Insurance | Income

IN THE LESSON

- Side by side.
- Take the premium first.
- The protective put buyer pays it; the covered call seller receives it.
- On the downside, the put gives a real floor, while the call gives only a small cushion equal to the premium.
- On the upside, the protective put keeps the gains, less the premium, while the covered call caps them at the strike.
- As for the view, the protective put suits an owner who fears a fall but still hopes for a gain.
- The covered call suits an owner expecting a flat or mildly rising market.
- The first is insurance, the second an income trade.

10 Put-call parity: the same payoffs

Same payoff, same price. Strike 95; covered call 110

Protective put, share 80	80 + 15	**95**
Call + bond, share 80	0 + 95	**95**
Protective put, share 120	120 + 0	**120**
Call + bond, share 120	25 + 95	**120**
Covered call, share 80	short put −30 + bond 110	**80**

IN THE LESSON

- There is a neat link with put call parity.
- A protective put has the same payoff as a long call plus a zero coupon bond, and a covered call has the same payoff as a short put plus a bond.
- Check it.
- Take a strike of ninety five and a bond paying ninety five.
- If the share falls to eighty, the protective put gives eighty plus fifteen: ninety five.
- The call plus bond gives zero plus ninety five: also ninety five.
- If the share rises to one hundred and twenty, the protective put gives one hundred and twenty plus nothing.
- The call pays twenty five and the bond ninety five: again one hundred and twenty.
- For the covered call, strike one hundred and ten, share at eighty: the short put loses thirty, the bond pays one hundred and ten, and the total is eighty.
- Same payoffs, same value today.

11 Principal protected notes: the idea

- Returns at least the principal at maturity
- Plus a payoff linked to a risky index or asset
- Recipe: zero-coupon bond + call on the underlying
- Safe base from the bond, upside from the call

IN THE LESSON

- Now to principal protected notes.
- Picture a nervous saver who does not want to miss a rally.
- A principal protected note returns at least the money invested, the principal, at maturity, and adds a payoff linked to something risky, such as an equity index.
- How can anyone promise that?
- The recipe has two ingredients.
- The first is a zero coupon bond, which grows to the full principal by the maturity date.
- The second is a call option on the index.
- A safe base plus an upside.
- The protection is on the principal at maturity.

12 The arithmetic of the recipe

Option budget = Face value − Bond price
Participation = Budget ÷ Cost of the call

Face value	Principal repaid at maturity
Bond price	Today's price of the bond
Option budget	Money left over to buy the call
Cost of the call	Call cost per unit of notional
Participation rate	Share of the gain you receive

IN THE LESSON

- Here is the arithmetic of the recipe.
- The bond is bought at a discount, and its face value equals the principal.
- What the bond leaves over is the option budget: the face value minus the bond price.
- That is the money available to buy the call.
- Then the participation rate is the share of the index's gain that the investor receives.
- It equals the option budget divided by the cost of the call per unit of notional.
- A cheap call can push participation above one hundred per cent, and an expensive one below.
- Other things equal, higher interest rates and lower volatility raise participation.

13 Example 3: building a note

Illustration: principal 1,000, five years, rate 4% a year

Bond price today	1,000 ÷ 1.04^5	**821.93**
Option budget	1,000 − 821.93	**178.07**
Call cost, 1,000 notional	five-year call, assumed	**200**
Participation rate	178.07 ÷ 200	**89.0%**

IN THE LESSON

- Example three.
- Principal one thousand dollars, five years, an interest rate of four per cent, all made up.
- The bond that pays one thousand in five years costs one thousand divided by one point zero four to the fifth power, which is eight hundred and twenty one dollars ninety three.
- The investor pays one thousand, so the option budget is one thousand minus that: one hundred and seventy eight dollars and seven cents.
- Suppose a five year call on one thousand dollars of notional of the index costs two hundred dollars.
- Participation is one hundred and seventy eight point zero seven divided by two hundred, which is eighty nine per cent.
- So the note returns the principal plus eighty nine per cent of the index's gain.

