



GameStop, Short Squeezes, and Predatory Trading

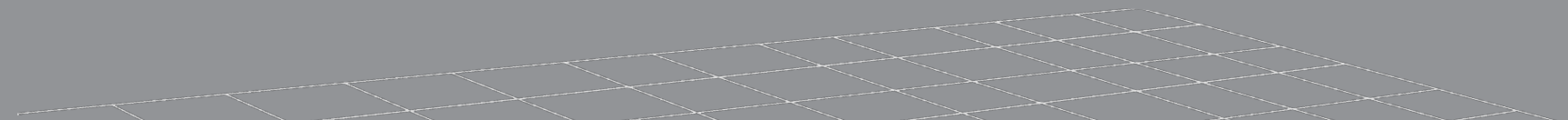
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CBS and AQR

Markus Brunnermeier

Princeton

19. February 2021



Short Squeezes in history

- Special form of predatory trading
 - ... Pump and dump schemes
- "He who sells what isn't his'n, must buy it back or go to pris'n."
(Daniel Drew)
- Historical Examples:
 - 1901 Northern Pacific Railroads
 - 1923 Piggly Wiggly (supermarket)
 - 1980 Silver short squeeze by Hunt brothers
 - 2008 Volkswagen (attempted takeover by Porsche)
- Policy questions:
 - Transparency of short-positions
 - Limit "naked shorts"?

Meme investing

- What's new? "Meme Investing"
use social media platforms to coordinate
- Meme
 - an idea that is passed from one member of society to another, not in the genes but often by people copying it
- Echo chambers phenomenon
 - Learn from other retail investors
 - ... don't realize that news is not a new confirmation but simply traveled back
- Coordination + transparency eases collusion

“Many Davids vs. Goliath” view

- **View 1** – Principle: Eliminate inefficiencies, manipulation, ...
 - Improve market microstructure/plumbing/regulation
- **View 2** – Principle: Fair level playing field
 - Wall Street insiders have unfair advantage (order execution,...)
 - Allow retail investors to collude to “manipulate too”
 - Theory of the second best (fight one inefficiency with another one)
- Robinhood: crowd vs. elite (democratization)
 - take from the rich, give to the poor
 - Let the poor compete with the rich
- But is payment for order flow model fair for retail investors?
 - Buyer of information can front run retail investor
 - Reveal to market maker that it is non-informed trading
- But gamification – exploit behavioral biases

Short interest > 100% ≠ “Naked shorts”

- Shorting (by retail investor)
 - Borrowing the shares from owner/prime broker/custodian against a fee
 - Sell it, say for \$100 (to a new owner who can lend it again)
 - Keep \$100 + margin \$10 in prime brokerage account
- Risks:
 - Margin calls if stock price rises
 - Recall of share by lender of shares
- Shorting by a prime broker? (use other's shares to sell)
 - Margin calls from clearing house
- Naked Shorts?
 - Delay in settlement (one or two days)
 - Short and promise to borrow, but undo short before settlement

Poll Questions

- Who are the predators?
 - a. Short-sellers
 - b. Crowd of small investors
 - c. Clearing house
 - d. WallStreetBet of Reddit
- Should we regulate predatory trading behavior and meme-investing?
 - a. No, it just balances the power w.r.t. hedge funds
 - b. No
 - c. Yes, since it makes markets less efficient
- Will predatory traders win out at the end?
 - a. Yes
 - b. No
- Are speculative excesses around GameStop
 - a. Just the tip of the iceberg?
 - b. An occasional special phenomenon when market is irrational?

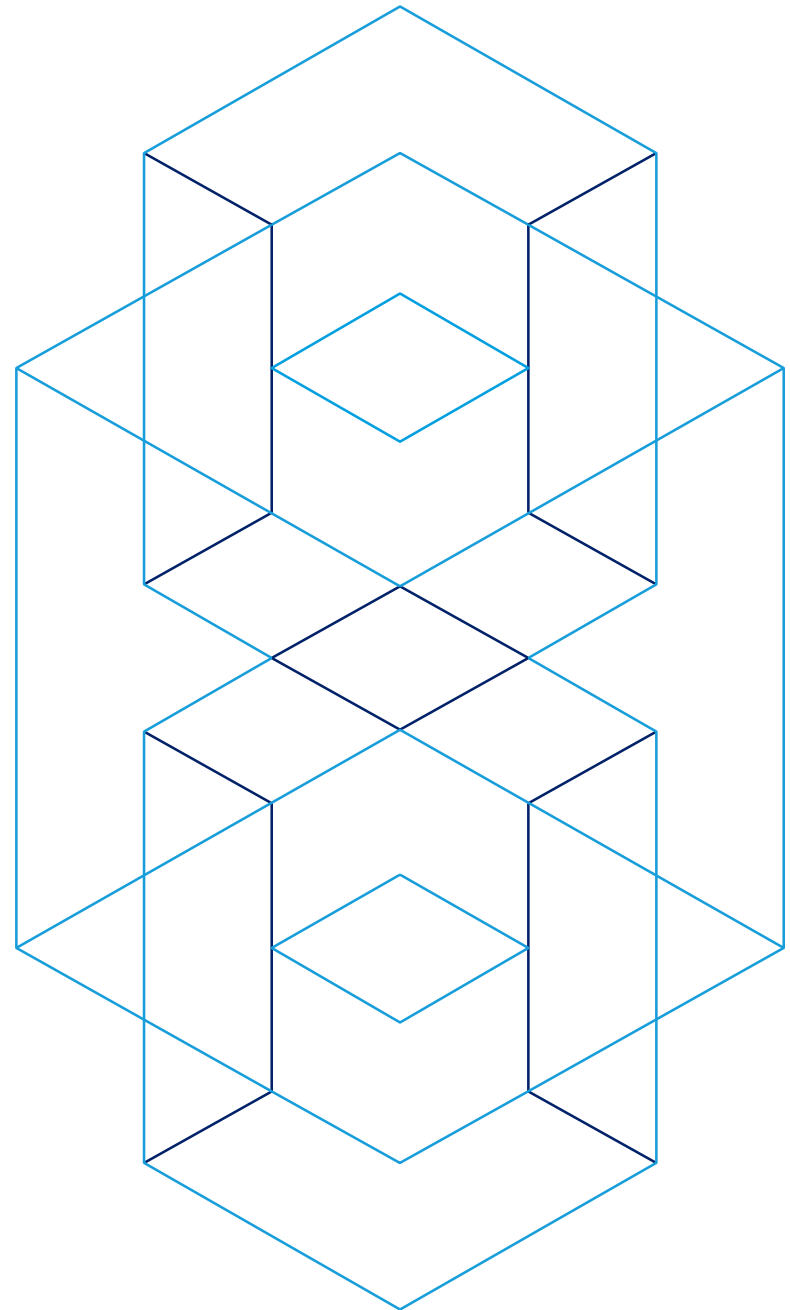
GameStop and Predatory Trading

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School, CEPR

February 19, 2021

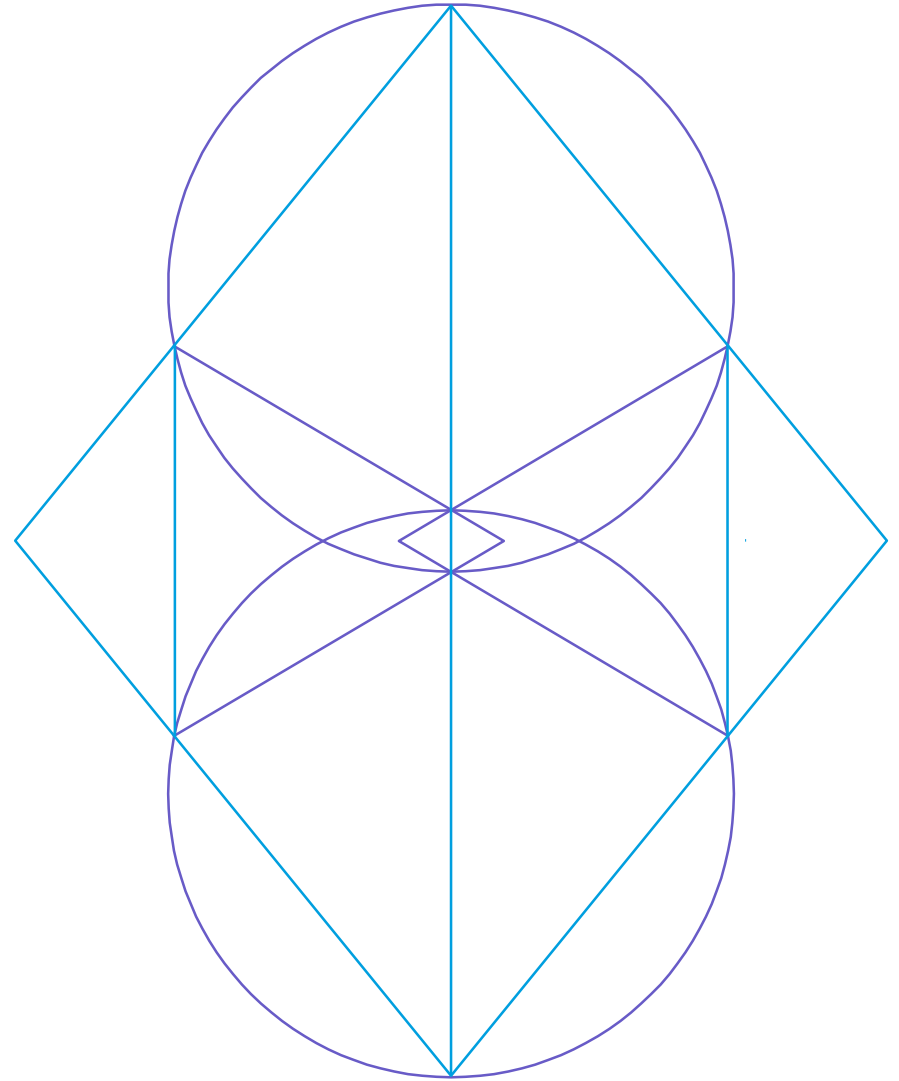
**AQR is a global investment management firm. The views expressed
herein are those of the author, and not necessarily those of AQR.**



Outline of the Talk

- What is predatory trading?
- GameStop: What happened
 - Why did the price rise and why did it fall?
 - Why did Robinhood restrict trading?
 - Why did many short sellers liquidate their positions?
- What do we learn more broadly?

What is Predatory Trading?

