Title: How to Estimate the Opening Option Prices Today After the AH Spike
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TA;DR - I own options, many that are now ITM - This post describes how to estimate the price changes in those options when the casino opens on 1/7/22 and how I plan on managing that position.

I. INTRO

I'm not a financial advisor, this is not financial advice. This post is intended to be educational for those wondering where GME option prices *should* open based on the massive AH price spike. I currently hodl 12 contracts between the ODTE Jan 7 Chain and the Apr 14 2022 Chain between $130-$250. At close on 1/6/22 the contracts were worth \~$4k. Using the Black Scholes pricing model, I anticipate the contracts will be worth \~$25 to $27k based the last AH trade of $162.48. This post will walk through how I calculated the change, and how I personally am managing the new risk and long GME exposure created by these option contracts. For me, I do not have the risk tolerance to keep my option exposure greater than 10% of the value of my GME shares, and prefer to keep it closer to 3-5%. I will explain how I intend to trade this position once the market opens for educational purposes for those interested in seeing how one ■ is doing real time risk management.

II. Background - Black Scholes, the Greeks and Estimating Option Price Changes

The Greeks of Interest -

* DELTA - Expected change in the value of an option based on a $1 move in the underlying
* GAMMA - Expected change in the value of DELTA based on a $1 move in the underlying
* VEGA - Expected change in the value of an option based on a 1% move in volatility
* THETA - Time decay - Expected loss in value of an option each day

Implied Volatility - IV - Implied change in underlying price based on Black Scholes (BS) model. IV determines option prices and correlates to realized volatility. Realized Vol and IV do not need to be equal.

To roughly estimate option price changes with changes in the underlying stonk, you can use a combination of the Greeks above, IV and realized volatility as follows -

PARAMETERS

* $(s) - Expected Stonk Price Change = \[Expected Stonk Price - Last Stonk Price \]
* $(o) - Option Price Change based on $(s) and BS Model
* D - Delta
* G - Gamma
* V - Vega
* Vol(d) = Change in Volatility (i.e. 20% vol to 25% vol = 5)
* T - Theta

THE MAFFS

$(o) = { $(s) * [D + (2*G)] + (V * Vol(d) * 100) - T }

**Note - Vol is in percentage and needs to be multiplied by 100 for pricing impacts via Vega. Also, Both D and G are based on a $1 change in the underlying stonk, and the future Delta value is derived from the Gamma value. Since derivatives are involved, calculus is needed to find the expected option price change based on the underlying stonk change. Here's a quick Calc I refresher to see why G is multiplied by 2 -

[For \[2*G\] term in Maffs above, reference Integral of 2x is x\^2](https://preview.redd.it/6yfqajoo99a81.png?width=552&format;=png&auto;=webp&s;=07eb7b775a8a5fc33c05b0209e0c4b836505ce49)

III. Using the Maff

At close on 1/6/22 I held 12 option contracts as follows -

[12 Contracts: 6 - 0dte's, 4 -1\/21\/22, 1 - 2\/18\/22, 1 - 4\/14\/22](https://preview.redd.it/zx94qifu99a81.png?width=275&format;=png&auto;=webp&s;=2ec962a5c15e79ae9799ddadf008a06a09992447)

Utilizing the Hoadley Excel Add-In, I first modeled historic volatility to estimate IV changes in the Jan options based on the last AH price of $162.48 -

[Realized Vol Expected to Increase by 113% @ GME = $162.48](https://preview.redd.it/meiygjfx99a81.png?width=1072&format;=png&auto;=webp&s;=7b3e20c822c8718f45396bd7f489f59ce32c98bf)

For the longer dated options, I manually calculated the realized 30-day vol (see [A Simplex Situation - section iv](https://www.reddit.com/r/Superstonk/comments/qw5441/a_simplex_situation_the_drs_impact_is_real_but/) for more details), and a 1 day jump in price from $131.03 to $162.48 would cause the realized 30 day annualized volatility on GME to jump 20 points from 89% to 109%.

For the parameter Vol(d), I used the Hoadley modeled vol change of 113% for Jan options, and my own calculated 30 day vol of 20% for the Feb and Apr options.