14 Example 4: what the note pays

Same note: principal 1,000, participation 89.0% of the index's gain

Index up 40%	1,000 + 89.0% × 400	**1,356**
Index up 10%	1,000 + 89.0% × 100	**1,089**
Index down 30%	1,000 + 0	**1,000**
Issuer defaults	unsecured claim	**Loss risk**

IN THE LESSON

- Now what does the investor receive at maturity?
- Same note, participation eighty nine per cent.
- If the index is up forty per cent, the note pays one thousand plus eighty nine per cent of four hundred, about one thousand three hundred and fifty six dollars.
- If the index is up ten per cent, it pays one thousand plus eighty nine per cent of one hundred, about one thousand and eighty nine.
- If the index falls thirty per cent, the call expires worthless and the bond alone repays one thousand.
- The investor loses no principal.
- The last row is the catch: the protection is a claim on the issuer.
- If the issuer defaults, principal can be lost.
- Held to maturity, a note loses principal only on default, never on an index fall.

15 Three things must be in place

- 1. Zero-coupon bond: face value = the principal
- 2. A call, bought with the money left over
- 3. A creditworthy issuer (unsecured claim)
- Held to maturity: loss only on issuer default

IN THE LESSON

- To create a principal protected note, three things must be in place.
- First, the bond: a zero coupon bond maturing on the note date, with a face value equal to the principal, so that the base is certain.
- Second, the option: a call on the underlying, bought with the money the bond leaves over.
- Third, a creditworthy issuer.
- The protection is only an unsecured claim on the issuer, not a deposit.
- If the issuer fails, the bond and the call may be worth little.
- So credit quality matters as much as the arithmetic.

16 What moves the participation rate

Illustration: principal 1,000, five years

Scenario	Participation
Rate 4%, call costs 200	89.0%
Rate 6%, call costs 200	126.4%
Rate 1%, call costs 200	24.3%
Rate 4%, call costs 250	71.2%

IN THE LESSON

- What drives the participation rate?
- Go back to the base case: a rate of four per cent and a call costing two hundred gave eighty nine per cent.
- Raise the rate to six per cent.
- The bond costs less, the budget grows, and participation rises to one hundred and twenty six point four per cent.
- Cut the rate to one per cent.
- The budget shrinks, and participation falls to twenty four point three per cent.
- Now keep the rate at four per cent but let volatility rise so that the call costs two hundred and fifty.
- Participation falls to seventy one point two per cent.
- Higher rates and lower volatility help.
- Low rates and high volatility hurt.

17 Example 5: a cap restores participation

Illustration: rate 1%, principal 1,000, five years, sell a higher-strike call

Option budget at 1% rates	1,000 − 951.47	**48.53**
Cost of call bought	assumed	**200**
Proceeds of call sold	strike 30% higher, assumed	**130**
Participation now	48.53 ÷ (200 − 130)	**69.3%**
Best case, index up 30%	1,000 + 69.3% × 300	**1,208**

IN THE LESSON

- So what if rates are low?
- Say the rate is one per cent.
- The bond costs nine hundred and fifty one dollars forty seven, so the budget is forty eight fifty three, and participation would be only twenty four point three per cent.
- The issuer can fix this by selling a higher strike call, which creates a cap.
- Suppose we buy the same call for two hundred and sell a call at a strike thirty per cent above the start for one hundred and thirty.
- The net cost of the options falls to seventy, so participation rises to sixty nine point three per cent.
- The price is the cap.
- In the best case the index rises thirty per cent, the investor earns sixty nine point three per cent of three hundred, about two hundred and eight, and the note pays one thousand two hundred and eight.

18 Spreads: same type of option, different terms

- Same type of option, different strikes or maturities
- Bull call: long low-strike, short high-strike call
- Bear put: long high-strike, short low-strike put
- Butterfly: long 1 low, short 2 middle, long 1 high
- Always: profit = payoff − net premium

IN THE LESSON

- A spread combines options of the same type, calls or puts, with different strikes or maturities.
- Selling one option pays for part of another, so the position costs less, and gains and losses are limited.
- A bull call spread is long a low strike call and short a higher strike call.
- A bear put spread is long a high strike put and short a lower strike put.
- A butterfly is long one call at the low strike, short two at the middle strike and long one at the high strike.
- Compute profit as payoff minus the net premium.
- Then come the calendar and the box.