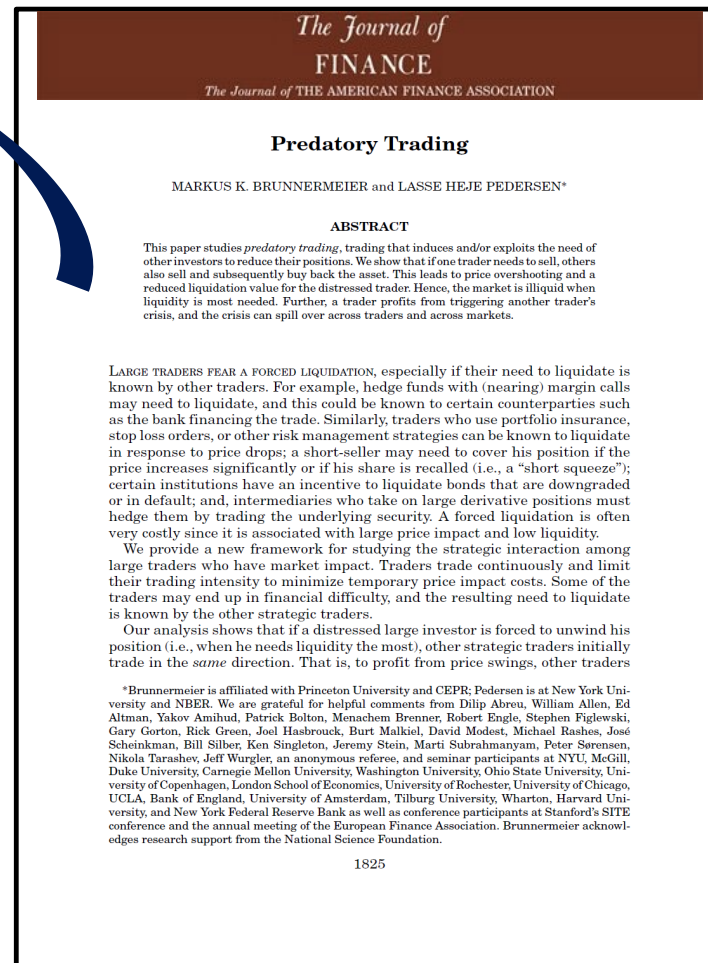


What is Predatory Trading

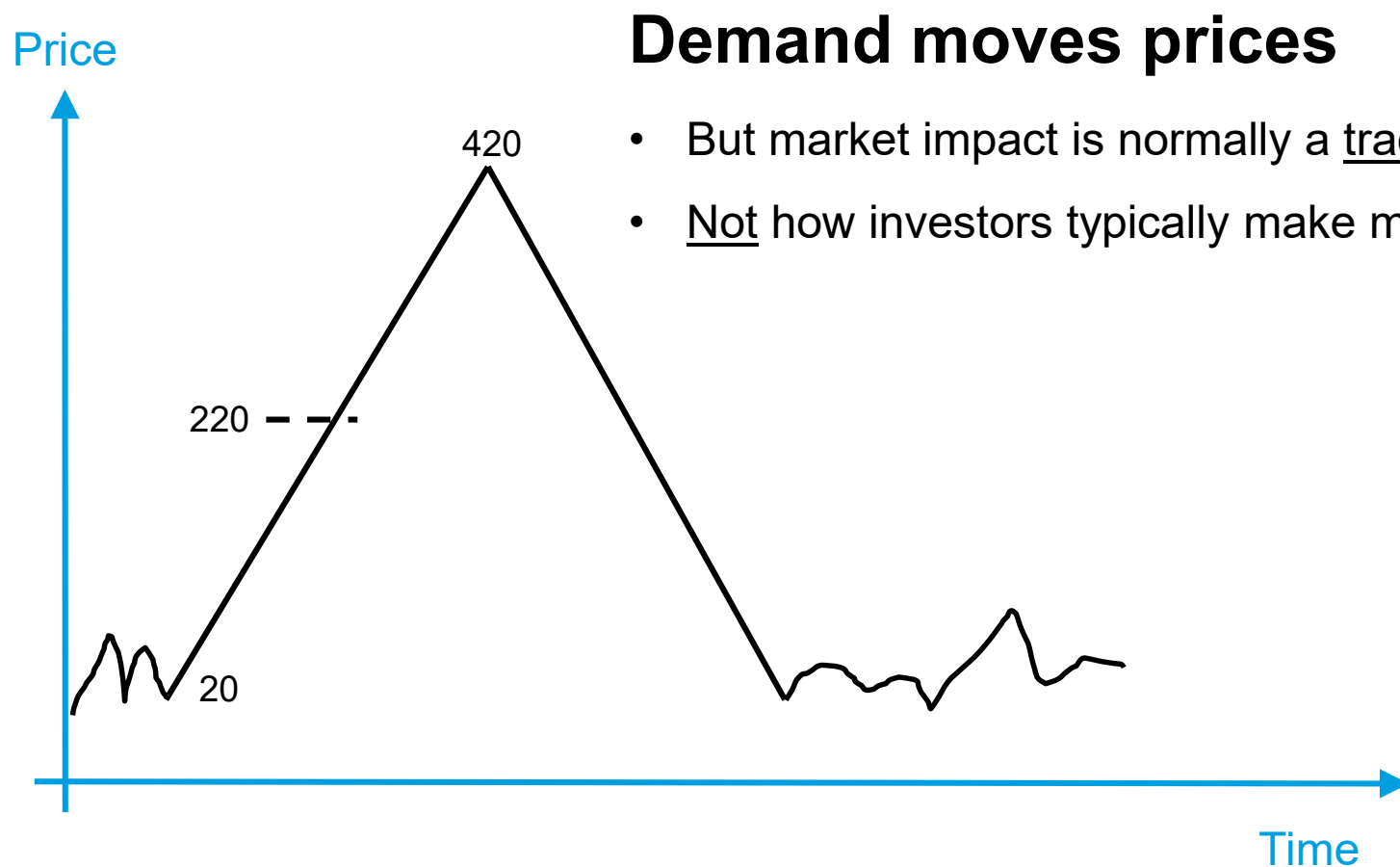
Predatory trading:

- Trading that induces and/or exploits the need of other investors to reduce their positions
- Leads to price overshooting
- Crisis can spill over across traders and across markets

From the abstract

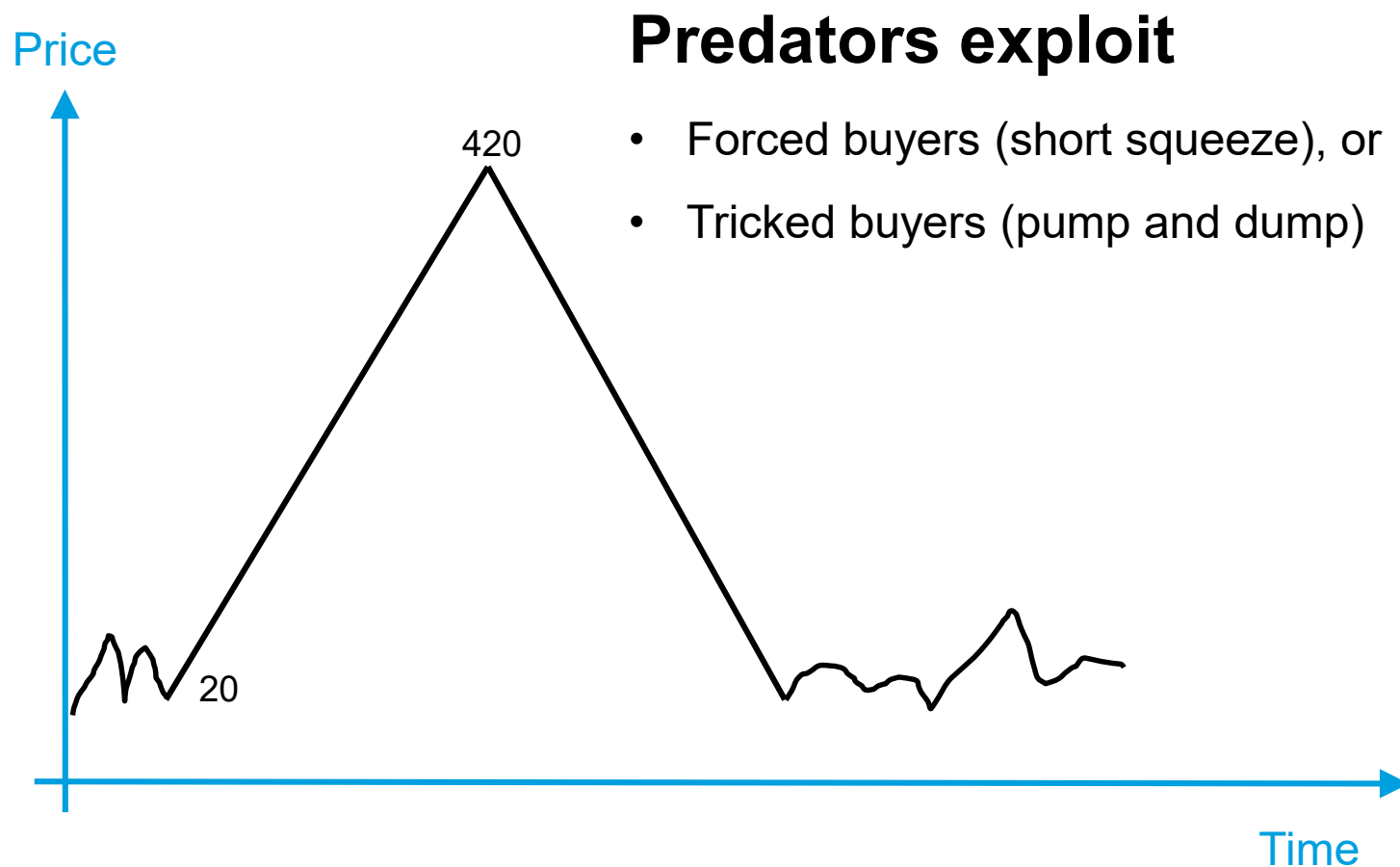


How Predatory Trading Does *Not* Work



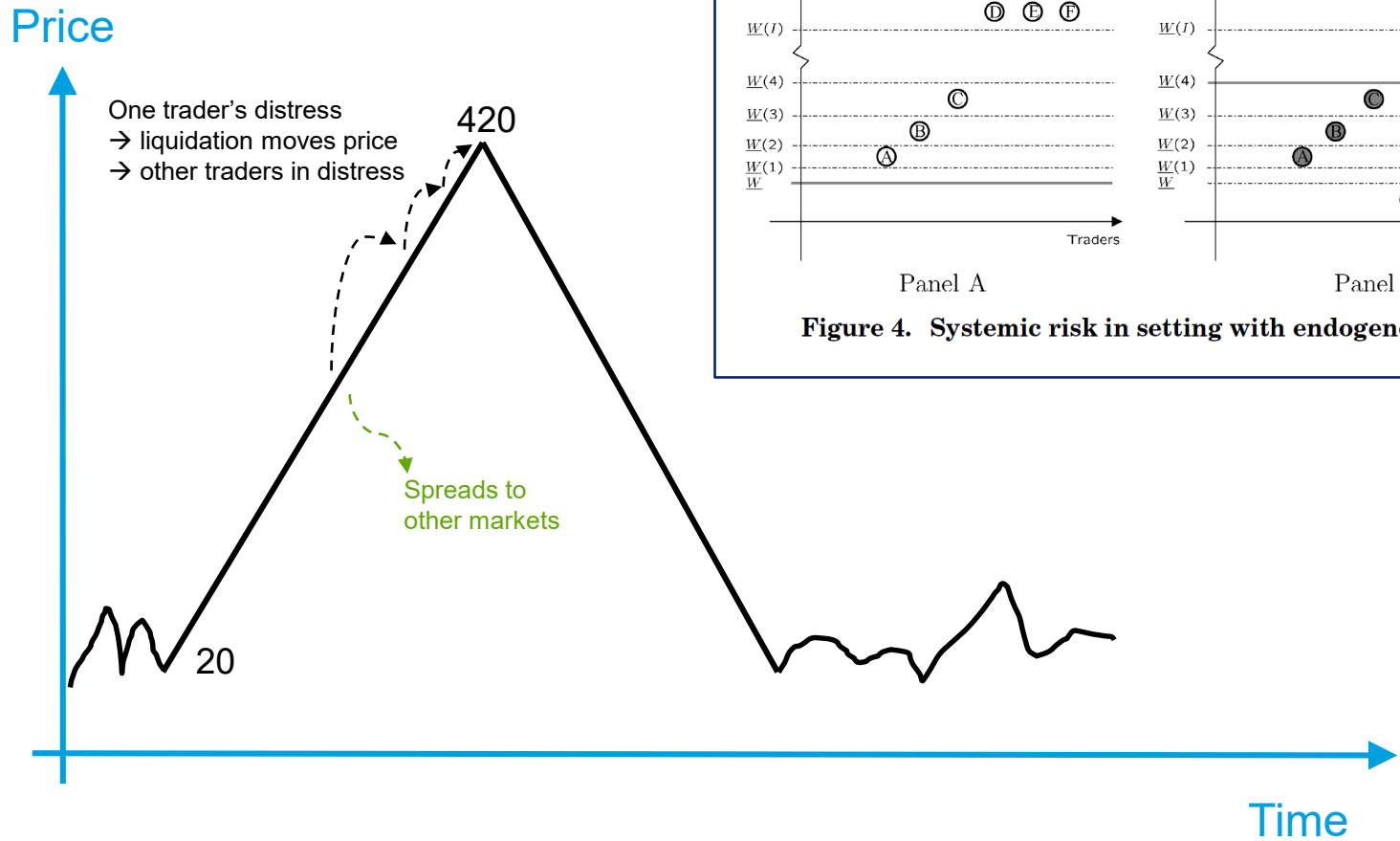
Source: Predatory Trading (Brunnermeier and Pedersen, *The Journal of Finance*). For illustrative purposes only.

