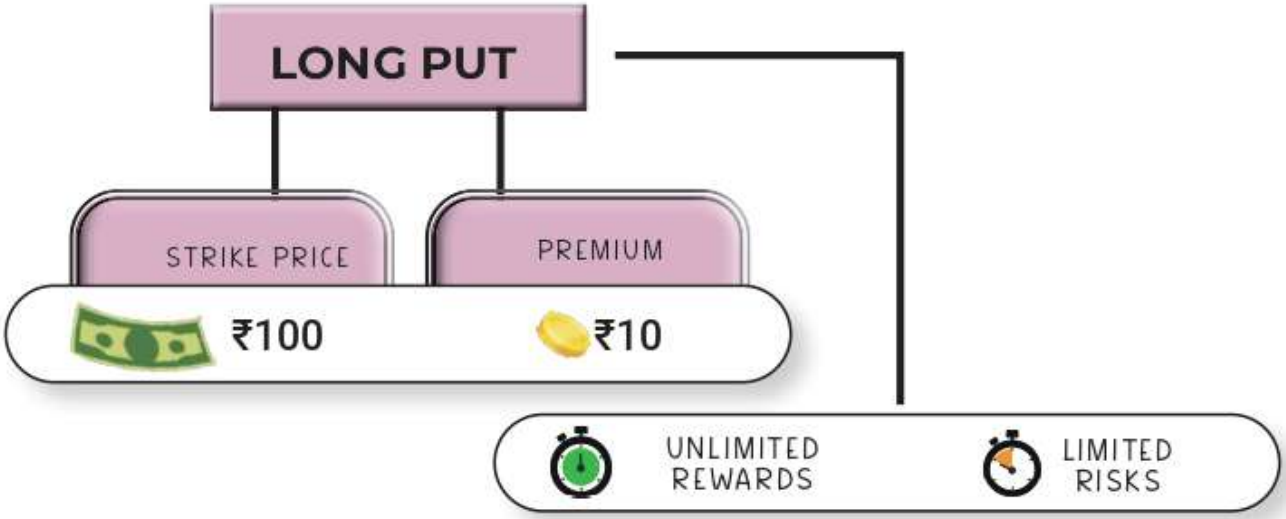
6.3 UNDERSTANDING PAYOFF CHARTS FOR PUT OPTIONS

PAY-OFF FOR PUT BUYER

Suppose that Mr. A buys a put option at a Strike price of ₹100 and pays a premium amount of ₹10 for the same.



In the graph above, we have Profit or Loss on the Y-axis and Price of the Stock at the expiration on the X-axis.

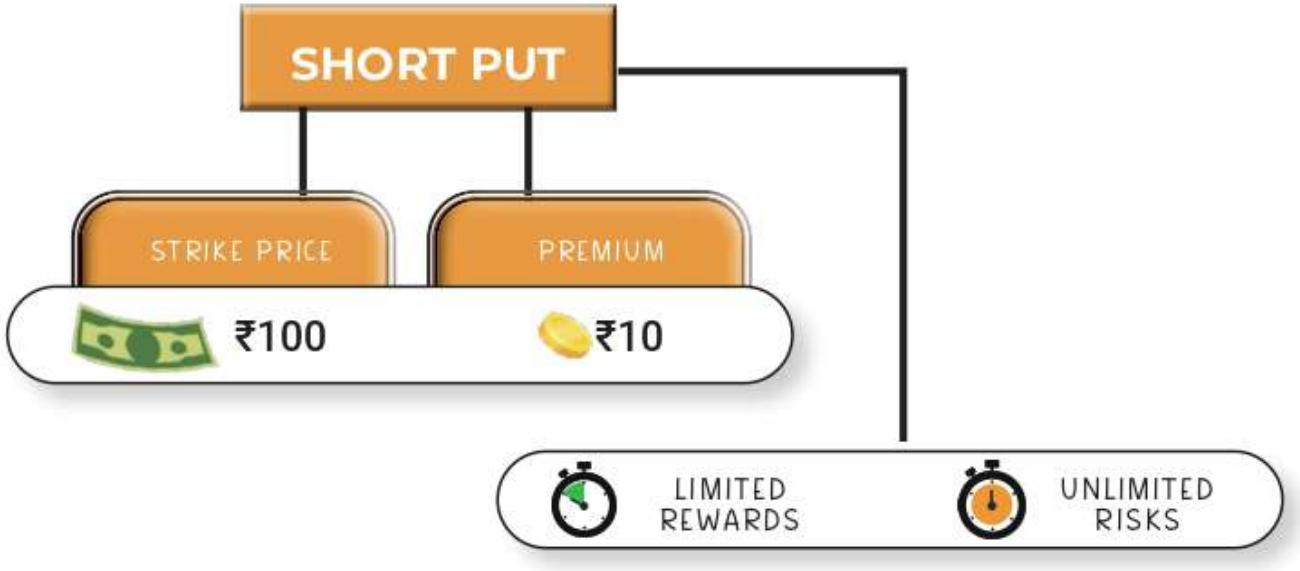
Now, this premium amount of ₹10 is Mr. A's outflow and also the maximum loss value. As the price decreases below the strike price of ₹100, the put buyer starts to recover their premium and reduce losses. After the price goes below the Break-even point, the put buyer becomes profitable.