19 Example 6: a bull call spread

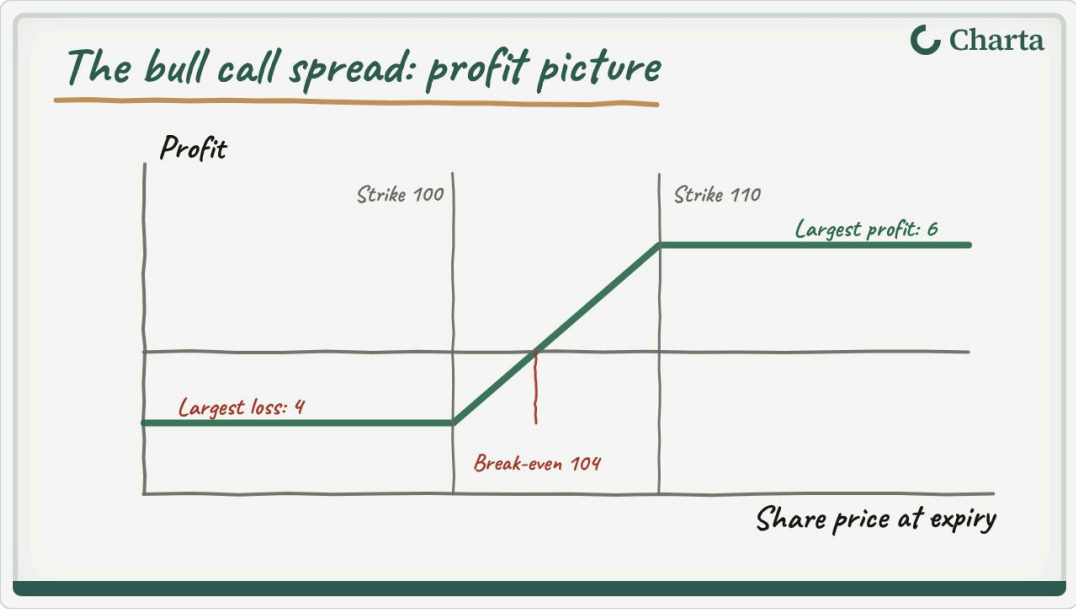
Illustration: buy the 100 call for 7, sell the 110 call for 3

Net premium paid	7 − 3	**4**
Share ends at 95	0 − 4	**−4**
Share ends at 104	4 − 4	**0**
Share ends at 120	(20 − 10) − 4	**+6**
Max profit / max loss	10 − 4 / the net debit	**+6 / −4**

IN THE LESSON

- Example six.
- Buy a call with a strike of one hundred for seven dollars and sell a call with a strike of one hundred and ten for three.
- These are made up prices.
- The net premium paid is seven minus three: four dollars.
- If the share ends at ninety five, both calls expire, so the profit is zero minus four, a loss of four.
- If it ends at one hundred and four, the long call pays four and the short call nothing, so four minus four, zero: the break-even.
- If it ends at one hundred and twenty, the long call pays twenty, the short call costs ten, a payoff of ten, and the profit is ten minus four, six.
- That is the maximum, and the most you can lose is four, the net debit.

20 The bull call spread: profit picture



IN THE LESSON

- Here is the picture of the bull call spread.
- It is flat at minus four for prices below the low strike of one hundred.
- That is the net premium, the largest loss.
- Between one hundred and one hundred and ten it climbs one for one, crossing zero at one hundred and four.
- Above one hundred and ten it flattens at plus six, because the call you sold hands back every extra dollar that the call you bought earns.
- A plain long call at one hundred costs seven and has unlimited profit.
- The spread costs four, but gives up everything above one hundred and ten.
- It suits someone moderately bullish who wants a cheaper bet.