How Predatory Trading Works



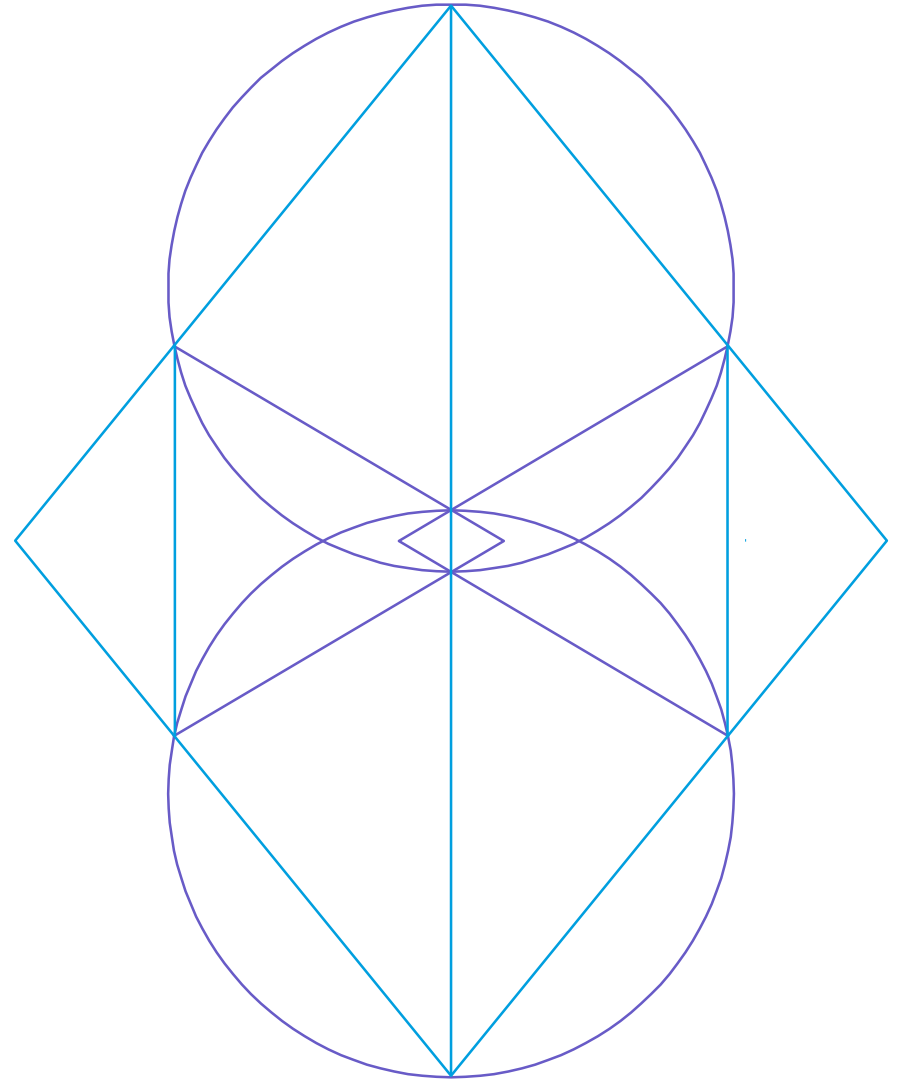
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Predatory Trading: Spillover Effects

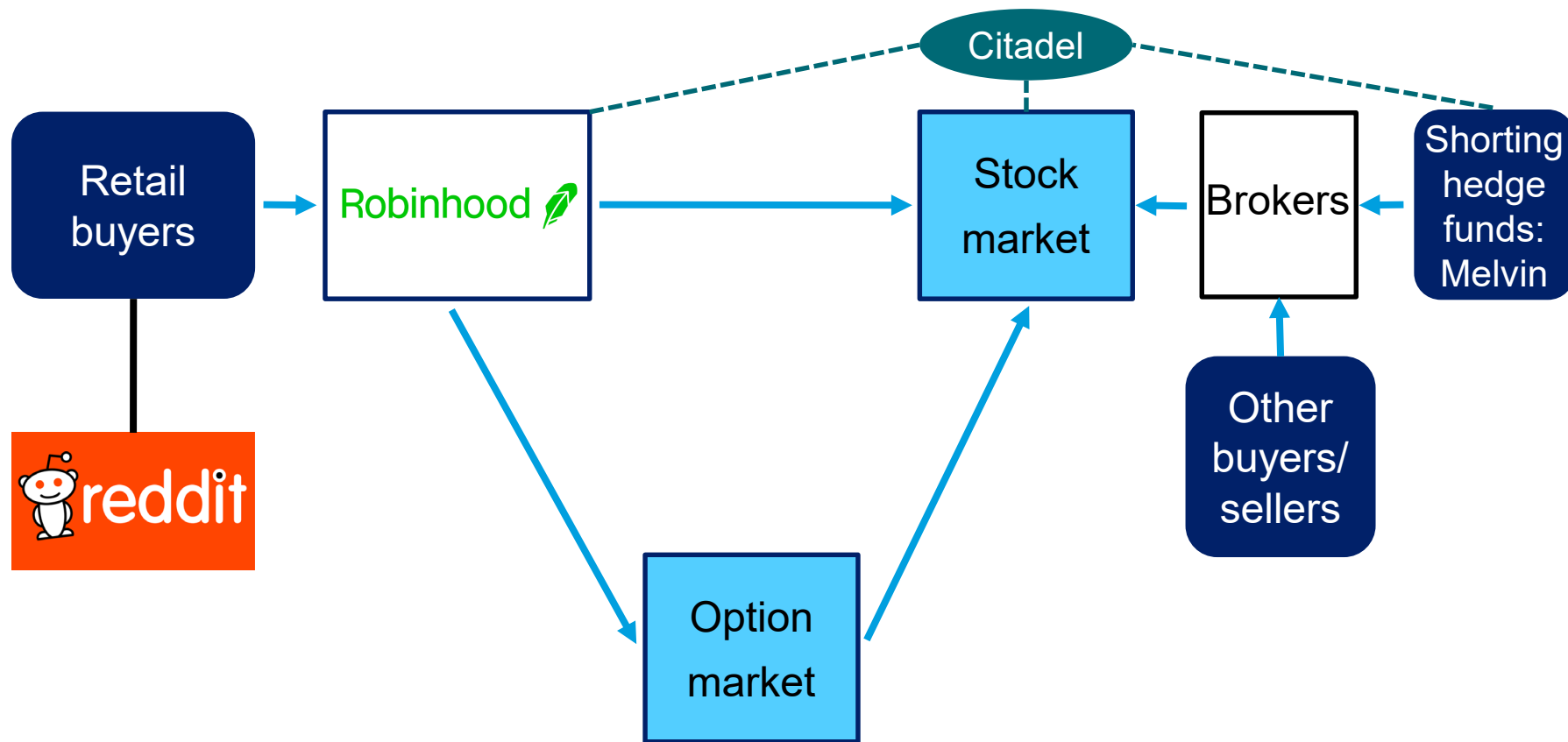


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GameStop: What Happened?