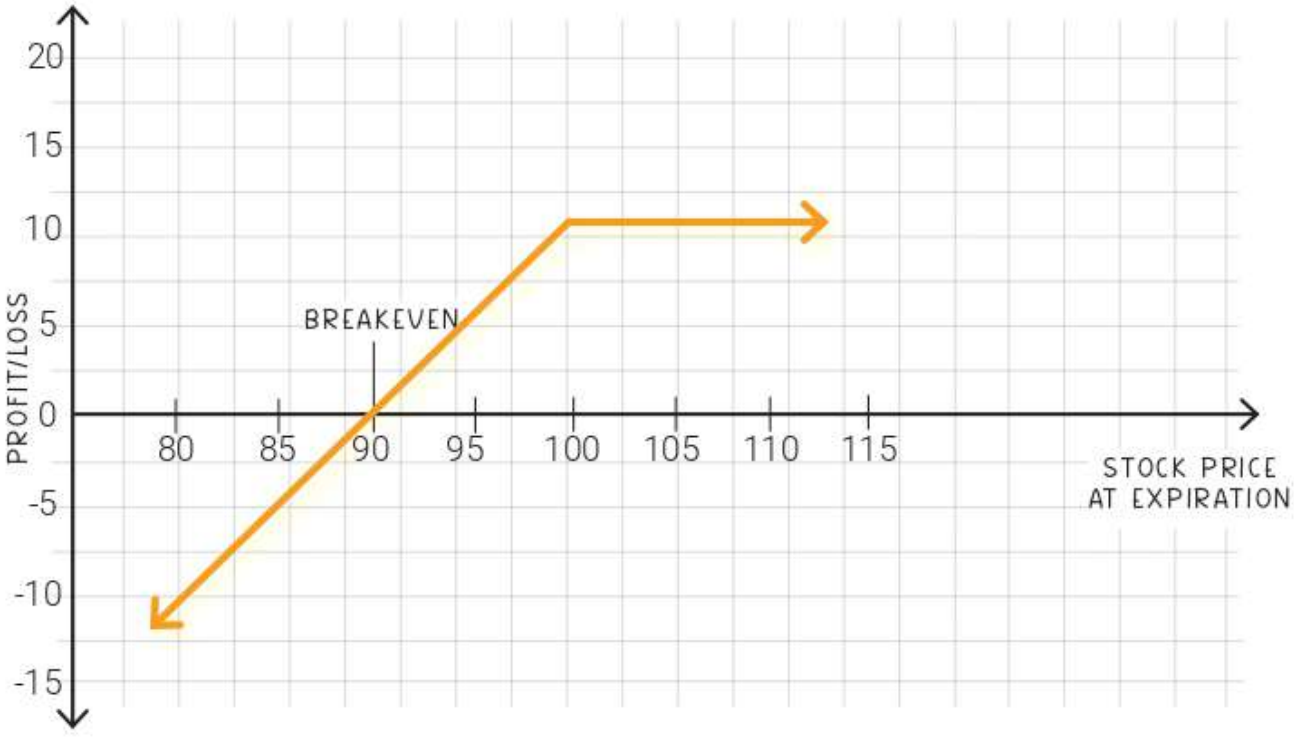
CURRENT MARKET PRICE (CMP)	STRIKE PRICE - CMP - PREMIUM = PROFIT/ LOSS	REMARKS
₹110	₹100 - ₹110 - ₹10 = (~~₹20~~) (₹10)	Loss of premium as the option will not be exercised.
₹100	₹100 - ₹100 - ₹10 = (₹10)	Loss of premium as the option will not be exercised.
₹95	₹100 - ₹95 - ₹10 = (₹5)	Losses will decrease as some part of the premium will be recovered as payoff.
₹90	₹100 - ₹90 - ₹10 = ₹0	This is the break-even point where neither the buyer nor the seller makes any profit or loss.
₹80 ∞	₹100 - ₹80 - ₹10 = ₹10	If the price continues to fall below the break-even price, the buyer of the option will make a profit and will make more money with every price decline.

