

See it, Say it, Shorted:
Strategic Announcements in Short-Selling Campaigns

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Motivation

- ▶ A number of hedge funds have recently engaged in **very public** short-selling campaigns
 - ▶ Aggressive and loud
 - ▶ After thorough researching their targets and establishing their positions
- ▶ Voluntary announcements contain **potentially verifiable information**
 - ▶ Not cheap talk or rumour-based tactics
 - ▶ Accounting fraud, Over-levered, Stock promotion, Industry issues and other allegations

Muddy Waters and Casino

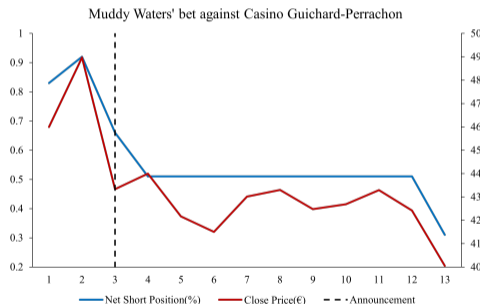
- ▶ Announcements
 - ▶ On Dec 17, 2015, Muddy Waters accused Casino of overstating its EBITDA in a 22-page report and an interview with Bloomberg.

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▶ Market reaction



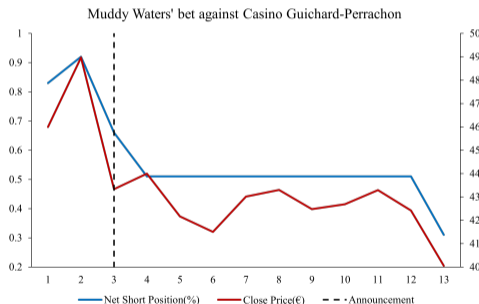
- ▶ Price dropped **11.5%**.
- ▶ Muddy Waters' short position decreased from **0.92%** to **0.51%**.
- ▶ Profits: **€615.8 MM**

Muddy Waters and Casino

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- ▶ On Dec 17, 2015, Muddy Waters accused Casino of overstating its EBITDA in a 22-page report and an interview with Bloomberg.

▶ Market reaction



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▶ Informative?

- ▶ On Dec 17, 2019, the regulator, **AMF**, issued a warning letter to Casino, “**property development.**”

However...

According to the regulatory disclosure of European markets,

- ▶ 431 hedge fund companies' held short positions in 1,314 of different stocks between Nov 2012 and Nov 2021.

- ▶ Only 27 of them made 58 announcements on their targets.

Research Question

- ▶ Why do some hedge funds announce their information while others do not?
- ▶ What is their objective and how this changes the market efficiency?

This Paper

New Data

- ▶ Hand-collected data on hedge funds' **voluntary announcements** and **daily short positions** in the EU.

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New Facts

- ▶ Document the **existence** of two groups of hedge funds, different in trading and disclosing
 1. Short before, **announce**, cover positions
 2. **Follow** others, continue to short
- ▶ Funds in the first group are much **smaller** than the second

This Paper

Model with New Aspects

- ▶ A limit-to-arbitrage model, strategic fund, when to short sell and whether to announce

This Paper

Model with New Aspects

- ▶ A limit-to-arbitrage model, strategic fund, when to short sell and whether to announce
- ▶ There is **an equilibrium** where their **strategies complement** each other
 - ▶ The small fund: pay to search, short early, announce
 - ▶ The large fund: wait and follow the lead

The small one **avoids costly liquidation** while the large one **saves information acquisition cost**

- ▶ Impact on market efficiency is **ambiguous**, depending on the size distribution

This Paper

Model with New Aspects

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Tests of Model Predictions: Hedge funds prefer to make announcements against stocks with **lower borrowing costs** and **wider mispricing**

Closely Related Literature

Announcements, theoretical:

- Liu (2017), Pasquariello and Wang (2021), Kovbasyuk and Pagano (2022)
- ▶ The **strategic game** where any of the participating hedge funds can decide whether to be an announcer or follower

Announcements, empirical:

- Market reaction: Ljungqvist & Qian (2016), Gillet & Renault (2018)
- Real economic activities: Wong & Zhao (2017), van Binsbergen, Han & Lopez-Lira (2021)
- Informativeness of announcements: Luo (2018), Appel & Fos (2020), Chen (2016), Kartapanis (2019)
- ▶ Analysing the decisions of shorting **with** or **without** the revelation of information using a **novel dataset**

