

Title: Explanation for Missing Volume on May 5th

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MAJOR EDIT 2: MISSING VOLUME MYSTERY SOLVED. Huge credit to /u/MarketMicrostructure as we discussed and compared data for the better part of 45 minutes. Here's the breakdown. Unfortunately since we solved the issue for this, I don't really want to include a TLDR for this. Please read it, it was a lot of work.

So the system reset by the CTA on May 5th to the CTS and CQS to repair Tape B actually resulted in them losing ALL OF THE TRADE DATA ON TAPE A before the reset. For GME, this amounts to slightly more than 1 million shares and is included in the NYSE TAQ data (total volume of around 2.89 million shares for May 5th) and would have been included by the brokers as the day went on. This accounts for the fact that many different securities were hit as well.

However because Tape A lost 1 million shares of data, then at the end of the day the data sent out to brokerages was significantly different than the amounts they were expecting, so they "adjusted" their data to be consistent with the Tape, even though the NYSE had processed around 2.89 million shares on May 5th. **The value of 2.89 million shares is the CORRECT VOLUME of trades for the day of May 5th, however the volume of 1.789 million shares that was reported by many brokers reflects the fact that the CTS Tape A lost data.**

It is also confirmed that neither the NYSE nor FINRA corrected or cancelled any error trades to GME on May 5th. The message from CTA is a bit misleading because it implies that they didn't process trade cancels/errors, but they COULDN'T process any of those requests BECAUSE THEY LOST THE DATA. There may or may not have been any requests to cancel or fix errors.

I have preserved the original post and edits below, but it IS NOT COMPLETELY CORRECT. **Volume did go missing that day, but not for the reason I originally thought and wrote about in the post.** My errors are my own and my errors can be publicly preserved for all to see!

MAJOR EDIT: Wanted to issue a loud HOLD UP. I may need to revise this, have access to some new data courtesy of /u/MarketMicrostructure that is contradicting some data from the CTA error reports. Currently having discussions. I'll put his comment here.

"Thanks. I pulled down the NYSE TAQ files for those dates. These are processed daily from the trades and quotes on the SIP feeds. They contain some fields with useful information for anyone warehousing historical data and who needs to reconstruct an accurate picture of the market for that day.

From the spec, on page 19, the Trade Correction Indicator would have this sort of information:

00 = Regular trade which was not corrected, changed or signified as cancel or error.

01 = Original trade which was late corrected (This record contains the original time - HHMM and the corrected data for the trade).

07 = Original trade which was later marked as erroneous

08 = Original trade which was later cancelled

10 = Cancel record (This record follows '08' records)

11 = Error record (This record follows '07' records)

12 = Correction record (This record follows '01' records and contains the correction time and the original "incorrect" data). The final correction will be published. Unfortunately there's no record of any corrections being made to GME last week. This looks like a bug specific to whatever broker was handling the data."

End of his Comment and Major Edit

****Original Post Starts Now.****

Last week I wrote a post ([Citadel's Clear Error](https://www.reddit.com/r/Superstonk/comments/n7ap6e/citadels_clear_error/)) on "clearly erroneous executions" (CEE's) being the likely cause of volume removal from GME for a few days last week. I also made the case for this likely being done by the NYSE to remove foul play at the hands of Citadel given their special role at the NYSE. ****Now there is more volume disappearing this week. I wonder why....****

There are two pieces of context you need (partially written about in that post) for this one.

1. All transaction and quoting information for all stocks traded on exchanges (including dark pools) in the US are recorded using two SIPs (Securities Information Processors) called the CQS and CTS. There are three tapes here that record information, Tape A, Tape B and Tape C. (original names right?)

2. CEE's can be nullified if the parties involved in the trade agree to nullify things OR the exchange/a regulatory body can override the trade. I suspected it was the NYSE that overrode trades which resulted in missing volume for GME. Turns out it also could have been FINRA. Apparently this is one of the areas where FINRA can actually DO SOMETHING instead of the SEC. So who was it? Either the NYSE itself or FINRA. ([more info on FINRA and CEE's](https://www.finra.org/rules-guidance/rulebooks/finra-rules/11892)) and ([even more info on FINRA and CEE's](https://www.finra.org/rules-guidance/rulebooks/finra-rules/11893))

****TLDR - I believe I have proven that volume did go missing on May 5th and that the volume is missing because of cancelled trades. I have also looked at WHY Citadel would engage in clearly erroneous executions.****

Proof of these missing volumes is in the report on an error in Tape B that occurred on May 5th that caused a reset of CQS and CTS. If you examine those Excel sheets, FINRA and CHX (Chicago Exchange) cancelled a ton of trades that day.