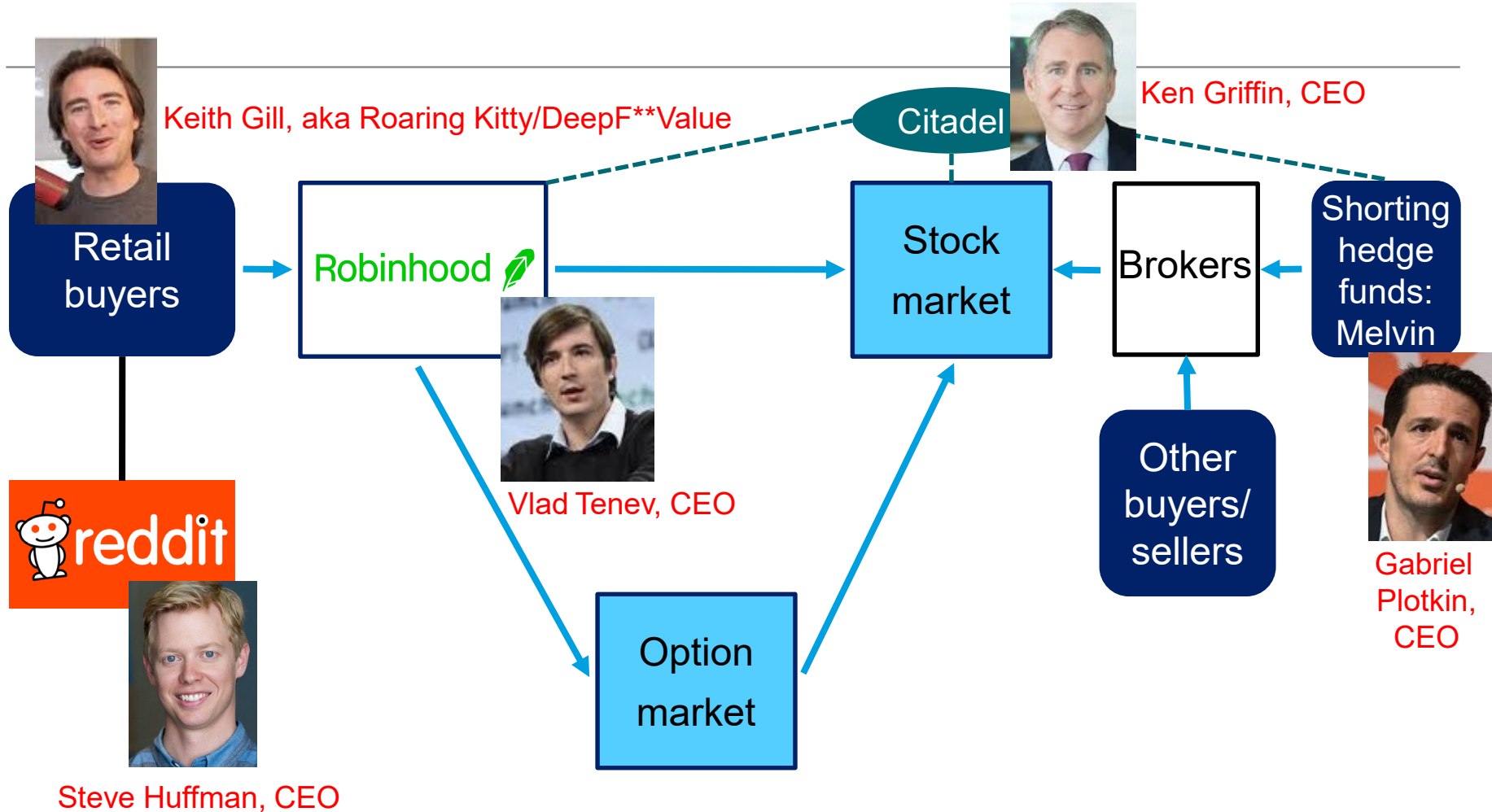


What Happened: Retail Buying and Short Squeeze



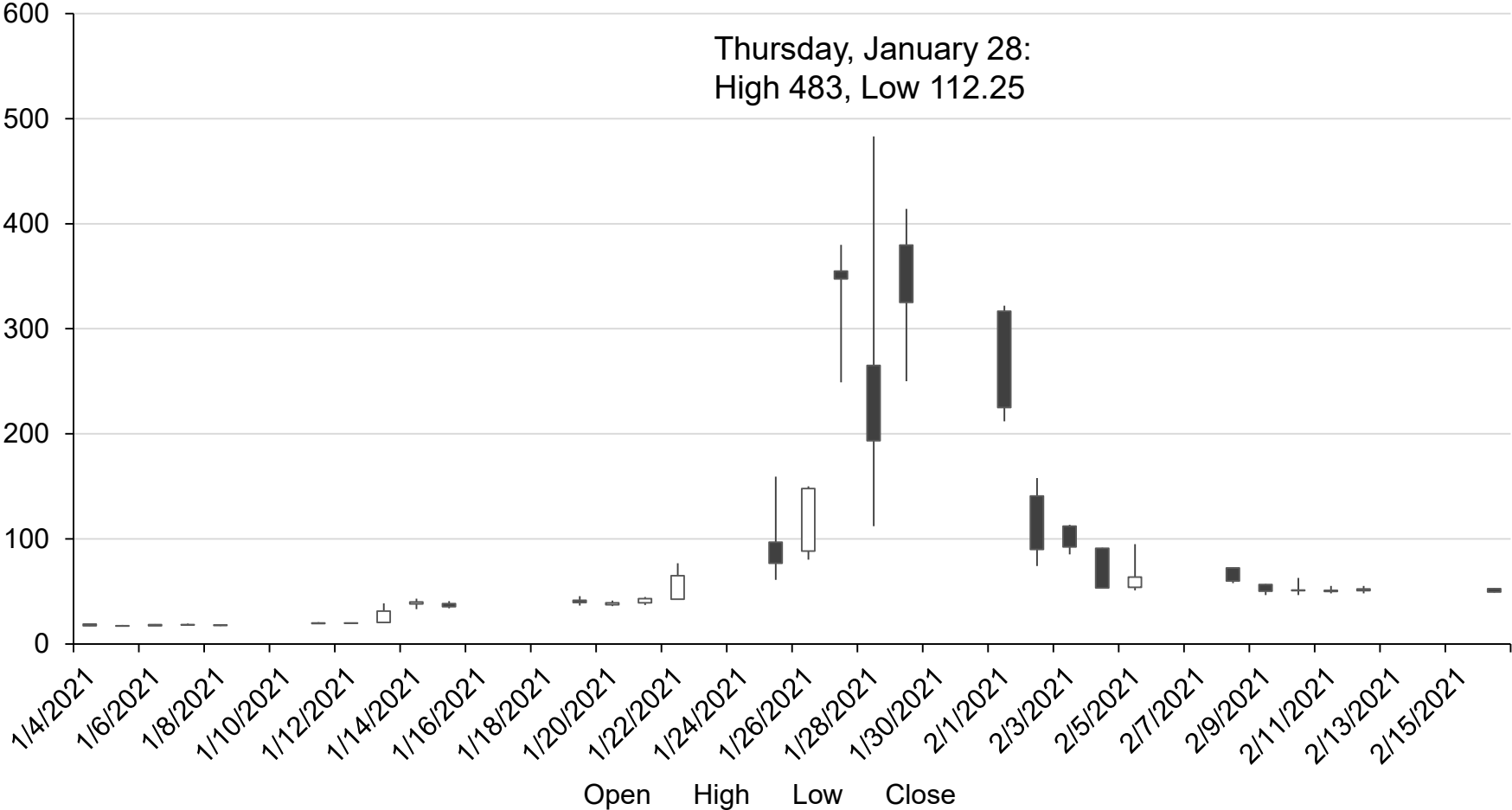
For illustrative purposes only.

Hearing: U.S. House Committee on Financial Services



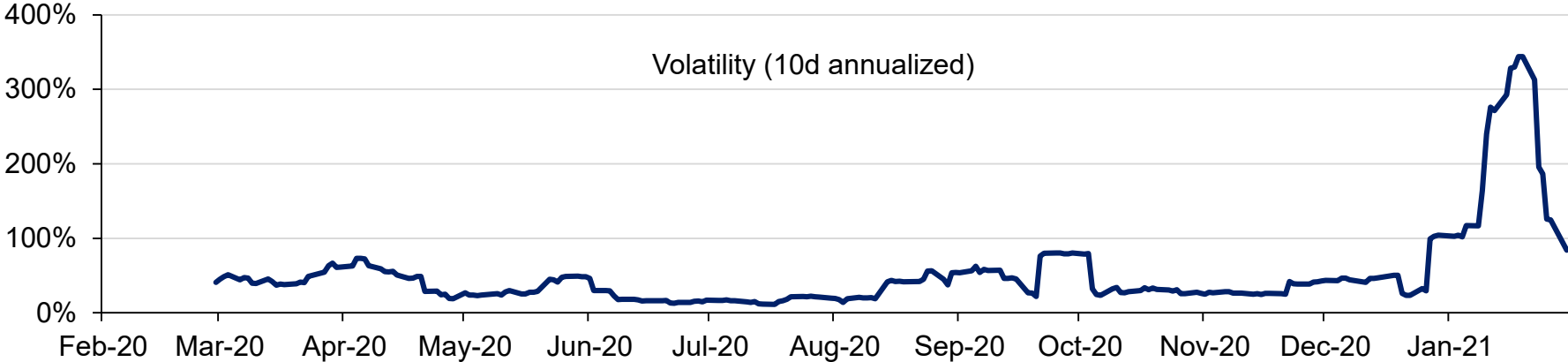
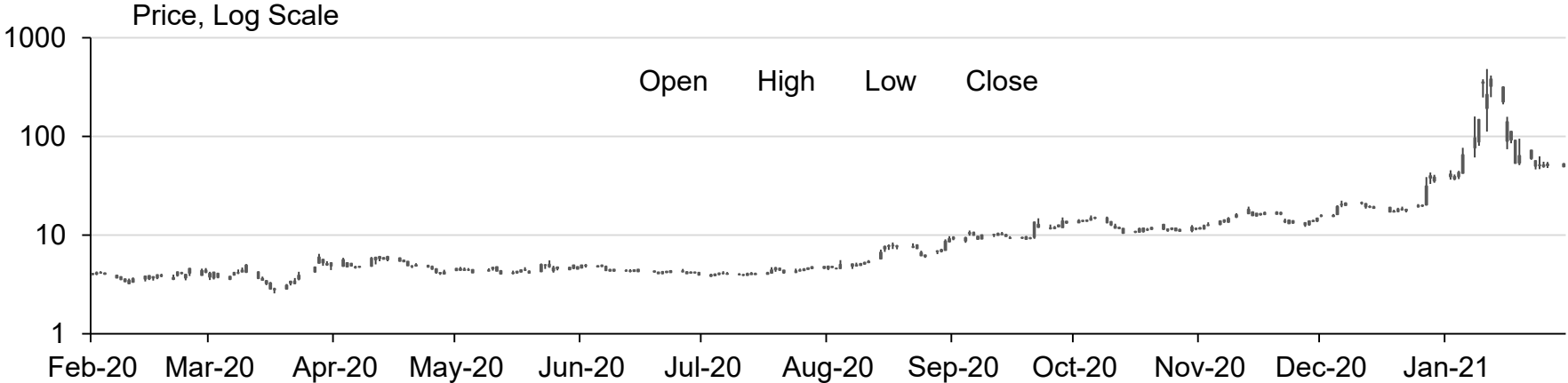
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GameStop: Price 2021



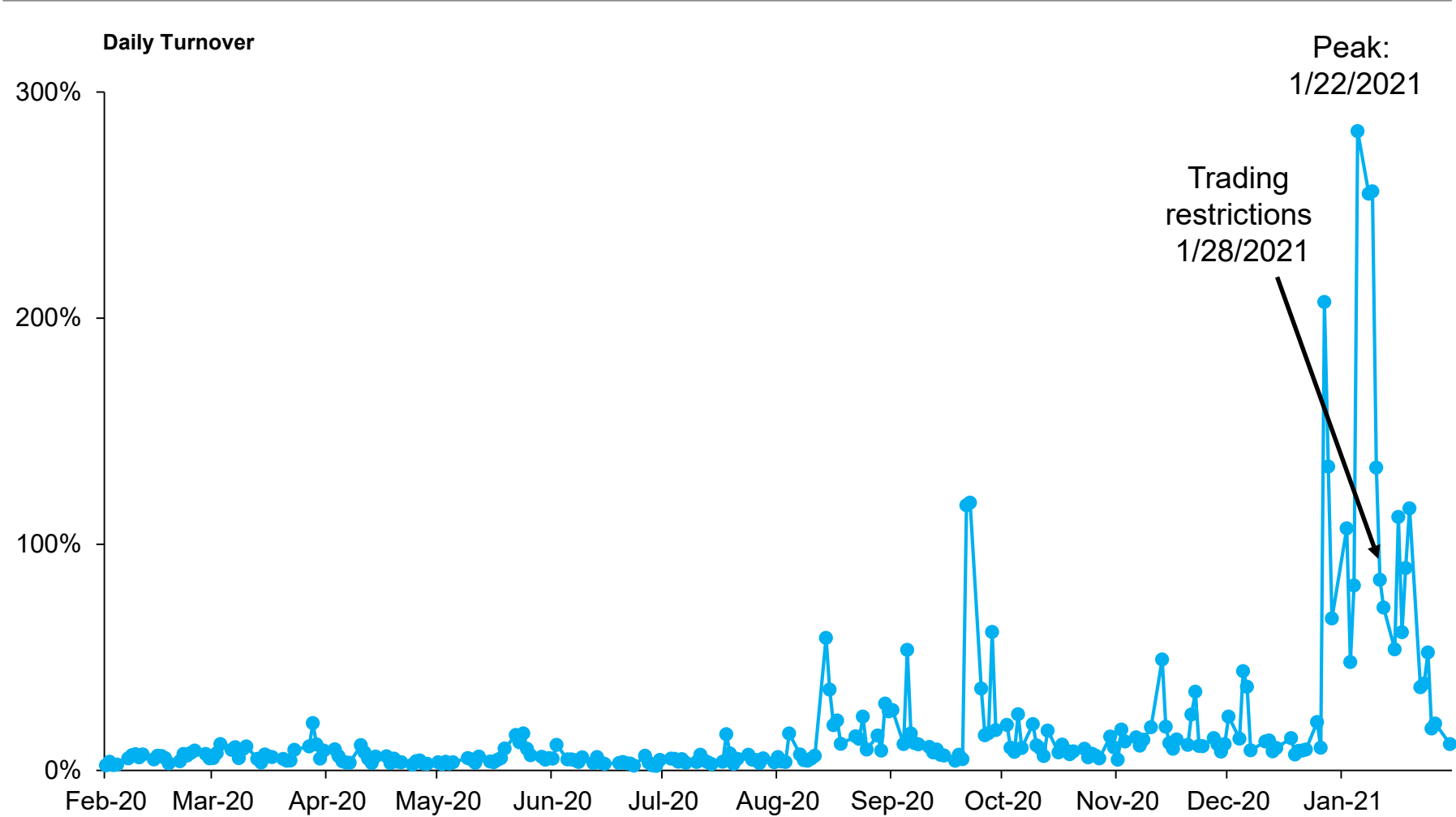
Source: Xpressfeed. For illustrative purposes only.