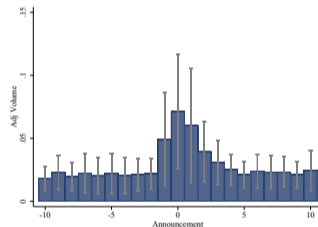
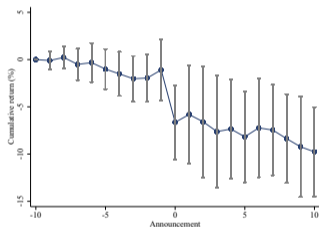
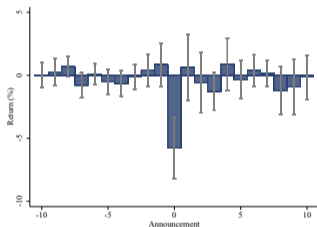
Stylized Facts

Data

- ▶ Net Short Position
 - ▶ Data challenge
 - ▶ Solution: Regulation (EU) No 236 requires a public share notification when the net short positions of shares reach 0.5% and each 0.1% change above 0.5%. Applicable since Nov 1, 2012.
 - ▶ *431 hedge funds, 1,314 different stocks*
- ▶ Announcements
 - ▶ Data sources
 1. Factiva
 2. Activist Insight Shorts
 - ▶ Definition of announcements
 - ▶ Short sellers' **voluntary** information about their targets.
 - ▶ Detailed research reports, speeches in conferences, managers' opinions, etc.
 - ▶ *117 announcements in the EU market, 58 announcements were made by 27 hedge funds*

Stock Market Reaction to HFs' Announcements

Large drop in return (-6%), negative cumulative return (-9%), high trading volume (7%) on announcement dates.



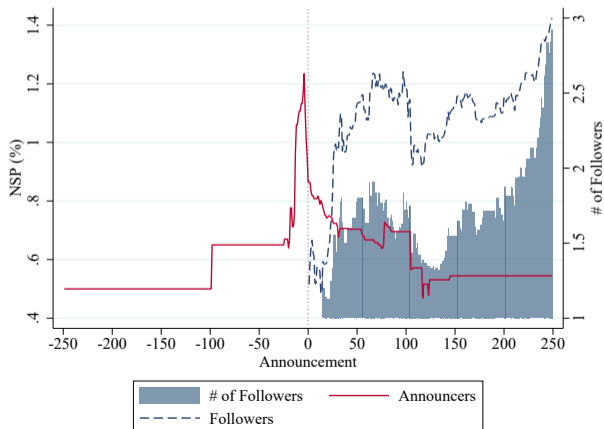
Reaction to the public notification

Reaction in the US market

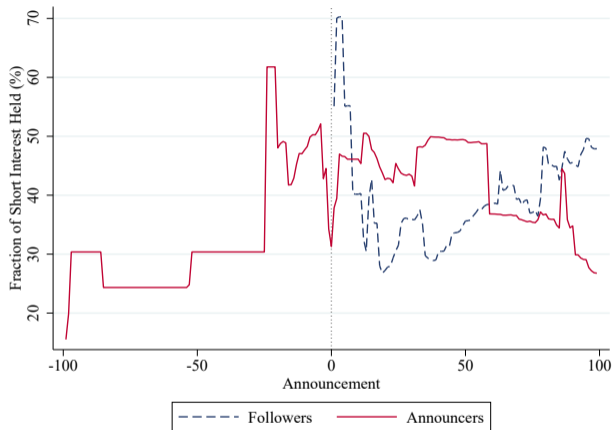
Fact 1: Trade Aggressively vs. Gradually

Announcers: Fund A held short positions in stock T and has made announcements about T.

Followers: No announcements made by Fund F about its target T. Fund F started to short after the announcement date.



Fact 1: Trade Aggressively vs. Gradually



Followers rapidly take dominant positions after observing the announcements.

