1

$$P_{ask} = \$9.25$$
$$S = \$318.31$$
$$K = \$315$$

$$N = \frac{1000}{9.25} \approx 108\text{calls}$$

$$\text{Payoff: } (S-K)^+ = (318.31 - 315) = \$3.31,\ P\&L = \$3.13 - \$9.25 = -\$5.94$$

Total loss: $P\&L \times N = -\$5.94 * 108 = -\$641.52$

Bid price on Jan 24th: $P_{bid} = \$10.30$. Rate of return is therefore:

$$RoR = 100 \times \frac{P_{bid} - P_{ask}}{P_{ask}} = 100 \times \frac{\$10.30 - \$9.25}{\$9.25} \approx 11.4\%$$

2

$$P_0 = 313.29$$
$$S = 318.31$$

$$RoR = 100 \times \frac{S - P_0}{P_0} = 100 \times \frac{318.31 - 313 - 29}{313.29} \approx 1.6\%$$

Buying the **315-calls** was more profitable because they generated a rate of return of 11.4% when sold at bid price on January 24th.

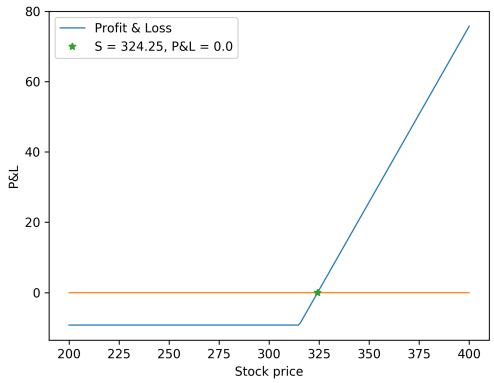
3

The payoff for put options is calculated as $(K-S)^+$. At the 24th of january the stock price exeeded the strike price, thus generating 0 payoff. Therefore, I would not have exercised the option.

$$P_{ask}^{(0)} = \$10.75$$
$$P_{bid}^{(T)} = \$6.95$$

$$RoR = 100 \times \frac{6.95 - 10.75}{10.75} \approx -35.3\%$$

4



The call option provides the owner with the option of buying a stock at the strike price at maturity, and not the obligation to do so. Therefore the call option owner only exercises the option if the stock price is lower than strike price. This leads to the payoff being positive, i.e $(S-K)^+ > 0$. A profit will be made if the payoff is greater than the initial price for the call option (P_0). The break even point (as illustrated in the plot above) is obtained when:

$$(S-K)^+ - P_0 = 0 \implies S = K + P_0 = 315 + 9.25 = 324.25$$

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