MA374 Extra Assignment

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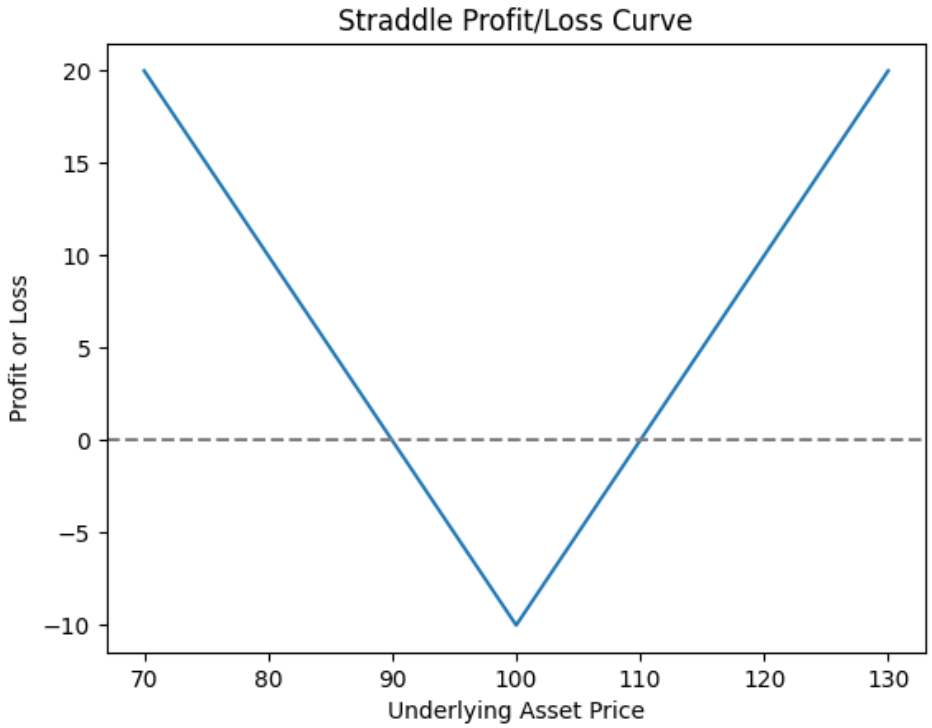
In this assignment, I have implemented various strategies which were taught to us in our course. I have plotted the graphs showing payoff vs stock price for each of the strategies. The payoffs of the strategies can be seen from the python codes.

Straddle

A straddle is an options trading strategy where an investor simultaneously buys a call option and a put option at the same strike price and expiration date. The investor profits if the price of the underlying asset moves significantly in either direction, while minimizing losses if the price remains relatively stable. The maximum loss is the net premium paid for both options.

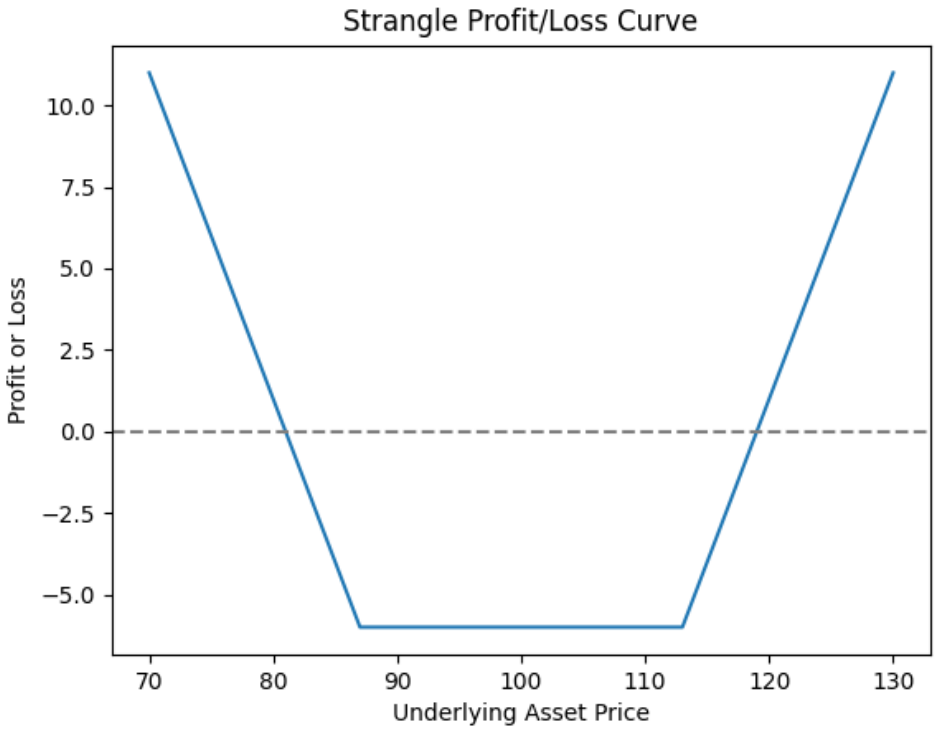
The profit or loss of a straddle can be graphed using a profit-loss curve, which shows the potential profit or loss for different underlying asset prices.