Fact 2: Small Announcers and Large Followers

Hedge funds that attacked their targets with announcements are: **younger and smaller**, more likely to face financial constraints.

| Variable | Announcers | | Followers | | Diff | t-stat |
|-------------------------|------------|------|-----------|------|--------|--------|
| | Mean | Obs. | Mean | Obs. | | |
| Age | 4.53 | 48 | 9.41 | 187 | -4.87 | -4.83 |
| Firm Total Assets(\$1B) | 3.04 | 46 | 28.43 | 198 | -25.39 | -2.36 |
| Number of Funds | 4.04 | 27 | 29.45 | 56 | -25.41 | -2.46 |

The Model

Model Setup

Three dates: $t \in \{0, 1, 2\}$. Zero discount rate. M risky assets:

- ▶ Asset m gives payoffs $V_{m,2}$ at date 2. Price at t is $p_{m,t}$
- ▶ $V_{m,2} \text{ i.i.d. } \sim \mathcal{U}[V - \epsilon, V + \epsilon]$

Two types of risk-neutral agents:

1. A mass of noise traders

- ▶ Demand shock U_t on **some assets** at date 0,1
- ▶ $U_1 = U > U_0$ with probability q . $U_1 = 0$ with probability $1 - q$
- ▶ Aggregate demand

$$QN(t) = [V + U_t]/p_t$$

2. Two hedge funds

Model Setup

Two hedge funds, A and F

- ▶ Can take short positions x_t^j in one asset.
- ▶ Fund j 's wealth at date $t + 1$,

$$W_{t+1}^j = W_t^j + x_t^j(p_t - p_{t+1})$$

Initial wealth at date 0, W_A and W_F , limited and not sufficient to bring prices to fundamental value.

- ▶ Leverage constraint (maximum leverage $\phi > 1$):

$$x_t^j p_t \leq \phi W_t^j$$

Assume that ϕ is not too large. And funds can use all their capital to short (1) or take zero position (0) at date t .

Model Setup

Hedge funds

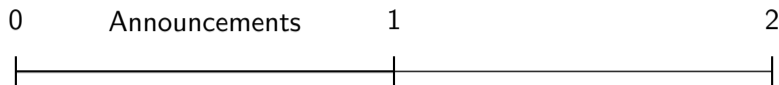
- ▶ Can pay a cost κ to learn one mispriced asset.
- ▶ **Decide whether to announce the mispriced asset.**

Model Setup

Hedge funds

- ▶ Can pay a cost κ to learn one mispriced asset.
- ▶ **Decide whether to announce the mispriced asset.**
- ▶ Assume that the probability of finding the same mispriced asset is negligible.
 - ▶ *Announcements always contain new information to the market*
- ▶ Only hedge funds can verify the information
 - ▶ *Noise traders still trade against hedge funds after announcements*

Timeline



Date 0:

- ▶ Demand shock U_0 realizes
- ▶ Hedge funds choose: (1) pay cost κ or not; (2) choose the optimal short position; (3) decide whether to announce
- ▶ Market clears $\frac{V+U_0}{p_0} - (x_0^A + x_0^F) = 1$

Date 1:

- ▶ Demand shock U_1 realizes
- ▶ Hedge funds choose optimal short position
- ▶ Market clears $\frac{V+U_1}{p_1} - (x_1^A + x_1^F) = 1$

Date 2:

- ▶ Fundamental value V_2 realizes
- ▶ Hedge funds close their short positions

Strategies When Two Funds Interact

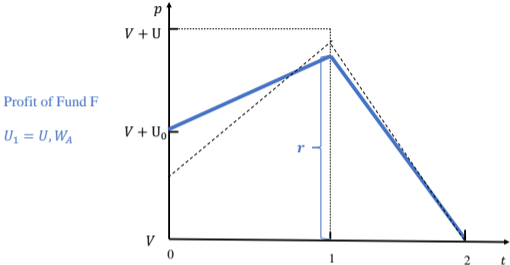
A Nash equilibrium of this two-player game (s_A^*, s_F^*) , such that:

1. Fund A pays the cost, makes the announcement, and fully invests at date 0;
2. Fund F does not pay the cost and waits to hold short positions silently at date 1;
3. s_j^* solves the problem

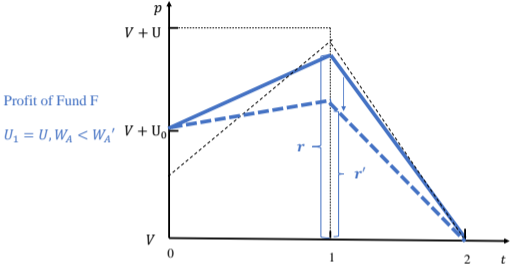
$$\max_{s_j \in S_j} E(u_j(s_j, s_{-j}^*))$$

for each fund j .

