GameStop, Short Squeezes, and Predatory Trading

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CBS and AQR

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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

Lasse Heje Pedersen
AQR Capital Management, Copenhagen Business 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

How Predatory Trading Does Not Work

Demand moves prices

- But market impact is normally a trading cost
- Not how investors typically make money

How Predatory Trading Works

Predators exploit

- Forced buyers (short squeeze), or
- Tricked buyers (pump and dump)

Predatory Trading: Spillover Effects

For illustrative purposes only.

GameStop: What Happened?
What Happened: Retail Buying and Short Squeeze

For illustrative purposes only.
For illustrative purposes only.
Thursday, January 28:
High 483, Low 112.25

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

Daily Turnover

Peak: 1/22/2021
Trading restrictions 1/28/2021

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”
Not just Retail Buying

Retail order flow executed via Citadel Securities

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

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

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?

- Retail buyers
- Robinhood
- Stock market
- Option market
- Clearing Houses (DTCC, NSCC, OCC)
- SEC other regulators
- Citadel
- Brokers
- Shorting hedge funds: Melvin
- Other buyers/sellers

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 $\rightarrow$ zero commissions

For illustrative purposes only.
**Margin Requirements**

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**Retail buyers**

**Robinhood**

**Clearing Houses** (DTCC, NSCC, OCC)

### Robinhood Actions vis-à-vis Retail

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 25, 2021</td>
<td>Increased margins to 100%; limited new options positions in GameStop</td>
</tr>
<tr>
<td>January 26, 2021</td>
<td></td>
</tr>
<tr>
<td>January 27, 2021</td>
<td>Increased margins to 100%; limited new options positions in GameStop</td>
</tr>
<tr>
<td>January 28, 2021</td>
<td>Trading restrictions on GameStop and other securities → law suit</td>
</tr>
<tr>
<td>January 29, 2021</td>
<td>Announced that it would reallow limited buys</td>
</tr>
</tbody>
</table>

### Clearing House Actions vis-à-vis Robinhood

<table>
<thead>
<tr>
<th>Date</th>
<th>Daily VaR Requirement Start of Day</th>
<th>Daily VaR Requirement End of Day</th>
<th>Excess capital premium charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 25, 2021</td>
<td>$125 million</td>
<td>$202 million</td>
<td>$2.2 billion</td>
</tr>
<tr>
<td>January 26, 2021</td>
<td>$291 million</td>
<td>$291 million</td>
<td></td>
</tr>
<tr>
<td>January 27, 2021</td>
<td>$282 million</td>
<td>$690 million</td>
<td></td>
</tr>
<tr>
<td>January 28, 2021</td>
<td>$1.4 billion</td>
<td>$1.4 billion</td>
<td></td>
</tr>
<tr>
<td>January 29, 2021</td>
<td>$354 million</td>
<td>$753 million</td>
<td></td>
</tr>
</tbody>
</table>

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

Source: Testimony of Vladimir Tenev, Robinhood Markets, Inc., Hearing before U.S. House Committee on Financial Services. For illustrative purposes only.
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)

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

Source: Lasse Heje Pedersen.
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)

AMC sold $304.8 million worth of stock at an average price of $4.81 per share.

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

Source: Lasse Heje Pedersen.
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What is new:

• Social media and IT

Source: Lasse Heje Pedersen.
Implications of Improved Information Technology

The hope:

Improved information sharing → People more informed → More truth, better decisions → More efficient market → Better real outcomes

Source: Lasse Heje Pedersen. For illustrative purposes only.
Implications of Improved Information Technology

The fear:

- **Improved information sharing**
- **People more confused (echo chambers)**
- **Worse decisions**
- **Less efficient market**
- **Worse real outcomes**

Source: Lasse Heje Pedersen. For illustrative purposes only.
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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?

Source: Lasse Heje Pedersen.
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?**

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

Close Cousin: Liquidity Spirals


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