Strangle

A strangle is similar to a straddle, but involves buying a call option and a put option at different strike prices, but with the same expiration date. The investor profits if the price of the underlying asset moves significantly in either direction, while minimizing losses if the price remains relatively stable. The maximum loss is the net premium paid for both options.

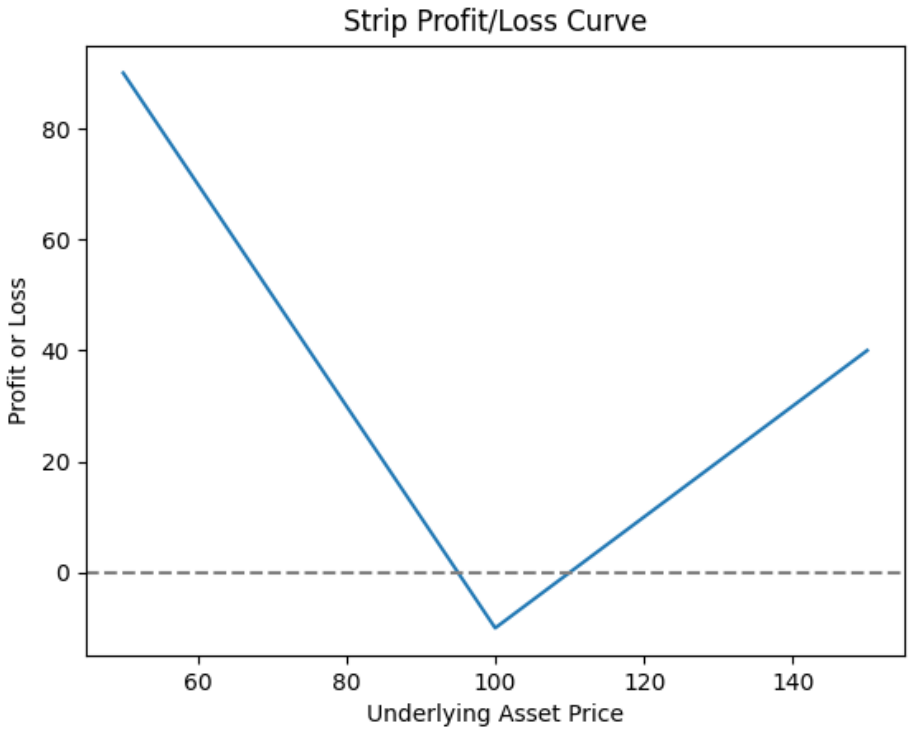
The profit or loss of a strangle can also be graphed using a profit-loss curve, which shows the potential profit or loss for different underlying asset prices.



Strip

A strip is an options trading strategy that involves buying three call options and selling two put options, or buying three put options and selling two call options, all with the same expiration date and underlying asset. This strategy is used to profit from a significant move in either direction of the underlying asset, while minimizing losses if the price remains relatively stable. The maximum loss is the net premium paid for all options.