Strategies When Two Funds Interact

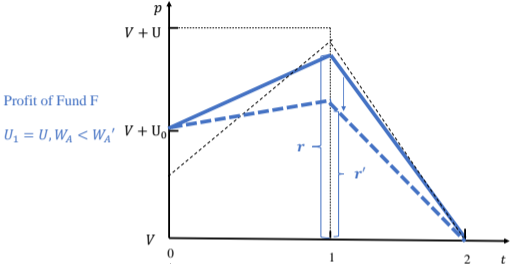


Strategies When Two Funds Interact

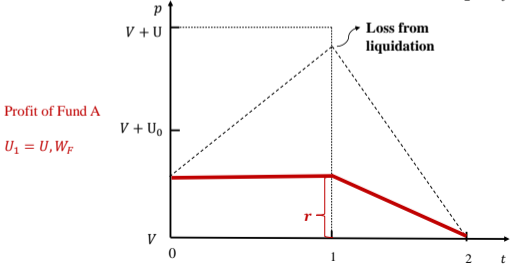


► Fund F won't deviate if the size of Fund A is small enough.

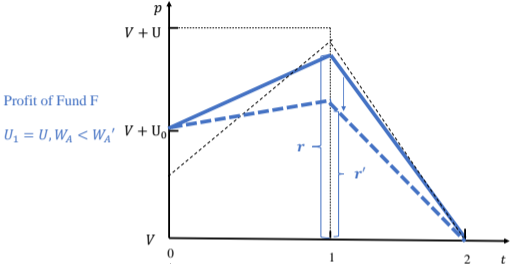
Strategies When Two Funds Interact



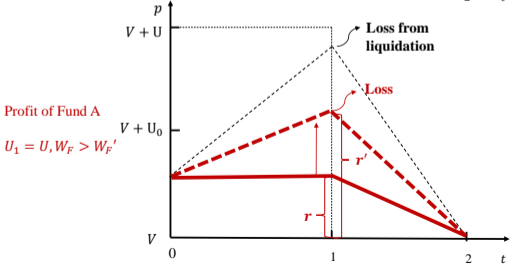
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Strategies When Two Funds Interact



▶ Fund F won't deviate if the size of Fund A is small enough.



▶ Fund A won't deviate if the size of Fund F is large enough.

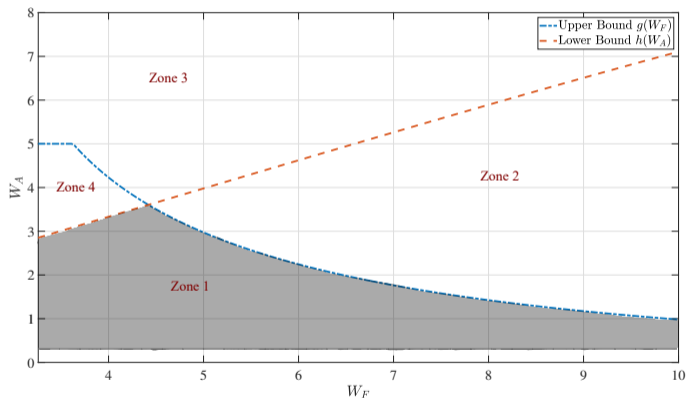
Strategies When Two Funds Interact

In this equilibrium, none of the funds would deviate.

- ▶ Fund A limits the adverse effects of noise trader shocks via announcements
- ▶ Fund F free rides on information from other's announcements

Strategies When Two Funds Interact

There exists an equilibrium with Announcers and Followers in the shaded area where $W_A < g(W_F)$ and $W_F > h(W_A)$.



- Zone 2: Fund F deviates to pay the cost, silently short from the interim period;
- Zone 3: Both fund A and F pay the cost, silently short;
- Zone 4: Fund A deviates to pay the cost, wait to short from the interim period.

Model Implications

- ▶ **Market efficiency** of announcements is ambiguous.

$$\text{Market Efficiency} = E_0 \sum_{n=1}^N \left(\frac{p_{n,0} + p_{n,1}}{2} - V \right)^2.$$

- ▶ Positive, small funds disclosing
 - ▶ Negative, large funds quit learning [Graph](#)
-
- ▶ For a given distribution of fund size, the larger leverage funds can take, the more announcements are made by small funds. [Thresholds](#)
 - ▶ For a given distribution of fund size, the larger the surprise in mispricing, the fewer announcements are made by small funds. [Thresholds](#)

