

On Glitches

Odd Lots

By u/dlauer



On Glitches

Discussion

Hey there,

I catch flack a lot (both IRL and here) for referring to buggy market data as "glitches". I'm not complaining, I understand why - these anomalies clearly stand out and rightfully should be noticed - but I wanted to share my perspective on their root cause, and provide some context on them, their importance, and my history fighting this battle.

Am I someone who is too quick to label something a "glitch?" Do I just throw the term around recklessly? Are these serious technology problems that I'm minimizing? Let's see ...



If only there was some way to travel back in time, and find out my long-standing stance on "glitches." Here's, the intro to [my statement](#) on the SEC's Technology Roundtable in 2012:

Introduction

High-profile technology failures are becoming commonplace on Wall St. The terms “bug” and “glitch” have already entered the popular lexicon, but such terms misleadingly minimize and understate the threat to the public posed by such technology failures. Consider just a few recent examples:

- A failure of the market to absorb a large sell order, resulting in the \$1 trillion Flash Crash.
- A failure during the first IPO on an exchange (BATS).
- A failure during the most widely anticipated IPO ever (Facebook).
- A failure during the launch of a brand new NYSE retail market making program (Knight Capital).
- A failure of a UK exchange during the rollout of a brand new trading system.
- A failure to understand, explain or rectify the daily illiquidity contagions in individual securities.

None of these are fairly or accurately referred to as a “glitch” or “bug” and they shouldn’t be talked about or addressed as such.

After many technology incidents over the past two years, by no means starting with the Flash Crash, but certainly that being the most extreme, it is critical that the SEC has convened this roundtable to look to the future of technology and US equity markets. The market is no longer run by people gathered together on the floor of a stock exchange. The “market” is more of a concept, a public good to which exchanges, acting as utilities, provide access. Technology has moved so quickly that most market participants have not been able to keep up.

Even the firms at the technological cutting edge, high-frequency trading firms, have difficulty understanding the ramifications of complex algorithms interacting with each other. The SEC must recognize that solving the problems of market structure, fairness and orderliness are now technology issues, and must confront these issues with technology. I would urge the SEC to uphold the tenets of the most disruptive technology force of our time, the Internet, and focus on openness, transparency and a departure from the proprietary ways that have marked the technology revolution on Wall St. up until now. Every firm on the Technology Roundtable and every technology-centric firm in the industry uses open source software and knows the benefits that the open approach offers.

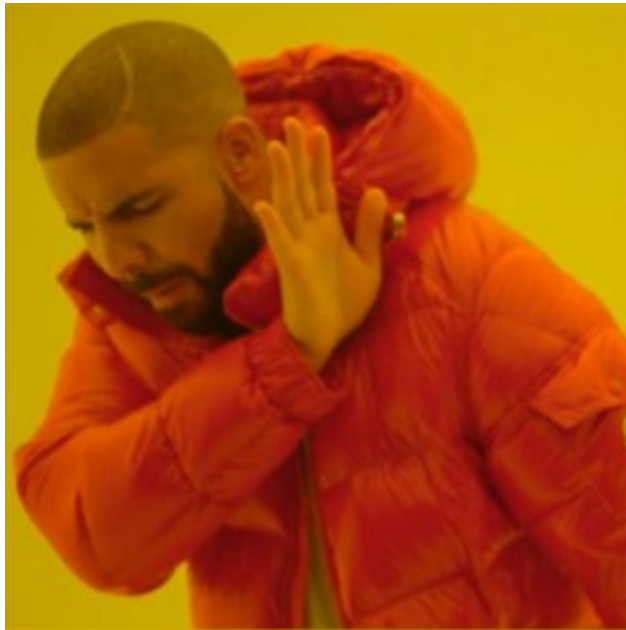
So in black and white from nearly a decade ago ... the [first opportunity](#) I ever had to testify before, and present to the SEC- way back in 2012 - I accused the industry of doing EXACTLY this: Minimizing the import of - and mischaracterizing - technology glitches!

I hadn't thought of these comments in a while which is why I'm sharing them now, but look at the difference between what I label a "glitch" on Reddit (generally speaking, I'm talking about poorly processed market data on broker or data provider platforms, and have never used the term to refer to actual market operations or data dissemination) and what the industry has attempted to label a "glitch" (Knight Capital's \$440M "[glitch](#)" when their software spammed the market, the [failure](#) of BATS to IPO on their own exchange, Nasdaq's [failure](#) to successfully IPO Facebook, etc).

Now, if you're interested in building SOLUTIONS like I am, take a look at my [full statement](#) outlining better tech design and development, and a system I proposed to the SEC in order to monitor trading algorithms and conduct credible

surveillance of market manipulation.

It's terrible that the platforms most retail investors have access to have these kind of display or data processing problems. I believe, however, there's a big difference between serious market infrastructure problems, and poorly designed charting / market data processing systems on websites. But know that when I call something a glitch, what I mean is that either trades that were supposed to be filtered out were not, resulting in the display of trades that look like they occurred outside of the NBBO, or to a market data system that messed up processing data and is showing data out-of-order. There have been times where I've offered to take a look at our raw data to see if we see the same problems in it, and every time I have not seen the same problems. That's how I define a glitch. And they are a persistent and pernicious problem.