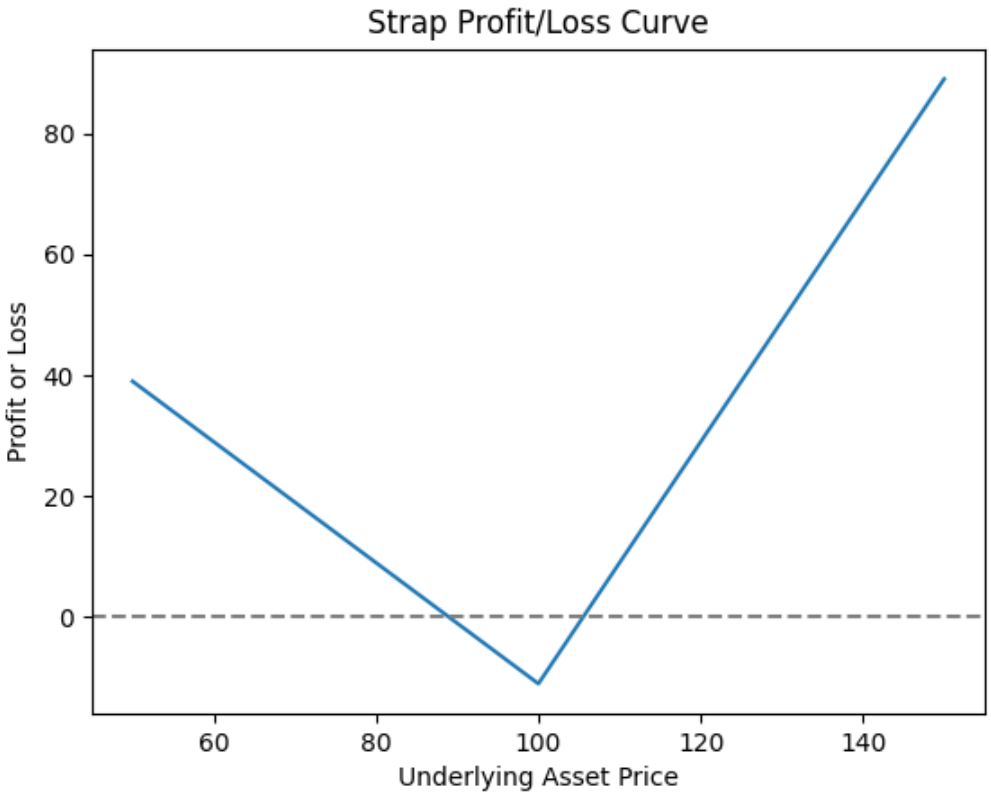
The profit or loss of a strip can be graphed using a profit-loss curve, which shows the potential profit or loss for different underlying asset prices.



Strap

A strap is the opposite of a strip and involves buying two call options and selling three put options, or buying two put options and selling three call options, all with the same expiration date and underlying asset. This strategy is used to profit from a significant move in either direction of the underlying asset, while minimizing losses if the price remains relatively stable. The maximum loss is the net premium paid for all options.

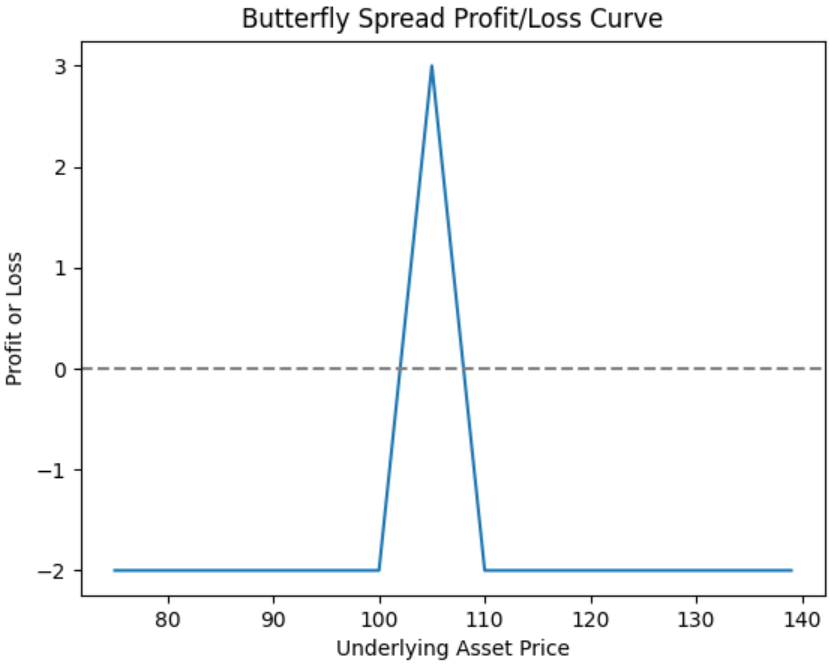
The profit or loss of a strap can be graphed using a profit-loss curve, which shows the potential profit or loss for different underlying asset prices.



Butterfly Spread

A butterfly spread is an options trading strategy that involves buying two call options and selling two call options, all at different strike prices but with the same expiration date. The investor profits if the price of the underlying asset remains relatively stable, while minimizing losses if the price moves significantly in either direction. The maximum loss is the net premium paid for all options.

The profit or loss of a butterfly spread can be graphed using a profit-loss curve, which shows the potential profit or loss for different underlying asset prices.


Butterfly Spread Profit/Loss Curve
Profit or Loss
3
2
1
0
−1
−2
80
90
100
110
120
130
140
Underlying Asset Price

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