21 Example 7: a bear put spread

Illustration: buy the 110 put for 9, sell the 100 put for 3.5

Net premium paid	9 − 3.5	**5.5**
Share ends at 120	0 − 5.5	**−5.5**
Share ends at 104.5	5.5 − 5.5	**0**
Share ends at 90	(20 − 10) − 5.5	**+4.5**
Max profit / max loss	10 − 5.5 / net debit	**+4.5 / −5.5**

IN THE LESSON

- Example seven, the mirror image for a falling market.
- Buy a put with a strike of one hundred and ten for nine dollars and sell a put with a strike of one hundred for three dollars fifty.
- The net premium paid is nine minus three fifty: five dollars fifty.
- If the share ends at one hundred and twenty, both puts expire, and you lose the five fifty.
- The break-even is one hundred and ten minus five fifty, one hundred and four fifty, where the payoff of five fifty just covers the cost.
- If the share falls to ninety, the long put pays twenty and the short put costs ten, a payoff of ten, so the profit is ten minus five fifty: four fifty.
- That is the maximum.
- The worst case is the five fifty paid.

22 Example 8: a butterfly

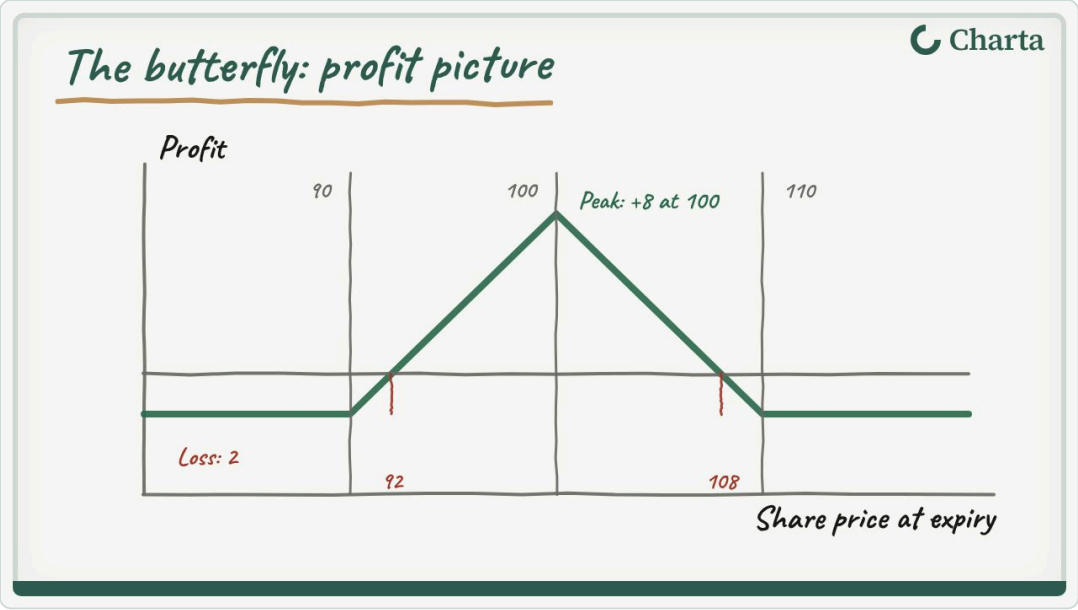
Illustration: calls with strikes 90, 100, 110 cost 13, 7, 3

Net cost	13 − 2 × 7 + 3	**2**
Share ends at 100	10 − 2	**+8**
Share ends at 95	5 − 2	**+3**
Share ends at 80 or 120	0 − 2	**−2**
Break-evens	90 + 2 and 110 − 2	**92 and 108**

IN THE LESSON

- Example eight, the butterfly.
- Use calls with strikes of ninety, one hundred and one hundred and ten, priced at thirteen, seven and three.
- Buy one at ninety, sell two at one hundred, buy one at one hundred and ten.
- The net cost is thirteen minus two times seven, plus three: two dollars.
- If the share ends at exactly one hundred, the low call pays ten, the sold calls pay nothing, and the high call nothing, so the payoff is ten and the profit is ten minus two: eight.
- At ninety five, the payoff is five and the profit three.
- At eighty or at one hundred and twenty, the payoff is zero and you lose the two.
- The break-evens are ninety plus two, ninety two, and one hundred and ten minus two, one hundred and eight.
- It profits when the price ends near the middle.