Using the Hoadley option pricing and implied volatility functions , I obtained the greek parameters and here are the results for a $31.45 price increase (i.e. GME from 131.03 to $162.48) -

[Hoadley Estimate v Rough Maff Estimate - \~$25-$27k = $20k+ Gain](https://preview.redd.it/k94ibuw0a9a81.png?width=2510&format;=png&auto;=webp&s;=f1c745a0a10ca45f71d9bd5392ffb85a1909918e)

Rough Calculation Formulas by Column -

* AB ; Delta = $31.45 * M (Change*Delta)
* AC ; Gamma = $31.45 * N (Change*Gamma)
* AD ; IV Change = Jan Hoadley Model (235% - 122%) ; Feb/Apr = Calculated 30 day avg Vol change
* AE ; Vega = AD * 100 * O (IV Change * 100 * Vega)
* AF ; Manual Cal = L + AB + (AC*2) + AE - P ----> See Maffs Eq above for reference

IV. Price Change is ESTIMATED - Results may Vary

I included both the estimated change in prices from the Hoadley Add-In along with my own rough calculations to show an expected range for the various options I own. These prices ultimately will be

determined by the market and what IV values get assigned, but this is at least a good starting point once the casino opens on 1/7. Typically, option are more illiquid right at market open, so I will lean on the modeled values to help guide my decisions early on. If prices are well below the modeled price because the MM's are full of ■, I'll wait for better prices, or perhaps even add more to my position. I do plan on cashing in on some of these contracts tomorrow, just not at a discount to fair value. So here's my plan tomorrow -

V. The Trade

After a year of buying and hodling GME and dabbling in options trades in an attempt to gain more shares to DRS, I expect fuckery everyday. However, I expect next level fuckery on 1/7/22 because the MM's, mainly ~~Shitadel~~ ■a■, are extremely offsides with their option exposure heading into a Friday expiry. They R FUKd, and they need to cover millions of shares based on the options OI and the plethora of newly ITM calls. Check out the recent posts by [u/yelyah2](https://www.reddit.com/u/yelyah2/) and [u/bobsmith808](https://www.reddit.com/u/bobsmith808/) if you want more background.

I plan to make the following moves -

1. Beyond the 12 calls, I currently have 200 shares in my brokerage (the rest are DRS'd). I was planning on DRSing most of this position soon, but now I have a new plan to cause max pain to the shorts. Premarket, I will sell 200 shares. This should net around $32k. With that new cash, I will exercise the 1/7/22 130 and 135 calls at a cost of $26.5k. I will DRS those shares next week, and plan on using those tendies for a long overdue weekend getaway with my fam.
2. I plan on hodling the Jan 21, 2022, Feb and Apr calls
3. Watch Key Fib Levels - 160, 175, 190, 212 - Targeting sales of the remaining 4 0dtes around these levels, with stops between 150-160. If the price tanks down to those levels, I will exit the 0dte's and likely roll into more Feb-Apr contracts. If prices go beyond 175, 190, and 212, those levels will become new stops, with further upward targets around 230 being areas of interest.
4. Ultimately, I want to get my option exposure back down below 10% of my shares. If I need to trim any more positions before Friday's close, it will likely be the Jan 21 220 and 250 calls that are first to go. I've had these for about a month, and theta has eaten about 80% of the value away. Kenny gifted me the $135 and $155 Jan 21 calls when GME was in the $120's, and I want to exercise those gifts, so need to get my $ right first.

VI. Final Thoughts

Options are not for everyone. They are volatile, risky, and with GME especially subject to fuckery. They also can 5x your investment overnight. 90% of my option purchases expire worthless. I sucks going through extended drawdowns, but it's part of my strategy, and I am comfortable with the risk. While 90% of those trades end up at 0, it's days like today that more than make up for the losses when risk is properly managed. Nothing in this post is financial advice, 90% of my trades lose money, but I hope this helps some of you with a real time example of how one ■ manages risk.

Please leave questions in the comments if you have them, and critique any errors I may have in the post. I hope this helps continue to generate healthy discussion in the community in regards to options and how they can be effective when the risk is managed properly. NFA, again, but don't YOLO into weeklies - If you do, it almost guarantee's MOASS starts the Monday after your calls expired. GLTA. DRS is the Best. Shorts R Fukd. See you all on the moon soon!

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