Borrowing Constraints and Announcements

Probit regression

$$D\text{Announced}_{i,j,t} = f(\text{Borrowing Costs}_{i,t-1}, \text{Fund Size}_{j,t-1}, \text{Control}_{i,t-1}) \quad (1)$$

| | Coefficient | z-value | Marginal Effects |
|----------------------------|-------------|---------|------------------|
| Daily Cost of Borrow Score | -0.105 | -2.33** | -0.000486 |
| Fund Size | -0.0241 | -2.08** | -0.000112 |
| Stock Size | 0.0179 | 3.52*** | 0.000083 |
| CAPM Alpha | -0.0091 | -1.5 | -0.000042 |
| Log Turnover | 0.0580 | 0.57 | 0.000268 |
| IVOL | 0.0576 | 0.88 | 0.000267 |
| Obs. | 1,306 | | |
| Pseudo R^2 | 0.188 | | |

Surprise in Mispricing and Announcements

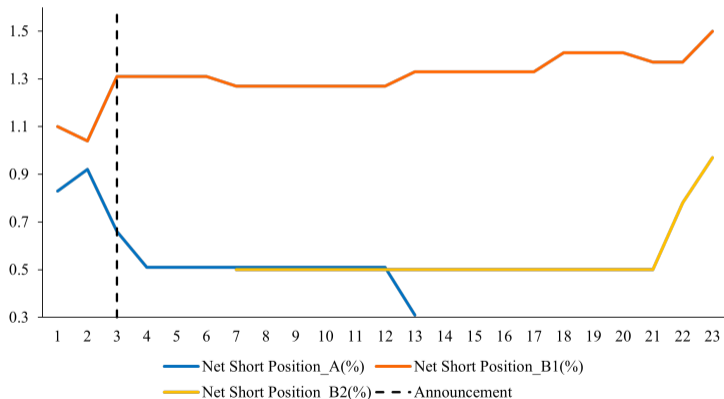
| | (1) | (2) | (3) | (4) | (5) | (6) |
|-----------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| | Coefficients | Marginal Effects | Coefficients | Marginal Effects | Coefficients | Marginal Effects |
| Percentage of Up | 1.668*** (4.42) | 0.007590 | | | | |
| Percentage of Down | | | 0.507 (1.43) | 0.002720 | | |
| Analyst Dispersion | | | | | 0.0225 (0.87) | 0.000131 |
| Fund Size | -0.0188* (-1.67) | -0.000086 | -0.0198* (-1.81) | -0.000106 | -0.0194* (-1.74) | -0.000113 |
| Control | Yes | Yes | Yes | Yes | Yes | Yes |
| Obs. | 1,014 | | 1,014 | | 1,003 | |
| Pseudo R ² | 0.242 | | 0.200 | | 0.193 | |

Conclusion

- ▶ Using a new dataset, I document the existence of two modal fund types: announcers and followers.
 - ▶ Small announcers would (1) increase short positions, (2) disclose, and (3) realize profits.
 - ▶ Large followers would increase their short positions even after announcers exit.
- ▶ I provide a model to explain how size affects hedge funds' behaviour.
 - ▶ Small funds, a threat of binding leverage constraint
 - ▶ Large funds, save learning cost
- ▶ Tests of unique predictions: stocks with lower borrowing costs and larger mispricing are more likely to be announced by hedge funds.

Muddy Waters and Casino

Net short position of Muddy Waters(A), Marshall Wace(B1) and Emerging Sovereign Group(B2)



Return

- ▶ Announcers(A) built up short positions before announcements and liquidated right after.
- ▶ Followers(B) increased their short position after announcements and stay longer.
- ▶ AUM in 2015, A: 0.1B (launched in 2015), B1: 22B, B2: 7B

Announcements

The screenshot shows the AiShorts website interface. At the top, there is a navigation bar with tabs for AIO, A/G, A/V, A/S, A/M, and P/D. Below this is a secondary navigation bar with links for Overview, News, Profiles, Campaigns, Notified Short Positions, Filings, Returns, Stats, Intermediaries, Alerts, and FAQ. The main header area includes buttons for Activism, Governance, Shorts, and Voting. The page title is 'boohoo group plc'. Below the title are buttons for Overview, Short Seller Campaigns, News, Filings, and Allegations. A dropdown menu shows 'ShadowFall Capital & Research (2020.05.26)'. The 'Short Sellers' section contains a table with columns: Name, Announce Date, Allegations, Campaign Status, and Campaign. The 'ShadowFall Capital & Research' campaign is highlighted. Below this is the 'ShadowFall Capital & Research' section with 'Campaign Details'. It features a table with columns: Allegations and Short Summary Text. The 'Accounting Fraud' allegation is detailed. At the bottom, there is a table with columns: Announce Date, Announce Method, Full Report, Latest Share Price, Price target, Price on Announcement, Market Cap at Announcement (M), and End Date.