GameStop: Price and Volatility, Past 12 Months



Source: Xpressfeed and own calculations. For illustrative purposes only.

GameStop: Turnover, Past 12 Months



Source: Xpressfeed. For illustrative purposes only.

Why Buying? Reddit, WallStreetBets



Retail sentiment:

- Gamification of trading
- GameStop belief/nostalgia
 - Ryan Cohen turnaround? (investor, board member)
- Shorting is “wrong”



For illustrative purposes only.

Not just Retail Buying

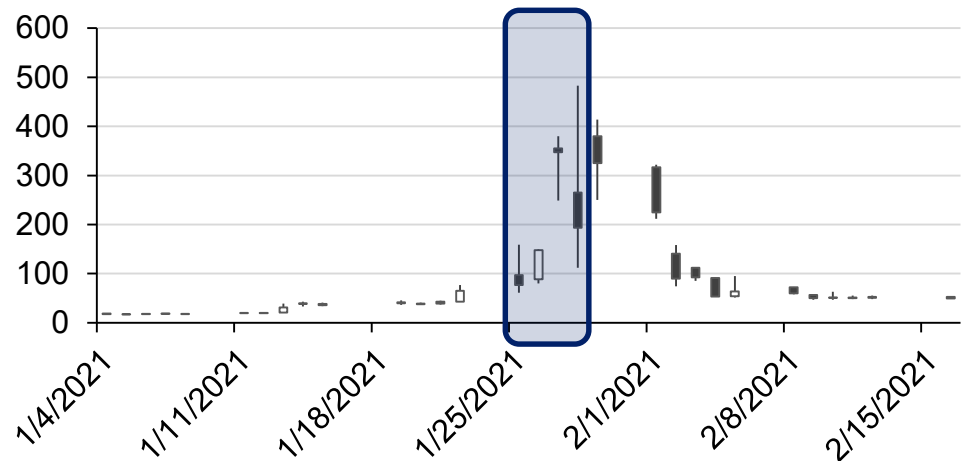
Retail order flow executed via Citadel Securities

- Source: Bloomberg Money Stuff, Matt Levine, citing Citadel, 1/29/2021

	Retail buys	Retail sells	Net	Market volume	Market share
Monday	26,558,557	24,489,122	2,069,435	177,874,000	28.7%
Tuesday	24,888,375	26,794,942	(1,906,567)	178,587,974	28.9%
Wednesday	12,966,267	13,743,184	(776,917)	93,396,666	28.6%
Thursday	9,972,227	10,078,110	(105,883)	58,816,595	34.1%
Week so far	74,385,426	75,105,358	(719,932)	508,675,235	29.4%

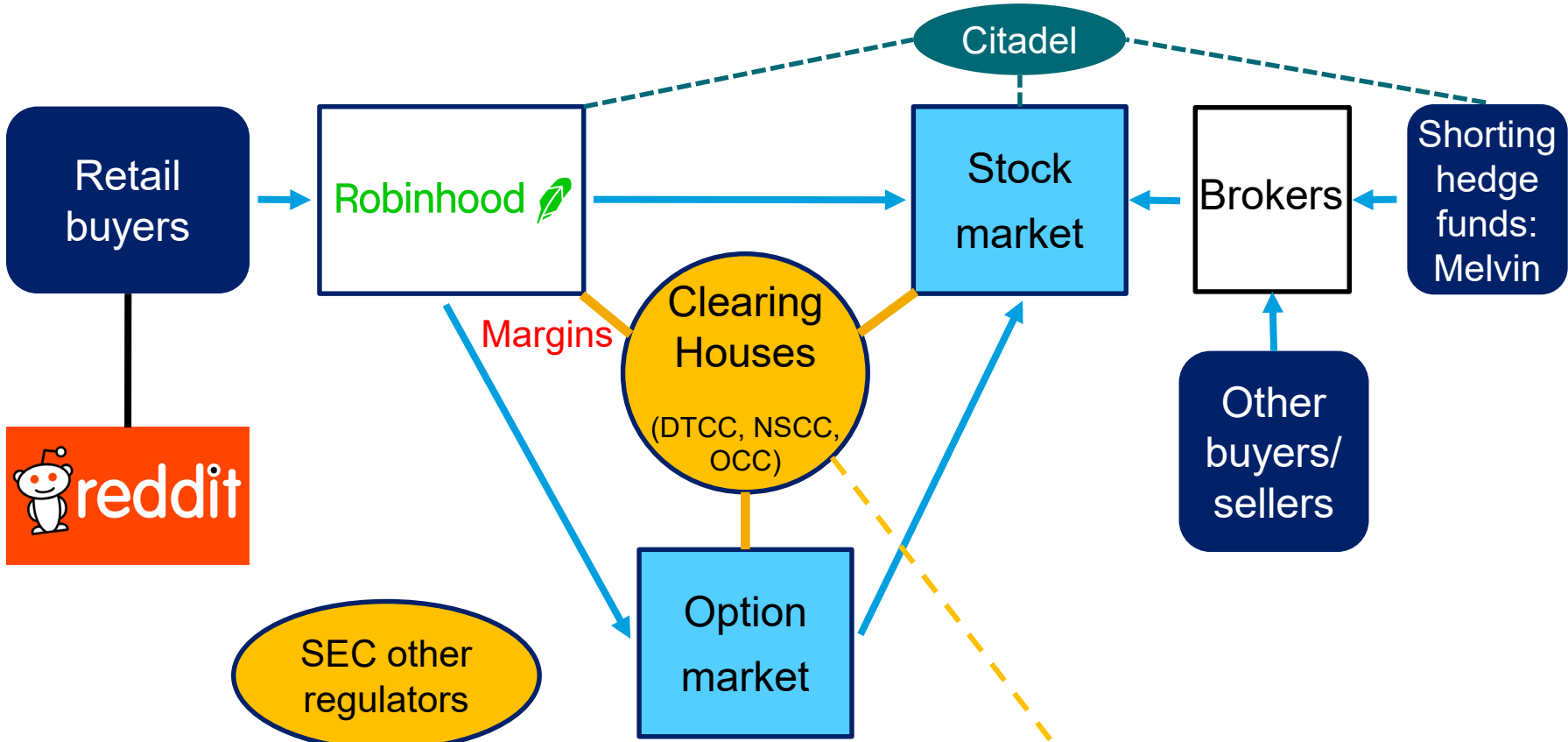
Buying by others

- Option hedgers
- Shortsellers closing their positions
- Institutional investors
- Other retail
- Etc.



Source: Bloomberg Money Stuff, Matt Levine, 1/29/2021, citing Citadel

Why Did Robinhood Restrict Trading?



Market manipulation is illegal

- Trading to squeeze shorts illegal?
- Halting trading illegal?

t+2 settlement

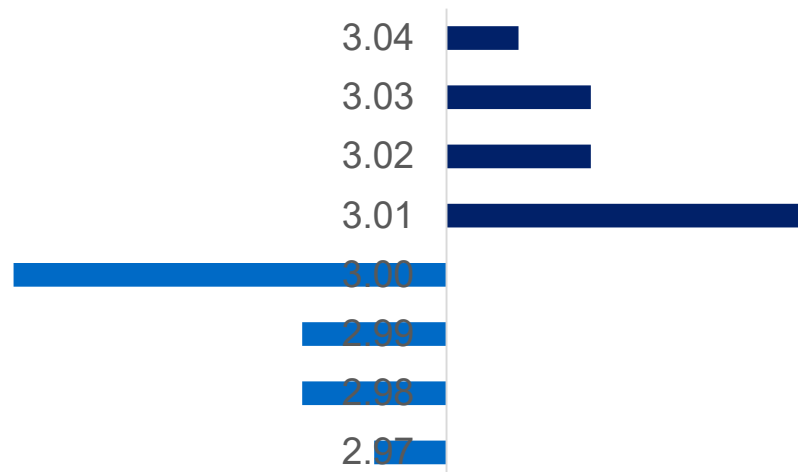
- Contributor to large margin call?

For illustrative purposes only.

Payment for Order Flow

Market makers:

- Earn the bid-ask spread:
- Lose money from
 - Informed counterparties
 - Large counterparties



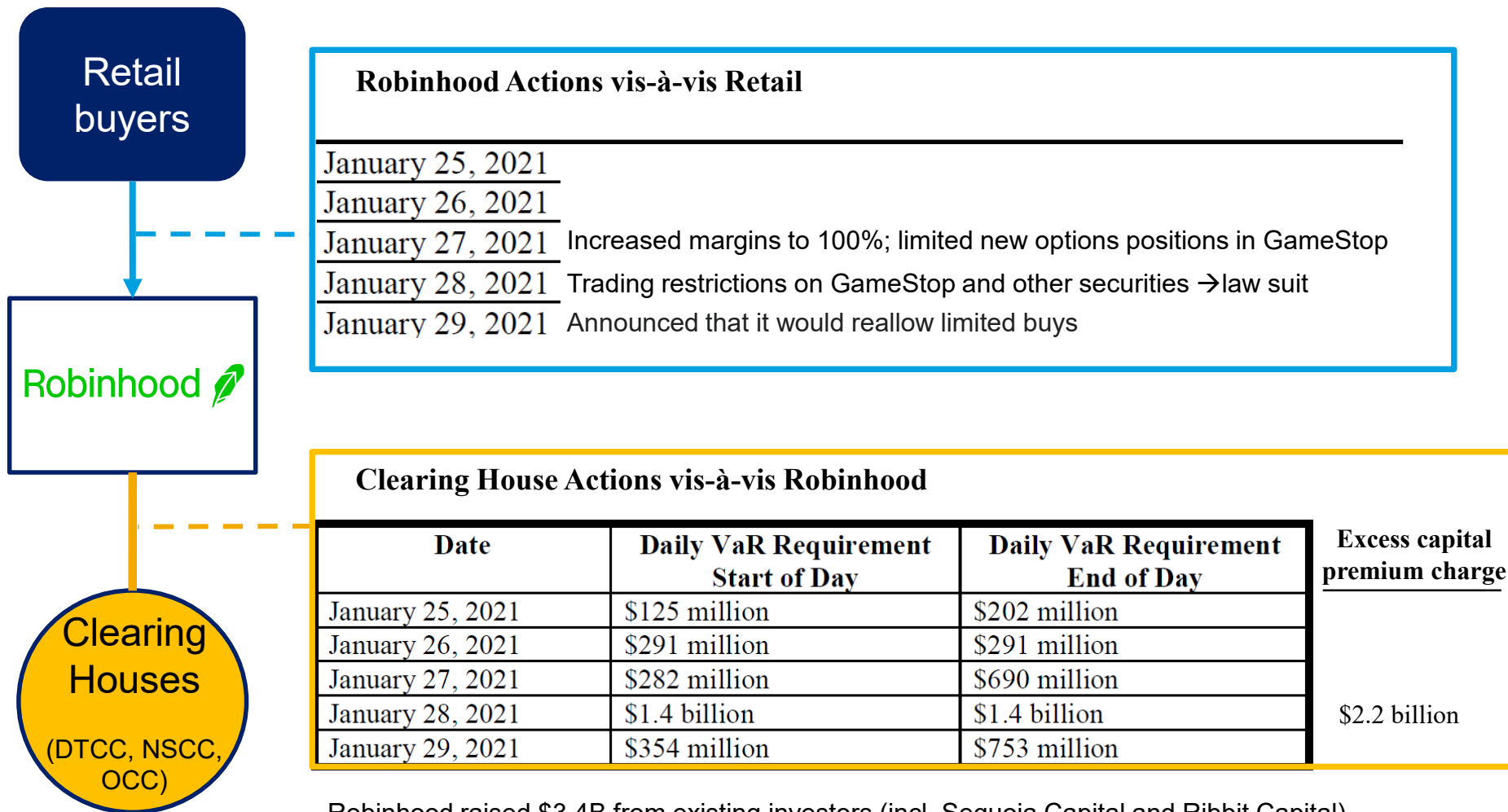
Retail investors: attractive counterparties

