JAN 26 2021 MATH 134B

CHAO-MING LIN

1. Some option strategies

The interested reader is referred to "Trade Options with an Edge" [1] by R. Richards or website Tastytrade for further understanding. They have done some researches and will provide you statistical evidences that support their claims. Let's list some famous option strategies here:
-Naked Option: A naked option, also known as an "uncovered" option, is created when the seller of an option contract does not own the underlying security needed to meet the potential obligation that results from selling an option.
-Covered: Take call option for example, a covered call refers to a financial transaction in which the investor selling call options owns an equivalent amount of the underlying security.
-Vertical Spread: A vertical spread involves the simultaneous buying and selling of options of the same type (i.e., either puts or calls) and expiry, but at different strike prices.

We will mention more difficult option strategies next time.

Definition (Delta)**.** *Delta is the ratio that compares the change in the price of an asset, usually marketable securities, to the corresponding change in the price of its derivative.*
Although they are not the same, but another useful way to think about delta: the probability an option will end up in-the-money at expiration.

Example (Delta and PoP)**.** *Take Apple's options for example, we have The Delta of a 115-strike*

Figure 1. Jul 16 2021

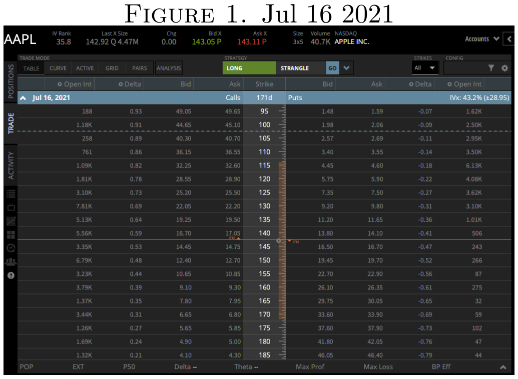
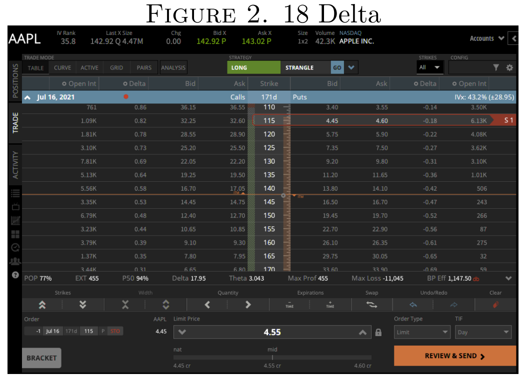
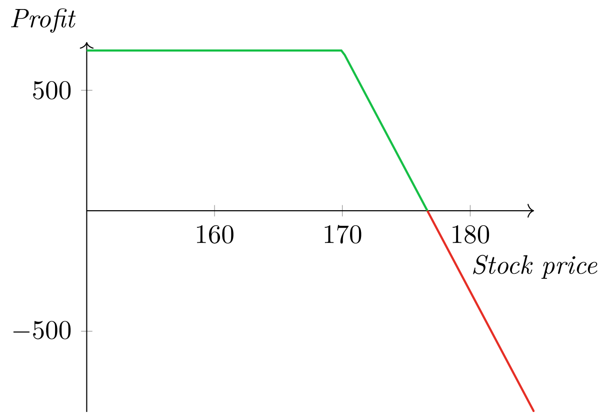


Figure 2. 18 Delta

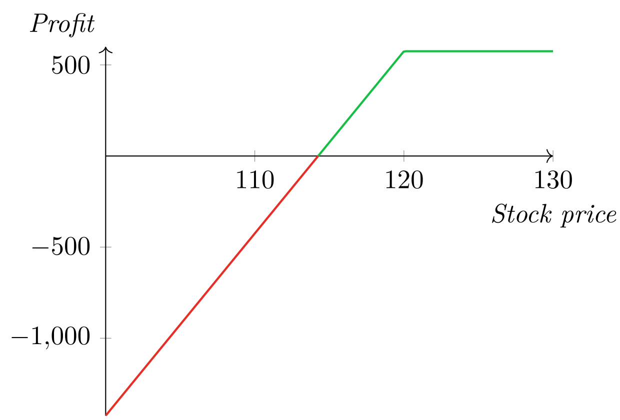


is 0.18*, which means that when the price of Apple's stock price change* \$1*, the price of this contract moves* \$0.18 *a share. Based on Black-Scholes model, the PoP of this contract is* 77%*, so on the expiration date, the probability of the stock price will end up in-the-money will be greater than* $100\% - 77\% = 23\%$*, which is different from the value of Delta* 18%*. But sometimes it is convenient to treat them the same.*

