Title: Welcome to the Options Casino aka Wendy's - Cashing-Up Options with Strikes for 01/21 and 02/28. Option Buyers lost at least $81m for which at least 720k shares could have been bought. This post shows data for Apes to question, since data about options is hard to get.
Author: beyond-mythos
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Ladies, Gentlemen, Apes and shf interns,

Welcome to the Options Casino aka Wendy's.

Please start with the disclaimer: **this is not financial advice. I am retarded. I only eat black and red crayons. All data is only a sample and incomplete, since not all Strike Prices and only daily data were analyzed. Furthermore, this post shouldn't discourage or encourage you from buying options rather help to understand past trades and also encourage finding the right questions about option trading in the future.**

TL;DR: **Option Buyers lost at least $81m for which at least 720k shares could have been bought. This post shows data for Apes to question, since data about options is hard to get. The analysis of the data showed that Options Buyers for those two strikes lost at least $81m while investing at least $97m. So roughly 83% of the invested money was lost. To get the complete picture ALL strike prices should be analyzed.**

Questions this post tries to answer:

1. **How did call options for 01/21 and 02/28 turn out for option maker and option buyer (per strike)?**
2. **In what timeframes call options could have been bought turning a profit?**
3. **Did the positive options sentiment in November have an impact on OI change for the analyzed Strike Date 01/21?**
4. **How many shares could have been bought instead of the option contracts?**

Feel free to add any question in the comments. Also, I would be happy if someone wants to verify the data or could even add (e.g. level 2 data).

How I arrived at the data:

* Source: iexcloud.com
* I chose two option strike dates 01/21 and 02/28 as those had pretty high OI (184,726 being roughly 18m GME shares and 107,981 roughly 11m GME shares).
* I chose the strike prices with the highest OI (see below) and got the **daily** data for each strike price leading to roughly 4,500 data sets.
* This data represents 67% and 58% respectively of total OI at Expiry.
* Since I only got daily data I calculated the option cost with an average options price ((high – low)/2 * change in option OI). I neglected options volume since I only wanted to know the value between option buyer and option maker.
* I added up all the daily costs to Call Buyer Costs (till Expiry). Those costs can be negative, since OI could have been reduced at a loss for Option Makers (buy back or early execution).
* The Call Buyer Profit is than the value of the remaining Options at Expiry minus the Call Buyer Costs.
* As you will see, also strike prices being OTM led in rare cases to an overall profit for the Options Buyers due to probably Options Maker buying back at a loss before expiry.

Declaration:

* OI at Expiry: the remaining OI at the end of the expiry day. Could have been executed, turned into a cash profit last second or expired worthless.
* Call Buyer Profit: This is the total Call Buyer Profit or loss if negative, meaning the value of OI at Expiry minus Call Buyer Costs.
* Call Buyer Costs: Total Costs for the Options Buyer derived from daily trades. As mentioned above Call Buyer Costs can be negative if Option Maker bought back options at a loss for them.

For orientation and since I just couldn't overlay the graphs, here is a graph of Daily GME $ Price where day to day was +/-10%: https://imgur.com/DSynOfG

1) How did call options for 01/21 and 02/28 turn out for option maker and option buyer (per strike)? (Bold -> Overall Profit for Option Buyers)