- Especially if the minimum tick size is binding

Payment for order flow

- Get first pick on these orders: conflict of interest? transparency?
- Retail investors benefit from
 - Price improvements
 - Payment from order flow → zero commissions

Margin Requirements



Robinhood Actions vis-à-vis Retail

- January 25, 2021
- January 26, 2021
- January 27, 2021 Increased margins to 100%; limited new options positions in GameStop
- January 28, 2021 Trading restrictions on GameStop and other securities → law suit
- January 29, 2021 Announced that it would reallocate limited buys

Clearing House Actions vis-à-vis Robinhood

Date	Daily VaR Requirement Start of Day	Daily VaR Requirement End of Day	Excess capital premium charge
January 25, 2021	\$125 million	\$202 million	
January 26, 2021	\$291 million	\$291 million	
January 27, 2021	\$282 million	\$690 million	
January 28, 2021	\$1.4 billion	\$1.4 billion	\$2.2 billion
January 29, 2021	\$354 million	\$753 million	

Robinhood raised \$3.4B from existing investors (incl. Sequoia Capital and Ribbit Capital)

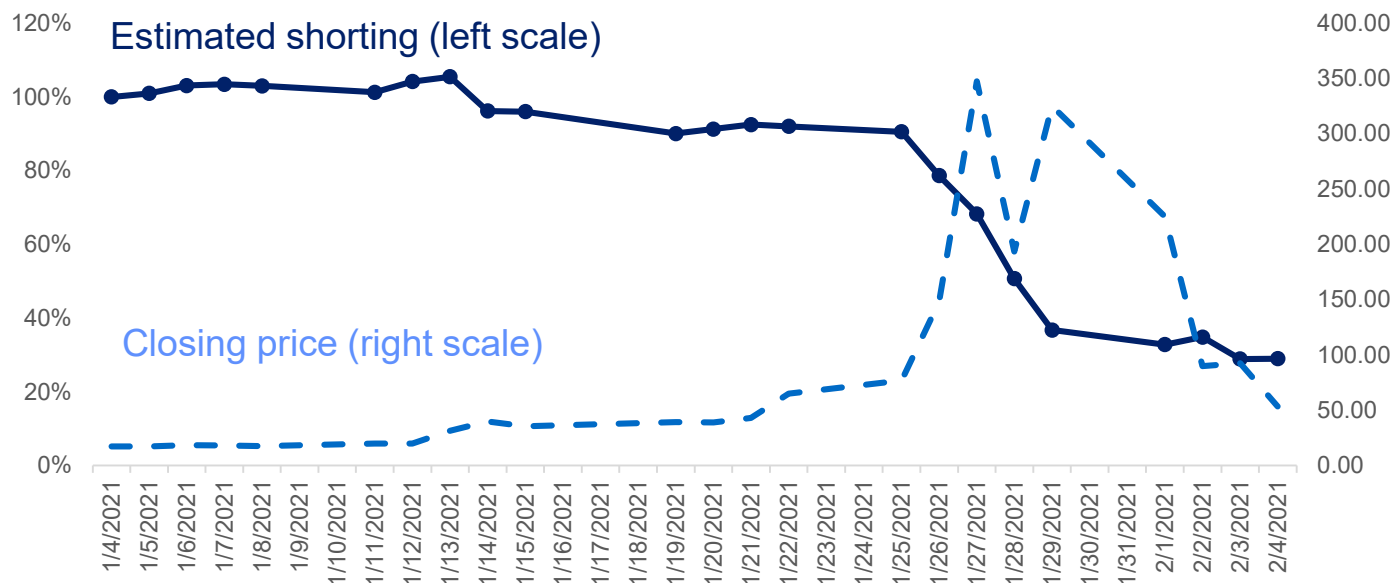
Why Did Shortsellers Liquidate their Positions?

A short squeeze can happen for “technical” reasons

- Shares recalled, short sellers forced to close positions

In the case of GameStop

- Securities lending markets affected by high turnover, but largely remained “open”
- Short sellers could not sustain losses—own covering exacerbated the problem
 - Short positions increase in size and volatility when the price move against them

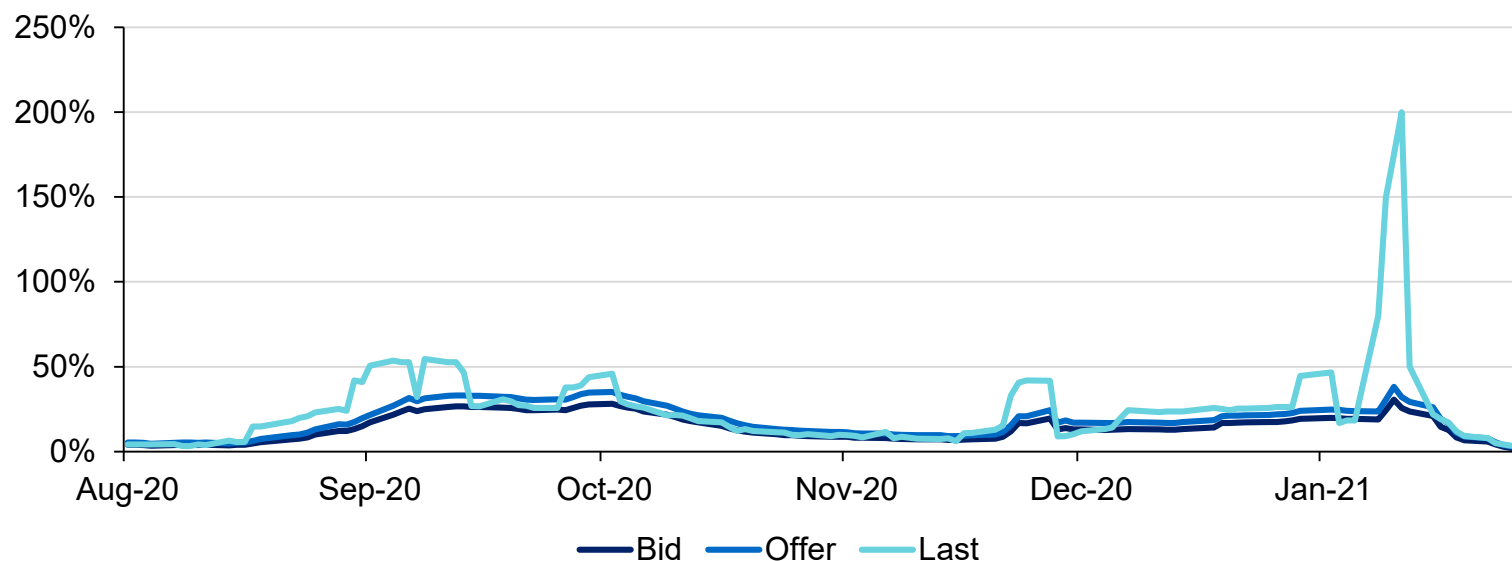


Source: Estimates based on Markit, Xpressfeed, and own calculations. For illustrative purposes only.

The Costs to Shortsellers

Shorting costs (securities lending fees)

- **Securities Lending, Shorting, and Pricing**, Duffie, Garleanu, and Pedersen (2002)



P&L

- Melvin Capital, January: about \$-7B (-53%)
- S3 estimated total P&L of all shortsellers
 - January: \$-14.8B
 - February 1-12: \$ 6.3B

Source: S3. For illustrative purposes only.

Why did the Price Eventually Fall?

- **Recent buyers**

- “Diamond hands” or no intention to keep stock at \$400?
- Sign of bubble and/or predatory trading