23 The butterfly: profit picture



IN THE LESSON

- Here is the butterfly's profit.
- It is flat at minus two on the left, which is the net cost.
- From ninety it rises to a peak of plus eight at one hundred, then falls back to minus two at one hundred and ten, and stays flat on the right.
- The tent shape makes it a bet on a quiet market, with the price ending close to the middle strike.
- The break-evens are ninety two and one hundred and eight.
- The loss is tiny, only the two dollars paid, and the best case is four times that.
- The long calls at the low and high strikes, the wings, cap the loss.

24 Example 9: a calendar spread

Illustration: strike 100. Sell the 1-month call for 3, buy the 3-month call for 6

Net cost today	buy 6, sell 3	**3**
Short near call, share 100	3 to 0, you keep 3	**+3**
Long far call, share 100	6 to 5, assumed	**−1**
Profit if price stays put	3 − 1	**+2**
Price moves far away	both values converge	**Lose up to 3**

IN THE LESSON

- Example nine, the calendar spread.
- Here the options differ by maturity.
- Sell a near dated call and buy a longer dated call at the same strike.
- Take a strike of one hundred, a one month call sold for three and a three month call bought for six.
- The net cost today is six minus three: three dollars.
- Now the share stays at one hundred.
- A month later the near call expires worthless, so the short side falls from three to zero and you keep three.
- The longer call has lost a little time value.
- Suppose it is worth five, down from six: a loss of one.
- The profit if the price stays put is three minus one: two dollars.
- Time decay hits the near option faster.
- If the price moves far away, the two values converge, and you lose up to the three paid.

25 Example 10: a box spread

Illustration: strikes 100 and 110, using the prices from examples 6 and 7

Bull call spread cost	7 − 3	**4**
Bear put spread cost	9 − 3.5	**5.5**
Box cost today	4 + 5.5	**9.5**
Payoff at expiry, always	110 − 100	**10**
Interest over whole period	10 ÷ 9.5 − 1	**5.26%**

IN THE LESSON

- Finally, the box spread.
- Put a bull call spread and a bear put spread together on the same two strikes.
- Use strikes of one hundred and one hundred and ten.
- The bull call spread cost four.
- The bear put spread cost five fifty.
- So the box costs nine fifty today.
- What does it pay at expiry?
- Whatever the share does, exactly the strike difference, one hundred and ten minus one hundred, ten dollars.
- If the share ends at ninety five, the put spread pays ten.
- At one hundred and twenty, the call spread pays ten.
- A certain ten dollars at expiry for nine fifty today is a loan.
- You lend nine fifty and get ten back: ten divided by nine point five, minus one, is five point two six per cent over the whole life of the options, not a yearly rate.
- A box is a way to borrow or lend, not a view on the price.

26 Combinations: calls and puts together

- Straddle: long call + long put, same strike and expiry
- Strangle: out-of-the-money put + out-of-the-money call
- Strip: 1 call + 2 puts; bearish tilt
- Strap: 2 calls + 1 put; bullish tilt
- Both premiums must be recovered before any profit

IN THE LESSON

- Spreads use options of one type.
- Combinations mix calls and puts.
- The straddle is a long call and a long put with the same strike and expiry.
- It profits from a large move in either direction, and the break-evens are the strike plus and minus the total premium paid.
- The strangle uses an out of the money put and an out of the money call, so it costs less but needs a bigger move.
- A strip is one call and two puts, a volatility bet with a bearish tilt.
- A strap is two calls and one put, with a bullish tilt.
- All four share one trap: the premium on both options must be recovered before the position shows a profit.