Example (Naked call option)**.** *On figure 1, if you sell a 170-strike call using market order, the premium will be* \$6.65 *a share. Without considering the future value, the profit when the contract expires will be the following diagram*



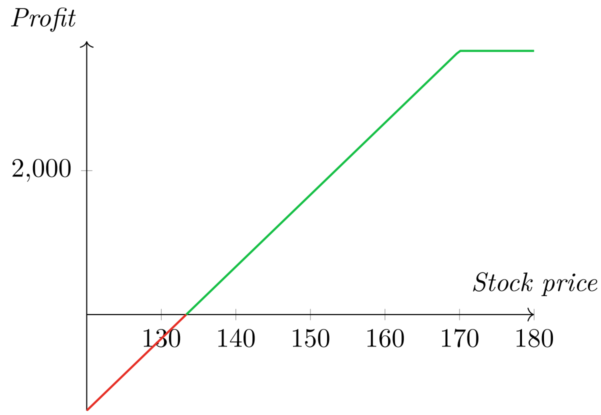
Example (Naked put option)**.** *On figure 2, if you sell a 120-strike put using market order, the premium will be* \$5.75 *a share. Without considering the future value, the profit when the contract expires will be the following diagram*



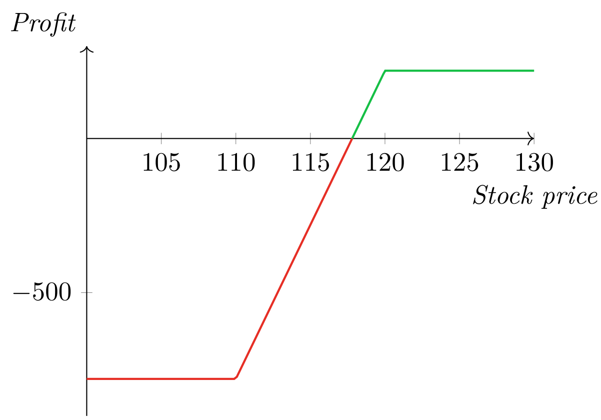
Remark. *Selling naked option is risky, especially naked call option. The maximum profit will be the premium, but your loss can be infinity.*

Example (**How Tampa's James Cordier went from high roller to YouTube apology after losing \$150 million**)**.** *James Cordier is the founder of OptionSellers.com, an investment firm specializing exclusively in selling options. In 2018, Cordier, on behalf of his clients, sold naked call options betting that natural gas prices would drop. But instead of falling, natural gas prices shot up another 25 percent between Nov. 13 and 15, wiping out all of the clients' investments.*

Example (Covered call). *On figure 1, if you buy 100 shares at* $140 *and sell a 170-strike call using market order with* $6.65 *premium. Without considering the future value, the profit when the contract expires will be the following diagram*



Example (Vertical spread-Short put spread). *On figure 2, if you sell a 120-strike put using market order with* $5.75 *premium and buy a 110-strike put using market order with* $3.55 *premium. Without considering the future value, the profit when the contract expires will be the following diagram*



References

[1] R. Richards, *Trade Options with an Edge.*

[2] Tastytrade. https://www.tastytrade.com

[3] Investopedia, *Naked Option.* https://www.investopedia.com/terms/n/nakedoption.asp

[4] Investopedia, *Covered Call.* https://www.investopedia.com/terms/c/coveredcall.asp

[5] Investopedia, *Vertical Spread.* https://www.investopedia.com/terms/v/verticalspread.asp

[6] Tampa Bay Times, *How Tampa's James Cordier went from high roller to YouTube apology after losing $150 million.* https://www.tampabay.com/business/how-tampas-james-cordier-went-from-high-roller-to-youtube-apology-after-losing-150-million-20190206/