- **New short sellers**

- **Previous owners**

- Believed in the company at \$20, but may want to sell at \$400

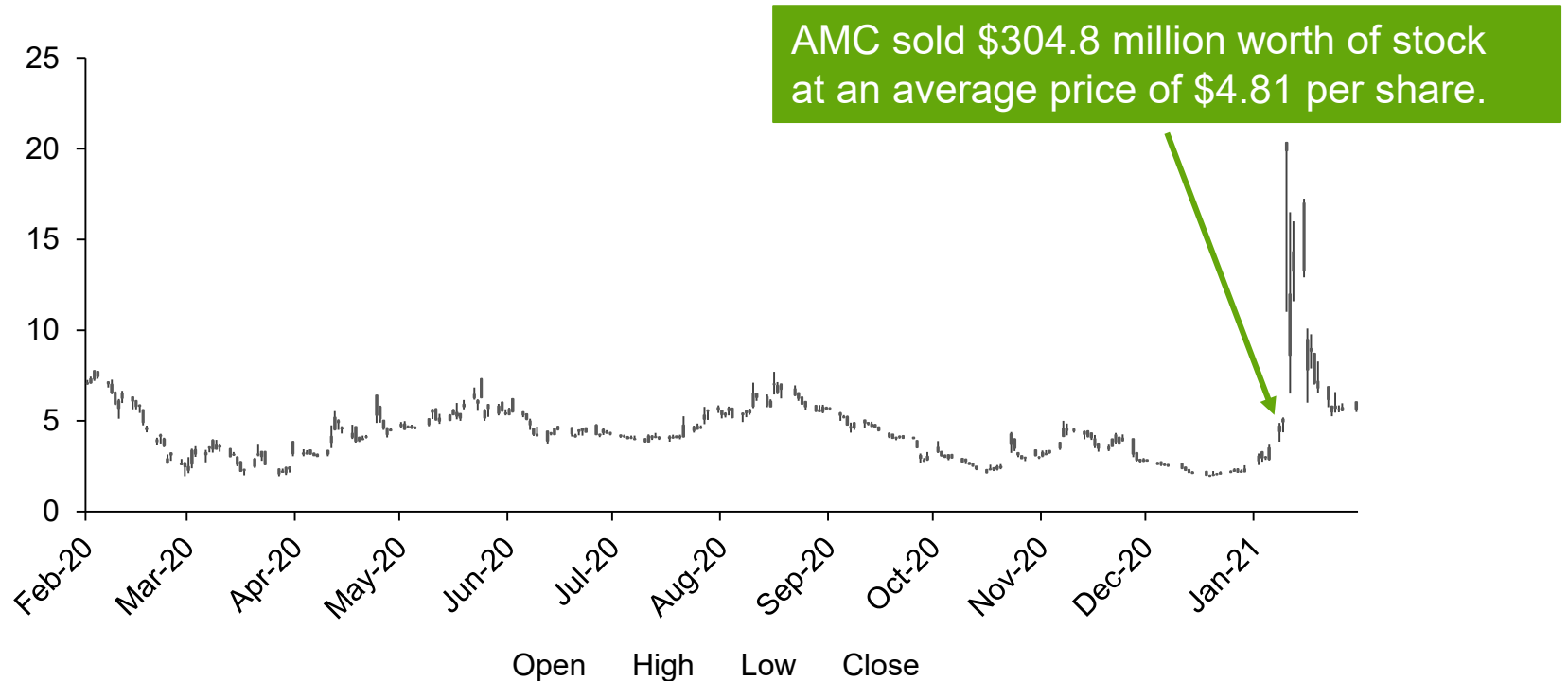
→ **Price drop was a matter of time**

- **With or without short sellers**

GameStop: Spreading to Other Markets

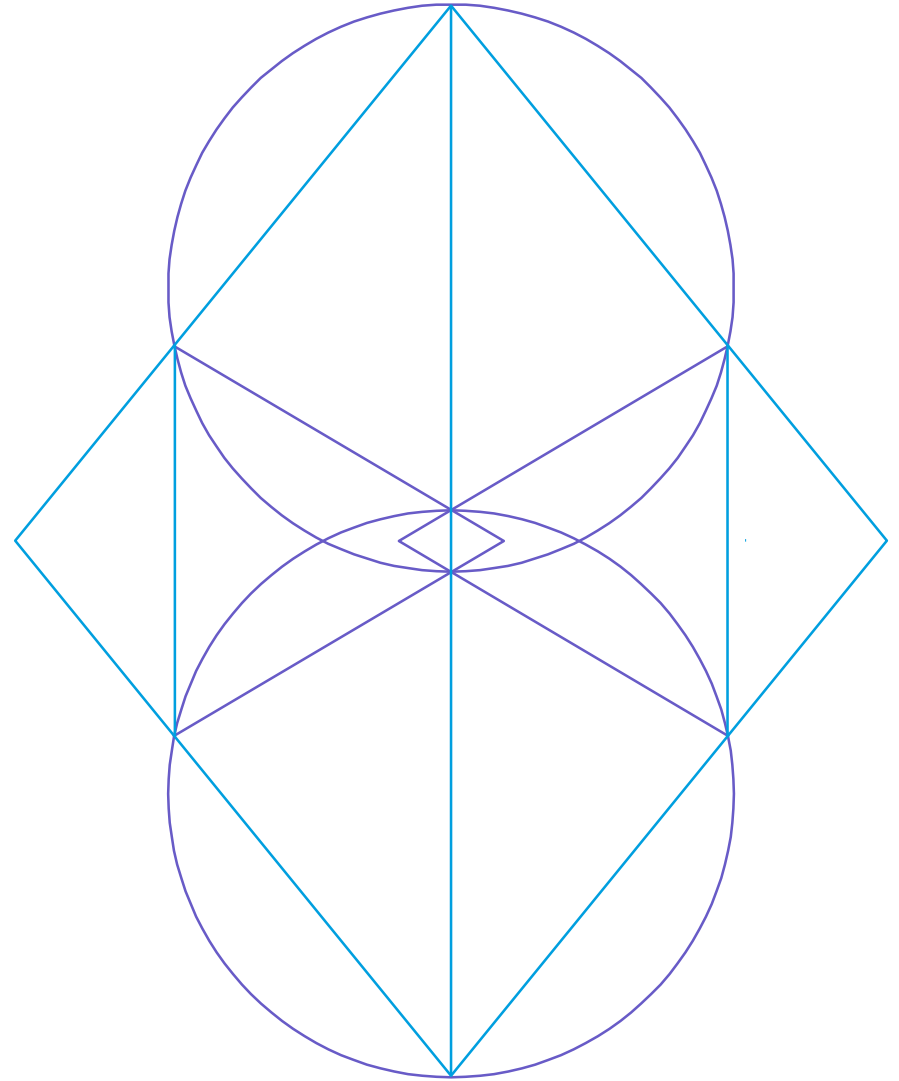
Spillover to a number of other securities, e.g.

- AMC; Blackberry; Bed, Bath and Beyond
- Silver (not a very big price move)



Source: Xpressfeed. For illustrative purposes only.

What Do We Learn?



What Do We Learn

Reinforcing old lessons:

- **Demand moves prices**
 - For socks and stocks
 - Market is not perfectly liquid, e.g. Shleifer (1986)
- **Demand can be irrational**
 - Behavioral finance, excess volatility, Shiller, Thaler
 - Repeat news, Huberman-Regev (01) Tetlock (11)
 - Name confusion
- **Shorting complications**
 - Market efficiency requires both positive and negative news to be reflected in prices
 - Short-sellers can make prices
 - lower (micro) and higher (macro)
- **Predatory trading:**
 - Price-destabilizing speculation
 - Market manipulation

What is new:

What Do We Learn

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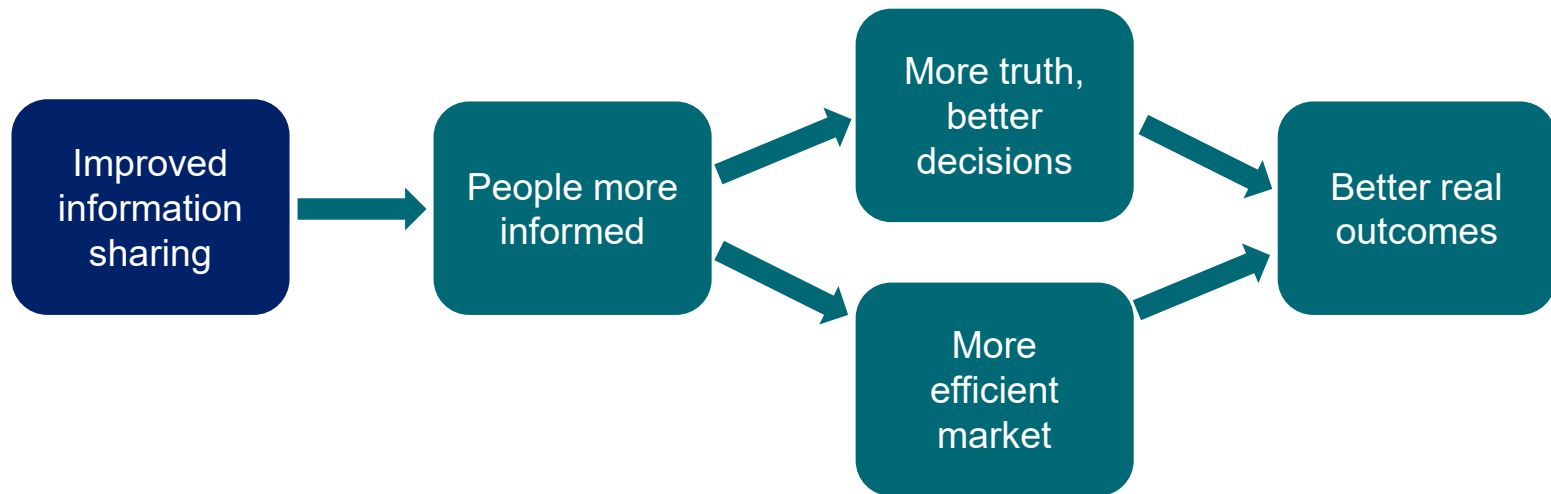
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What is new:

- **Social media and IT**

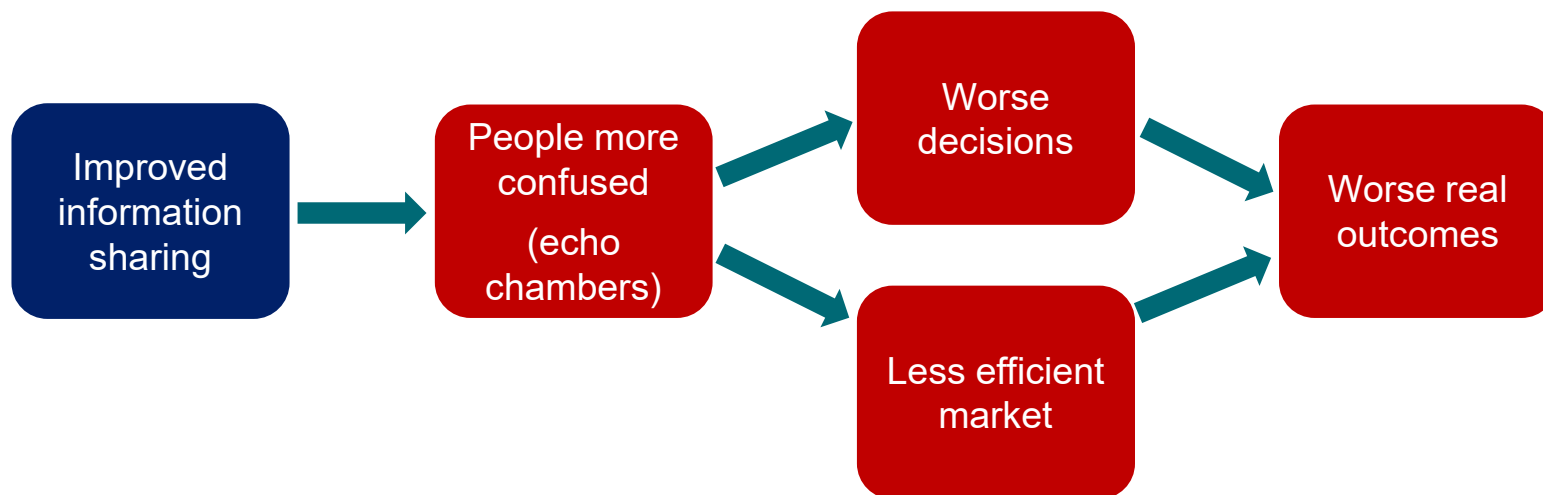
Implications of Improved Information Technology

The hope:



Implications of Improved Information Technology

The fear:



What Do We Learn

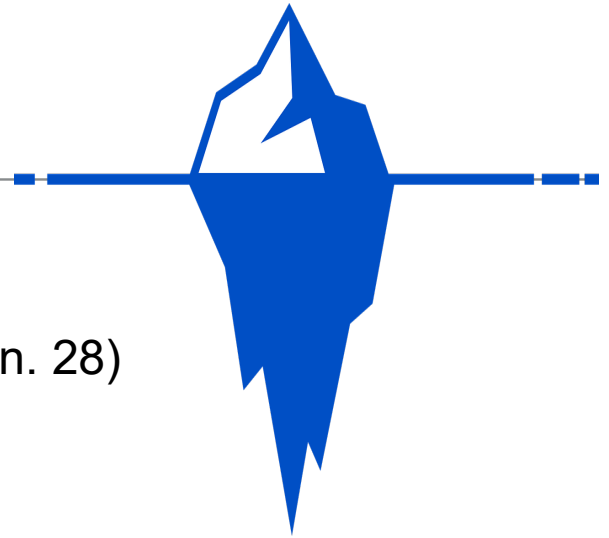
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What is new:

- **Social media and IT**
- **“Predators” paper trail**
- **Predators moral?**
- **Size of effect**
 - Very large effect, at least in percent
 - But how large more broadly?

How Big is the Effect?



- **GameStop: Percent change**

- 2315% price increase from \$20 to \$483 (high on Jan. 28)
- (Shorting from \$483 to \$20 is only a 96% return.)