Strike price / Strike date	Jan 21	01/21 (GME Close $106.36)	Jan 21	Feb 18	02/18 (GME Close $121.53)	Feb 18
	OI at Expiry	Call Buyer Profit (Value at Expiry minus Costs)	Call Buyer Costs (till Expiry)	OI at Expiry	Call Buyer Profit (Value at Expiry minus Costs)	Call Buyer Costs (till Expiry)
15	57	**$ 56,279,094.00**	$ -55,777,494.00			
60	1,897	**$ 39,493,660.50**	$ -30,706,756.50			
80				653	**$ 625,358.00**	$ 791,652.00
90				945	**$ 1,783,602.00**	$ 1,338,678.00
100	4	**$ 101,946.50**	$ -99,354.50	653	**$ 625,358.00**	$ 791,652.00
120				2,192	$ -2,353,380.50	$ 2,736,980.50
130				2,510	$ -2,028,793.00	$ 2,031,303.00
140	1,711	$ -2,667,674.00	$ 2,669,385.00			
150	4,968	**$ 2,760,201.50**	$ -2,755,233.50	5,565	$ -5,470,518.50	$ 5,476,083.50
160				3,708	$ -4,270,876.50	$ 4,274,584.50
180				6,535	$ -3,826,646.50	$ 3,833,181.50
200	6,528	$ -2,298,626.00	$ 2,305,154.00	12,412	$ -10,150,500.00	$ 10,162,912.00
220	4,367	$ -8,715,203.00	$ 8,719,570.00	4,494	$ -4,713,066.00	$ 4,717,560.00
250	4,222	$ -7,724,738.00	$ 7,728,960.00	4,827	$ -7,570,726.50	$ 7,575,553.50
300	5,926	$-18,980,973.00	$ 18,986,899.00	3,711	$ -5,546,849.50	$ 5,550,560.50
350	4,936	$ -8,334,917.00	$ 8,339,853.00			
400	3,991	$-20,398,260.00	$ 20,402,251.00			
500	5,435	$ -8,957,602.00	$ 8,963,037.00			
510			$ 4,159,502.50	14,729	$ -2,879,093.50	$ 2,893,822.50
600	3,672	$ -4,155,830.50	$ 12,909,470.50			
700	3,854	$-12,905,616.50	$ 3,785,205.00			
800	8,401	$ -3,776,804.00	$ 8,446,932.50			
900	4,879	$ -8,442,053.50	$ 26,660,246.00			
950	58,002	$ -26,602,244.00	$ 2,305,154.00			
	122,850 (67% of total OI at Expiry)	$ -35,325,639.00	$ 44,737,627.00	62,934 (58% of total OI at Expiry)	$ -45,776,132.50	$ 52,174,523.50

Costs can be negative if Option Maker bought back their options (reduced OI) at a loss for them. Therefore 01/21 $150 turned a profit for Call Buyers overall even if ending OTM.

2) In what timeframes call options could have been bought turning a profit? (Graphs do not include the value at the actual strike date)

* Profit / Cost over time for Strike Date 1/21 - Prices $15-150:

https://imgur.com/g8Mb69l
* Zooming into June one can see that no $150 contract was sold at the top (Jun 8) while many were sold or executed Jun 4 and Jun 9. On Jun 18 some bought more of this contract:
https://imgur.com/ZuQOTZX
* Profit / Cost over time for Strike Date 1/21 - Prices $200-950:
https://imgur.com/knmgBXp
* Comparing those to the Strikes below 200 one can see that Option Buyers put a lot more money in the 200 and higher prices, but were only able to turn a profit for 200 and 250 Strikes in March and June. Zooming in into those months one can see huge trades on the peak of March 10 and the run up in early June: https://imgur.com/7Vn2ele
* Profit / Cost over time for Strike Date 2/18 - Prices $80-100:
https://imgur.com/vGBQaTb
* As one can see when compared to the table 1) most profits were made at the strike price. Still some executed or sold the two days prior expiry.
* Profit / Cost over time for Strike Date 2/18 - Prices $120-510:
https://imgur.com/F8ilDXT
* No luck for those with Strikes above 120. Some tried to minimize losses at Jan 26.

3) Did the positive options sentiment in November have an impact on OI change for the analyzed Strike Date 01/21?

* Actually, it's not that clear. When looking at the graph "Profit / Cost over time for Strike Date 1/21 - Prices $200-950" November had the biggest investment since the run-up in June while the run-up in Nov was comparably small. However, other factors could have played a role, like time to expiry.
* Just fyi: Daily data for October to December for this Strike Date:
https://imgur.com/IZ2MspU

4) How many shares could have been bought instead of the option contracts?

* For the data analyzed there could have been bought **722,845** shares . As not all Strike Prices were analyzed one can assume that more shares could have been bought, thus at least 722k shares could have been bought instead of options.
This assuming the daily change in OI and thus the change in cost or profit would have been invested or divested with the daily average share price at the date of the options trade. Finally, the value at expiry is subtracted.

That's it Apes. Hope it'll help in understanding option trades and gaining some wrinkles.

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