You can go grab the data I looked through from

https://share.theice.com/fl/tM1LomwQn6 and access it with the password: CTA_May_5th

But GME was not included under the cancelled trades in that data. Well, GME is actually on Tape A and the cancelled trades were on Tape B. Evidence for this is included in Citadel's Clear Error as [I downloaded data from the NYSE retail liquidity program from April 26-30 and GME clearly appears on Tape A](https://www.nyse.com/publicdocs/nyse/NYSE_Group_RLP.xlsx). (that's the link to the NYSE excel sheet found on [this page](https://www.nyse.com/markets/liquidity-programs)).

****For May 5th, the reported GME volume from Yahoo Finance of 1.789 million shares is confirmed in the documents from the Consolidated Tape Association (CTA) for that day.**** I suspect that if we could access the data for the other days, the negative volumes/removed trades would be confirmed for the other days as well.

Resetting the CQS and CTS could have affected Tape A. The group that owns these (the CTA) hasn't published anything indicating that Tape A was affected by the error.

But if you look through the alerts from the CTA

(https://www.ctaplan.com/alerts#110000353886), you will see that they recorded the cause of this failure as a software defect and the following nugget.

"Following the CTS/CQS restart, retransmission requests for CTS and CQS messages, as well as "trade cancels, corrections, and errors submissions" for trades processed on CTS ****prior to**** 11:26:56 AM ET, were not processed" (this is for May 5th). [I remember seeing a post with the data for this that confirmed the amount of transactions for this date, before this time was around 1 million shares for GME](https://www.reddit.com/r/Superstonk/comments/n6mo6q/cta_processing_issue_0505_post_mortem_with_trades/)

and the amount is also confirmed in the CTA's Post Mortem files for this alert. This means that any CEE's (trade cancels, corrections and errors submissions) during this period would have not have been accounted for between this time and market open but due to the regulations surrounding CEE's would need to be resolved before the beginning of the next day. ****i.e. After Hours****.

Volume also supposedly disappeared on May 4th and 6th in the after hours for GME. There was also a post today that recorded missing data DURING THE TRADING DAY. I don't have the same level of support for the missing volume being CEE's on these days. ****But I think I've conclusively shown that the missing volume on May 5th resulted from CEE's before the system was reset.**** I suspect these other missing volumes would also be more CEE's but will have to dig deeper to confirm.

****Why submit "Clearly Erroneous Executions"? Let's check some of Citadel's fines.****

[Here's the brokercheck link.](https://files.brokercheck.finra.org/firm/firm_116797.pdf)

****Disclosure 34 of brokercheck****

[Check out this fine.](<https://www.nyse.com/publicdocs/nyse/markets/nyse-arca/disciplinary-actions/2018/Citadel%202016-05-00075%20Decision.pdf>)

This is one of the rare instances I could find where CITADEL ADMITTED IT DID A BAD THING. They submitted a petition to the exchange to nullify an order as clearly erroneous even when they didn't believe it was, as declaring the trade erroneous would have helped their client in this situation. Unfortunately it was only 20,000 for the fine. (LOL THESE FINE AMOUNTS ARE FUCKED).

Also released a software update that "accidentally" ended up spamming the book with orders and cancels.

****Disclosure 35, 36, 37 of brokercheck****

Accidentally sent millions of orders to the exchanges with few or no executions.

****Disclosure 38 of brokercheck****

Market making desk fucked up and "accidentally" transmitted customer orders incorrectly. As well as erroneously "sold short, on a proprietary basis, 2.75 million shares of a stock, causing the price to fall by 77 percent during an 11 minute period". For GME holder's that's gotta sound familiar.

****Disclosure 55 of brokercheck****

Frivolous clearly erroneous transaction complaints.

Many of these disclosures the fine was only levied because they "didn't have risk management procedures" in place to catch these mistakes.

Based on the previous reasons they have been fined for abusing clearly erroneous and the confirmation of the missing volumes seen last week. I can only conclude that this is trades from Citadel clogging things up in the NYSE order book and FINRA/the NYSE have had enough of that. Their clearly erroneous trades would impact the price previously and then be cancelled. [Now that they are being cancelled live, it looks like that's the end of that](https://www.reddit.com/r/Superstonk/comments/n9xju7/volume_just_got_removed_live/). LOOKS LIKE GME IS BACK ON THE MENU BOYS (and girls!).

****So what's causing them to be flagged as erroneous?****

Could be a wide number of reasons. Personally, I'm going to dig into Citadel's history of wash trading (they've been fined a few times for that) so it's plausible this could be a reason the orders are being cancelled.

Tick tock.

THE MISSING VOLUME MYSTERY HAS BEEN SOLVED.