- **GameStop: Market capitalization**

- Jan. 4, 2021: \$1.2B
- High on Jan. 28: \$34B
- 0.07% of US equities (The Gap~\$9B, Moderna~\$71B)

- **Real effects**

- No issuance by GME - zero-sum among investors (due to GME inside info.*)
- Issuance by AMC: raised about \$300m
 - At-the-market offering
 - Selling directly into the market (rather than institutional bookbuilding)

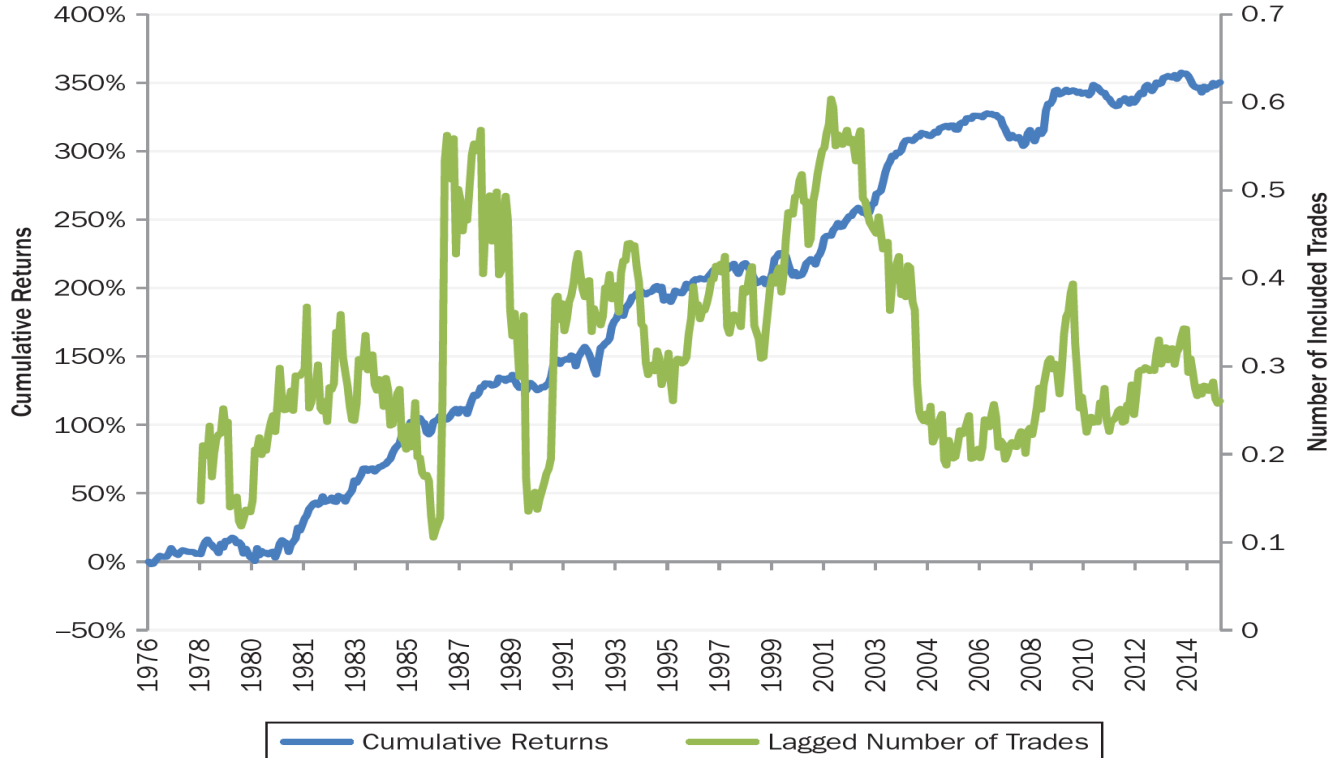
- **Tip of the iceberg or the entire iceberg?**

* Source: Bloomberg opinion, Matt Levine, 2/11/2021

Deep Value

Deep Value, Asness, Liew, Pedersen, and Thapar, forthcoming

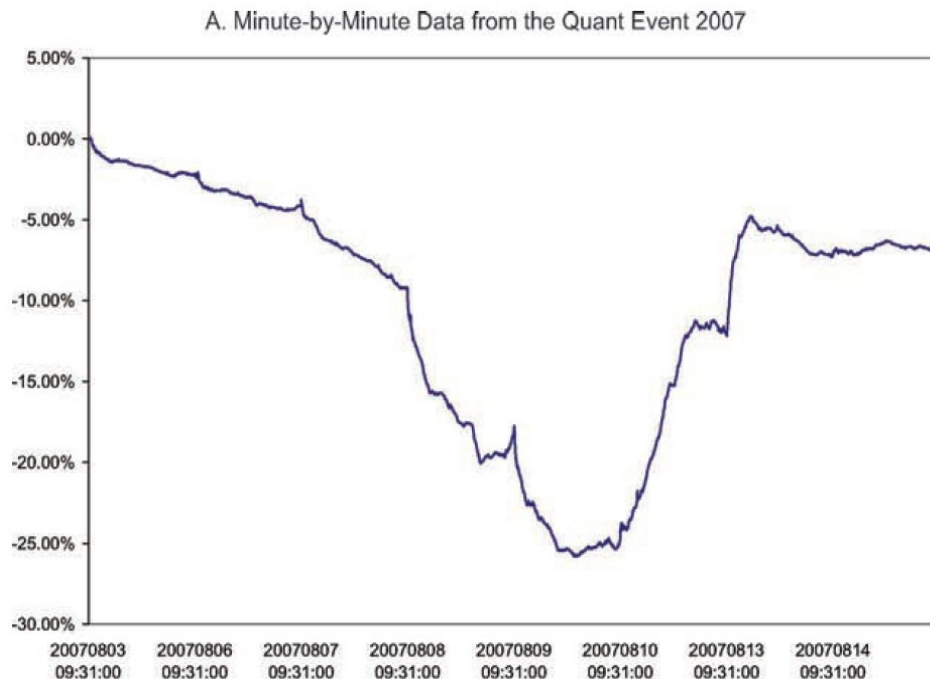
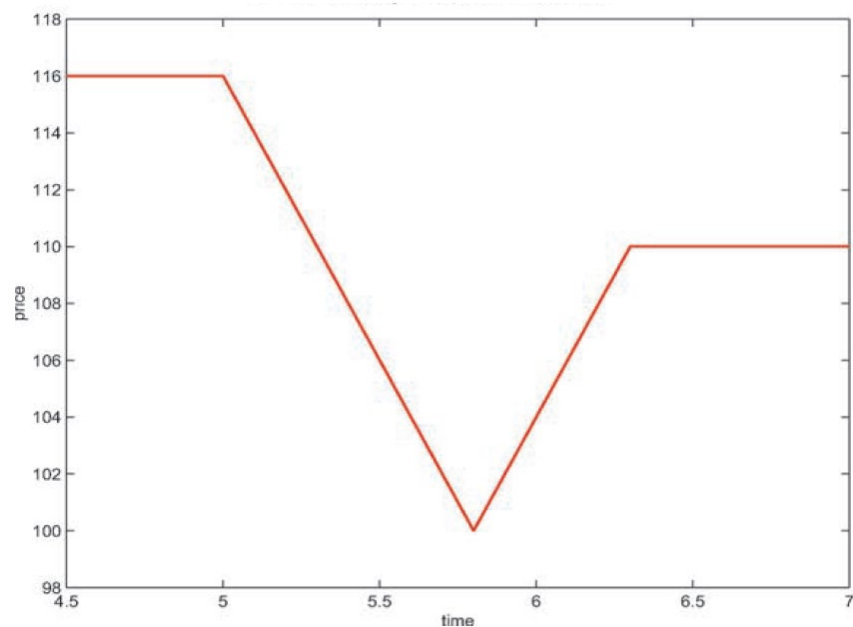
- Price dislocations not uncommon, related to fundamentals, but over-reaction, limited arbitrage incl. by firms themselves



Source: Deep Value (Asness, Liew, Pedersen, and Thapar, forthcoming). For illustrative purposes only.

When Everyone Runs for the Exit

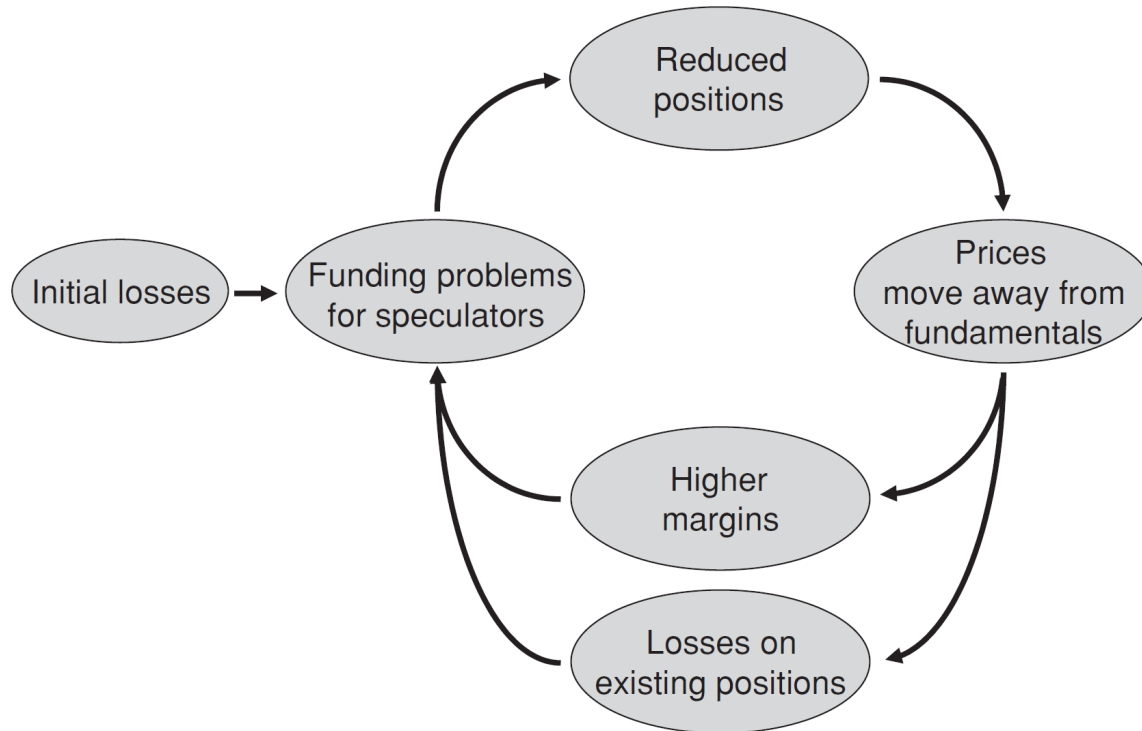
When Everyone Runs for the Exit, Lasse H. Pedersen (2009), *The International Journal of Central Banking* 5, 177- 199.



Source: When Everyone Runs for the Exit (Lasse H. Pedersen (2009), *The International Journal of Central Banking* 5, 177- 199). For illustrative purposes only.

Close Cousin: Liquidity Spirals

Market Liquidity and Funding Liquidity, Brunnermeier and Pedersen (2009), *The Review of Financial Studies* 22, 2201- 2238

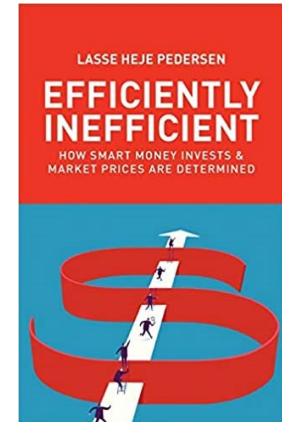


Source: Market Liquidity and Funding Liquidity (Brunnermeier and Pedersen 2009, *the Review of Financial Studies* 22, 2201 – 2238). For illustrative purposes only.

Pricing by Fundamentals or Memes?

Examples

- Bitcoin about \$700B
- Tesla about \$800B
- SPACs
- US equities: \$50,000B



The market is **efficiently inefficient**

- Efficient enough that active investing is difficult,
- Inefficient enough that trying just worthwhile for marginal investor

On the Impossibility of Informationally Efficient Markets, Grossman and Stiglitz (1980), *American Economic Review*, 70, 393–408.

Efficiently Inefficient Markets for Assets and Asset Management, Garleanu and Pedersen (2018), *The Journal of Finance*, 73 (4), 1663-1712.