**Glitchy
Market Data**



**Data
Smooth
as Silk**

Now, real quick, on to a broader point - when I try to explain how things work, I'm only trying to help focus attention on the real problems, and away from issues that, in my opinion, are either not real issues or are red herrings.

I believe:

- There are serious problems with shorting, short sale marking violations, FTDs piling up or being deferred through warehousing and options trades;
- Payment for order flow and retail internalization are bad for markets - a massive conflict of interest that prevents brokers from getting best execution, and which artificially widens spreads across the entire market;
- Market manipulation exists, I've seen it with layering and spoofing on exchanges when analyzing data in unique and proprietary ways;
- There are conflicts-of-interest nearly EVERYWHERE you look on Wall St....
- I could go on.

I've been fighting to change a lot of this for a while now, and I'm excited that there is such popular interest and attention to all these issues. I also believe that together we can make change happen, and that this movement is in its early stages. As many of you know I am [building something new, something exciting](#) - that I don't want to talk too much about here out of respect for sub rules - but in many respects this project will cure many of the shortcomings I've seen and will help empower apes and all retail investors with accurate, clean, reliable information - which, in my view, is the bedrock for prosperity.

Odd Lots

DD

I've recently seen a lot of confusion around odd lots, so I thought I'd put together a quick post. I'm trying to take some time off right now, so this post won't be as thorough as usual.

Let's make a couple of things clear:

- 1. Odd lot QUOTES are not currently included in the NBBO or on public market data feeds.
- 2. Odd lot TRADES are printed to the tape, just like every other trade.

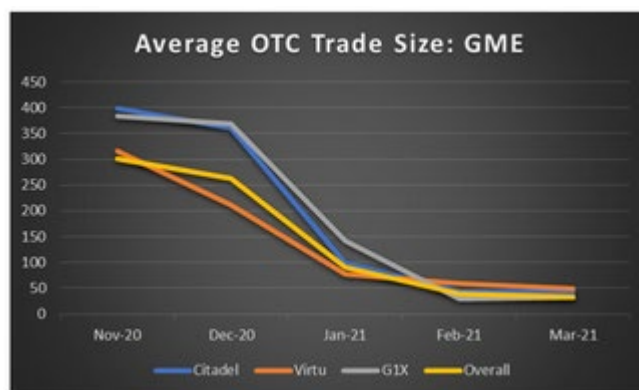
There are [many changes](#) coming with odd lots, they've been a focus of regulation recently, and you can read all about that [here](#). Here are the important odd-lot items:

Examples of Content of Previous vs. New NMS Market Data		
	Previous	New
Last sale data/transaction reports	The price, size and exchange of the last sale of the NMS stock, including odd-lot transactions.	No change.
Best bid and best offer ("BBO")	BBOs for each SRO in round lot sizes (e.g., 100 shares).	BBOs for each SRO in revised round lot sizes based on the new "round lot" definition: <ul style="list-style-type: none">▪ \$250.00 or less per share: round lot = 100 shares;▪ \$250.01 to \$1,000.00 per share: round lot = 40 shares;▪ \$1,000.01 to \$10,000.00 per share: round lot = 10 shares; and▪ \$10,000.01 or more per share: round lot = 1 share.
National best bid and national best offer	NBBO is based on the round lot size quotations.	NBBO will be based on the new round lot size quotations.
Odd-lot quotations	Not included.	Odd-lot quotations at a price greater than or equal to the national best bid (NBB) and less than or equal to the national best offer (NBO), aggregated at each price level at each SRO.
Protected quotations	Protected quotations are in round lots.	Protected quotations will be in new round lots.

When you hear that "odd lots" aren't included in the NBBO, that simply means that the QUOTES (aka resting orders) are not. However, odd lots are still subject to Regulation NMS, which means that during market hours odd lots cannot execute outside of the NBBO. Further, every odd lot TRADE is included in both public (SIP) market data feeds and private exchange feeds. Every odd lot trade impacts the price, however that doesn't mean that these trades impact the price materially. By definition, odd lot trades are small, and therefore a bunch of odd lot trades might add up to a fraction of a round lot, and not move the NBBO when they execute. That doesn't mean they're not impacting the price, it just means they're not impacting it enough to move the NBBO.

Also given that odd lots are small, they are used disproportionately by retail investors/traders. So you will see lots of odd lot trades execute off exchange, because retail trades generally execute off exchange.

In the [follow-up to my AMA](#) 3 months ago, I included this chart which shows how small the average GME trade is OTC - it was under 50 shares at the time:



Therefore the average GME retail trade is an odd lot. All of these trades are still protected by Reg NMS, and must execute within the NBBO. And all of these trades print to the TRF, and so they impact the price.

It's always important to understand the difference between QUOTES (resting orders) and TRADES (actual executions when a buyer and a seller meet). I hope that helps to clear up some of the confusion around odd lots.