THE PROFITS OF THE BUYER ARE UNLIMITED BEYOND BREAKEVEN POINT I.E. **₹90**
THE LOSSES ARE CAPPED TO THE PREMIUM PAID BY THE PUT OPTION BUYER.

PAY-OFF FOR PUT SELLER

For put options seller, the scenario is opposite or mirror image of the buyer's payoff chart as the seller has limited profits and unlimited losses potential.
Suppose that Mr. B sells a put option at a Strike price of ₹100 in exchange of a premium amount of ₹10 for the same.





In the graph above, we have Profit or Loss on the Y-axis and Price of the Stock at the expiration on the X-axis.

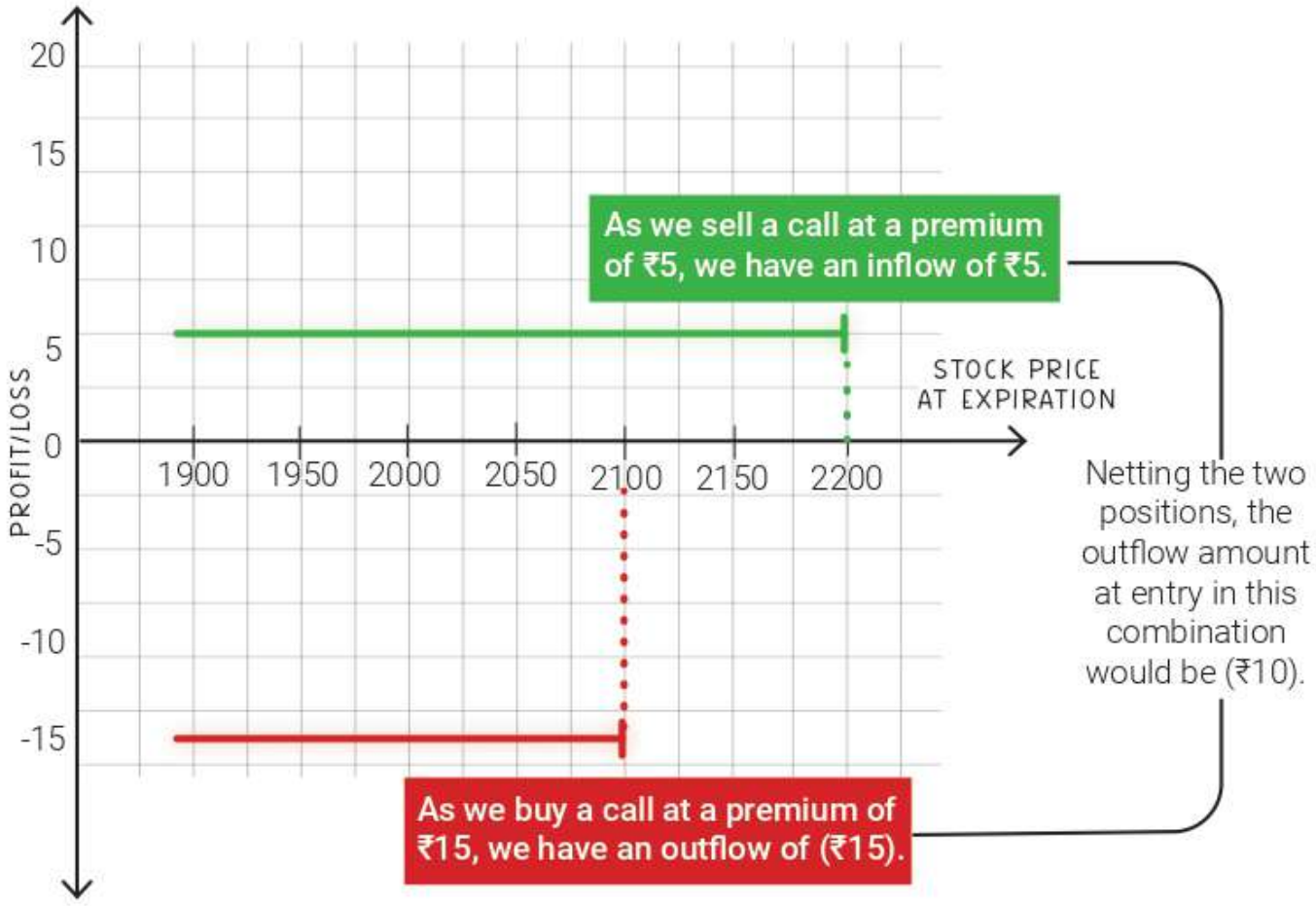
CURRENT MARKET PRICE (CMP)	CMP - STRIKE PRICE + PREMIUM = PROFIT/ LOSS	REMARKS
₹110	₹110 - ₹100 + ₹10 = ~~₹20~~ ₹10	The seller will make a profit as the option will not be exercised by the buyer.
₹100	₹100 - ₹100 + ₹10 = ₹10	The seller will make a profit as the option will not be exercised by the buyer.
₹95	₹95 - ₹100 + ₹10 = ₹5	The seller will still be profitable till the time the price is not below the break-even level. However, the profits will reduce.
₹90	₹90 - ₹100 + ₹10 = ₹0	The profit or loss is at zero at the break-even level.
₹120	₹80 - ₹100 + ₹10 = (₹10)	If the prices continue to fall beyond the break-even level too, the seller will incur losses.
∞		∞

THE LOSSES OF THE PUT SELLER WILL BE UNLIMITED BEYOND BREAKEVEN POINT I.E. ₹90 LOWER THE PRICE FALLS, HIGHER WILL BE THE LOSS THAT THE PUT OPTION SELLER WILL INCUR.

Now we understand how Payoff charts are calculated, we can use the same to create payoff charts for more complicated options, combination of multiple options and so on. We will need this when we create payoff charts for entire strategies.

Let us try out together once to create a payoff chart taking a hypothetical example where we take positions in two options in a combination.

One we are buying i.e., a long call position at a Strike Price of ₹2100 for a premium of ₹15. And another one we are selling i.e., a short call position at a Strike Price of ₹2200 for a premium of ₹5. Let's understand what the profit or loss situation would look like in this strategy.