27 Example 11: a straddle and a strangle

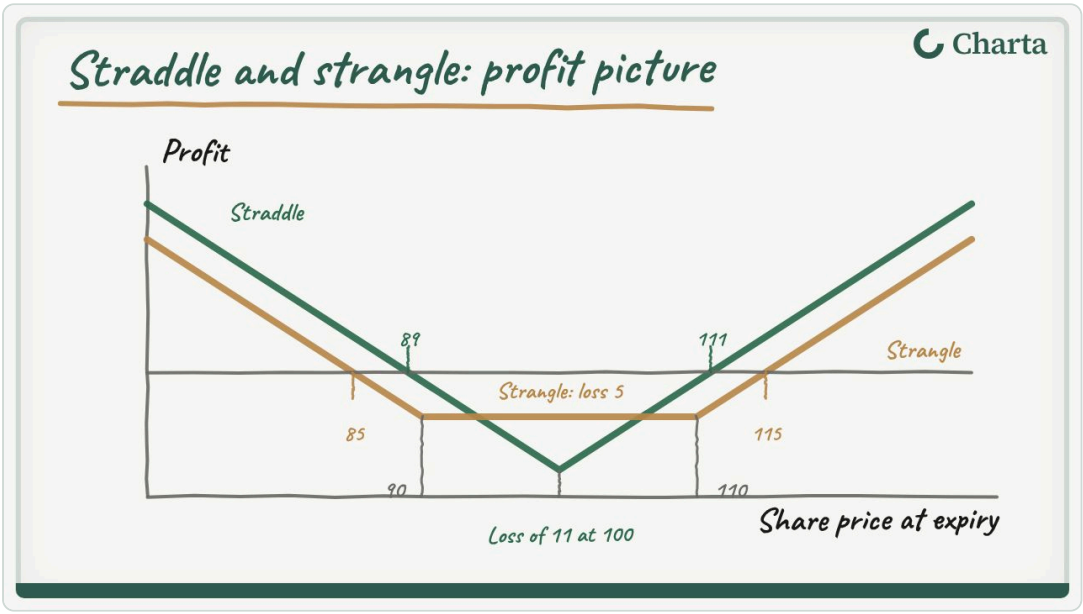
Illustration: share at 100. Calls and puts at strike 100 cost 6 and 5; 90 put 2, 110 call 3

Straddle cost	6 + 5	**11**
Straddle break-evens	100 − 11 and 100 + 11	**89 and 111**
Straddle, share at 120	20 − 11	**+9**
Strangle cost	2 + 3	**5**
Strangle break-evens	90 − 5 and 110 + 5	**85 and 115**

IN THE LESSON

- Example eleven.
- The share is at one hundred.
- A call with a strike of one hundred costs six, and a put with a strike of one hundred costs five.
- The straddle costs six plus five: eleven dollars.
- The break-evens are one hundred minus eleven, eighty nine, and one hundred plus eleven, one hundred and eleven.
- If the share ends at one hundred and twenty, the call pays twenty, minus eleven, a profit of nine.
- Now the strangle.
- Buy a put with a strike of ninety for two and a call with a strike of one hundred and ten for three.
- The cost is two plus three: five dollars, less than half the straddle.
- The break-evens are ninety minus five, eighty five, and one hundred and ten plus five, one hundred and fifteen.
- It costs less, but needs a bigger move.

28 Straddle and strangle: profit picture



IN THE LESSON

- Here are both profit lines.
- The green line is the straddle, shaped like a valley.
- At the strike of one hundred it sits at its lowest point, minus eleven, the whole premium, and it rises on each side, crossing zero at eighty nine and one hundred and eleven.
- The gold line is the strangle.
- It has a flat floor at minus five between the strikes of ninety and one hundred and ten, and crosses zero at eighty five and one hundred and fifteen.
- The floor is higher, so you lose less if nothing happens, but the arms start later.
- Which is better depends on how big a move you expect.

29 Example 12: a strip and a strap

Illustration: strike 100, call costs 6, put costs 5

Strip cost: 1 call + 2 puts	6 + 10	**16**
Strip break-evens	100 − 8 and 100 + 16	**92 and 116**
Strap cost: 2 calls + 1 put	12 + 5	**17**
Strap break-evens	100 − 17 and 100 + 8.5	**83 and 108.5**
Price stays at 100	premium lost	**−16 and −17**

IN THE LESSON

- Example twelve, the strip and the strap.
- Same strike of one hundred, call six, put five.
- A strip is one call and two puts.
- It costs six plus ten: sixteen dollars.
- On the downside each put pays, so two times the fall must cover sixteen.
- The break-even is one hundred minus eight, ninety two.
- On the upside only the call pays, so the break-even is one hundred plus sixteen, one hundred and sixteen.
- A strap is two calls and one put, which costs twelve plus five: seventeen.
- On the downside one put pays, so the break-even is one hundred minus seventeen, eighty three.
- On the upside two calls pay, so it is one hundred plus eight and a half.
- If the price stays at one hundred, both lose the whole premium: sixteen and seventeen.
- The strip leans bearish, the strap leans bullish.

30 Example 13: selling a straddle

Illustration: sell the strike-100 straddle and collect 11

Share stays at 100	keep 11	**+11**
Share ends at 105	11 − 5	**+6**
Share ends 111 or 89	11 − 11	**0**
Share jumps to 130	11 − 30	**−19**
Share falls to 50	11 − 50	**−39**

IN THE LESSON

- What about selling these positions?
- The seller of the straddle collects the premium, eleven dollars, and profits if the price stays quiet.
- If the share stays at one hundred, the seller keeps all eleven.
- At one hundred and five, one option pays five, so the seller keeps eleven minus five: six.
- At one hundred and eleven or eighty nine the profit is zero, the same break-evens as the buyer.
- Beyond that the seller loses.
- If the share jumps to one hundred and thirty, the call costs thirty, so eleven minus thirty is a loss of nineteen.
- If it collapses to fifty, the put costs fifty, a loss of thirty nine.
- The seller earns a small, limited gain for a large loss, unlimited on the upside.

31 Four mistakes to avoid

- Covered call is no crash hedge: buy a put for that
- Profit = payoff − net premium, never payoff alone
- Note loses principal on issuer default, not index fall
- Straddle break-evens: strike ± total premium of both

IN THE LESSON

- Four mistakes to avoid.
- Mistake one: treating a covered call as a hedge against a big fall.
- The premium is a small cushion; for real protection, buy a put.
- Mistake two: forgetting the premium.
- Profit is payoff minus the net premium, so a spread that pays ten for a cost of four has a profit of six, and the break-even sits above the low strike.
- Mistake three: thinking a principal protected note cannot lose principal.
- Held to maturity it loses principal if the issuer defaults, not if the index falls.
- Mistake four: forgetting that both options in a straddle or strangle must be paid for.
- The break-evens are the strike plus and minus the total premium, not one option's premium.

32 Recap: the main ideas

- Protective put: floor. Covered call: gain capped
- Note = zero-coupon bond + call + creditworthy issuer
- Spreads cap gain and loss; a box spread is a loan
- Straddle, strangle, strip, strap: bets on a big move
- Always: profit = payoff − net premium

IN THE LESSON

- Let's recap.
- A protective put is the asset plus a long put: a floor at the strike, upside kept less the premium, like insurance.
- A covered call is the asset plus a short call: a small cushion, gains capped at the strike, suited to a flat or mildly rising view.
- Both can be rebuilt with parity, as a long call or a short put, plus a bond.
- A principal protected note is a zero coupon bond plus a call, bought with the option budget, and it rests on a creditworthy issuer.
- Spreads cap both gain and loss, and a box is a loan.
- Combinations such as the straddle, strangle, strip and strap bet on the size of a move.
- And always, profit is payoff minus net premium.

33 Try three quick questions

1. Buy share at 50 and a put (strike 45) for 2. Max loss?
   Answer: 50 − 45 + 2 = 7.
2. Buy 40 call for 5, sell 50 call for 2. Max profit, break-even?
   Answer: Net cost 3. Max profit 10 − 3 = 7. Break-even 43.
3. Straddle at strike 60, call 4, put 3. Break-evens?
   Answer: Premium 7, so 53 and 67.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- You buy a share at fifty dollars and a put with a strike of forty five for two dollars.
- What is the most you can lose?
- The answer is fifty minus forty five plus two, seven dollars.
- Question two.
- You buy a call with a strike of forty for five dollars and sell a call with a strike of fifty for two.
- What are the maximum profit and the break-even?
- The net cost is three, the maximum profit is ten minus three, seven, and the break-even is forty three.
- Question three.
- A straddle at a strike of sixty uses a call costing four and a put costing three.
- What are its break-evens?
- The premium is seven, so fifty three and sixty seven.
- The answers are on the board.