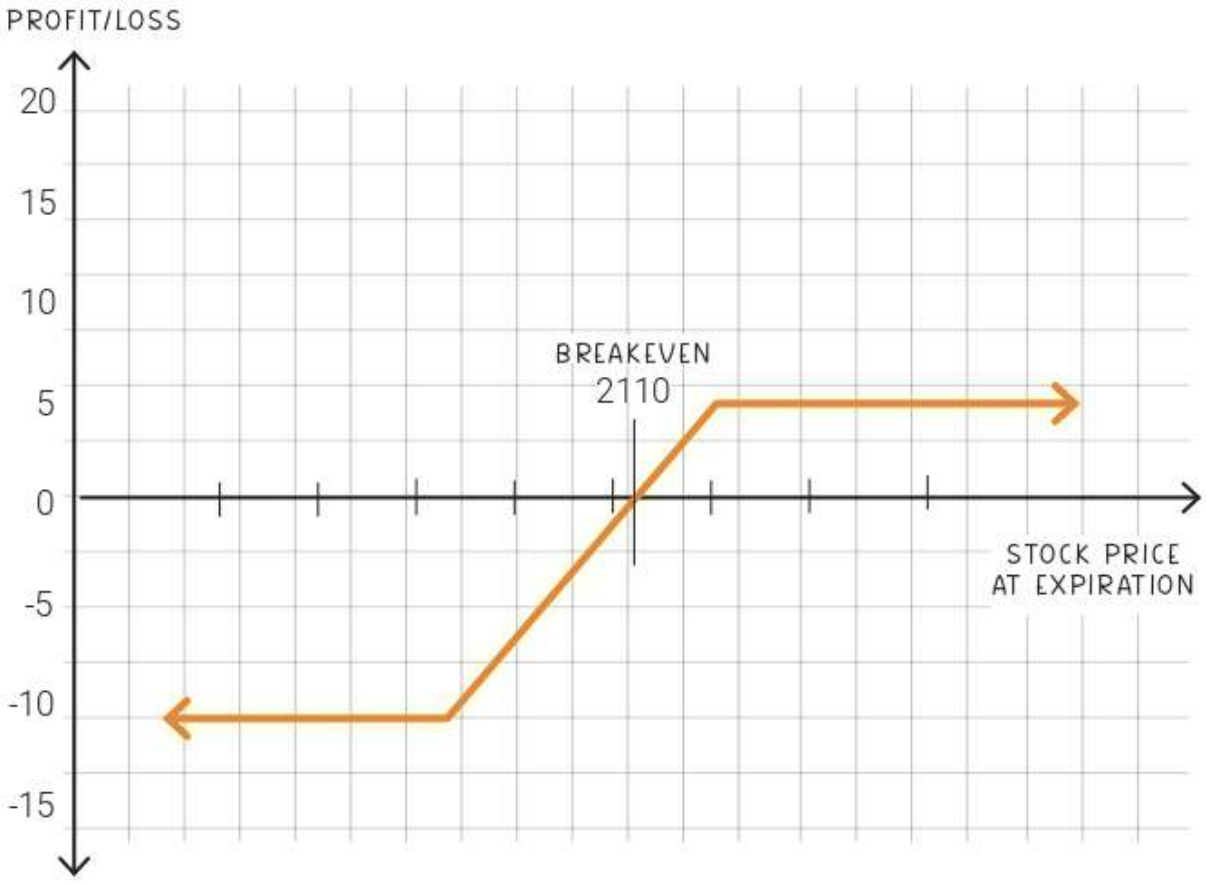


As the Current market price comes to ₹2110, our positions hit the break-even point. Beyond this point, as a call buyer, we make profits as the price goes up.

STRIKE PRICE	2100
- PREMIUM PAID	(15)
+ PREMIUM RECIEVED	5
BREAKEVEN POINT	2110

However, since we sold a call at ₹2200 strike price our profits are limited to this price movement. Once the market price goes above ₹2200, with additional rupees that we make in profit on the Long CE2100 position, we will also incur a loss of same amount on Short CE2200 position. As a result, we have capped our profits when the price is at ₹2200.

Therefore, the graphical representation of this payoff can be shown with the following payoff chart.
We can see that the maximum profit is capped at ₹2200.



We can see that if the price remains below ₹2100, then we will incur losses. The losses will be of amount - ₹10 which was initial premium that we had invested.

We will be covering these in-depth shortly as we move ahead with Option Strategies. Until then it is advisable to practice with some hypothetical combinations of options to get a hang of it.

Notes