boohoo group plc

Overview Short Seller Campaigns News Filings Allegations

ShadowFall Capital & Research (2020.05.26)

Short Sellers

| Name | Announce Date | Allegations | Campaign Status | Campaign |
|-------------------------------|---------------|-----------------------|-----------------|----------|
| ShadowFall Capital & Research | 26-May-20 | Accounting Fraud ⓘ | Current | Detail |
| J Capital Research Limited | 14-Jun-17 | Stock Promotion ⓘ | Ended | Detail |
| Richard Pearson | 02-Mar-17 | Ineffective Roll-Up ⓘ | Ended | Detail |

ShadowFall Capital & Research

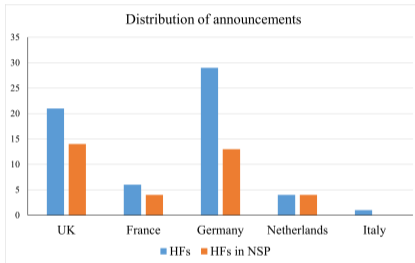
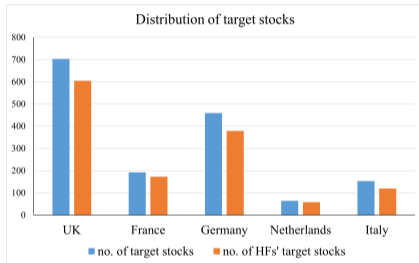
Campaign Details

| Allegations | Short Summary Text |
|--------------------|---|
| Accounting Fraud ⓘ | ShadowFall Capital & Research said that boohoo Group had provided a misleading impression of its cumulative free cash flow by 67% and in 2020 was misrepresented by £92.2 million or 65%. |

| Announce Date | Announce Method | Full Report | Latest Share Price | Price target | Price on Announcement | Market Cap at Announcement (M) | End Date |
|---------------|-----------------|-------------|--------------------|--------------|-----------------------|--------------------------------|----------|
| 26-May-20 | Web post | ✓ | 0.74 | | 2.28 • | 3951.46 | |

Return

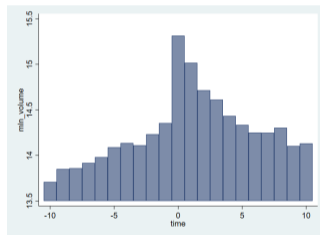
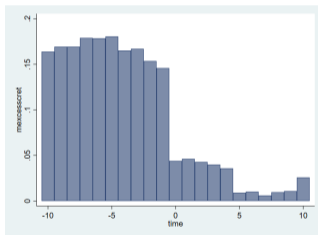
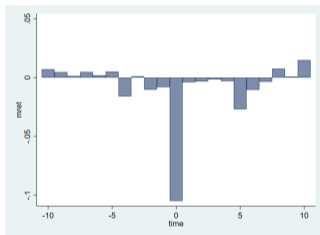
Geographical distribution



Return

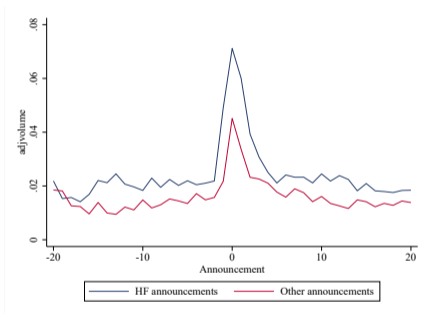
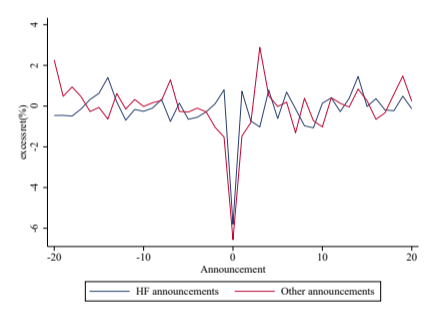
US stock market reaction to announcements

Larger drop in ret (-10%), high trading volume, negative cumulative return on announcement dates.



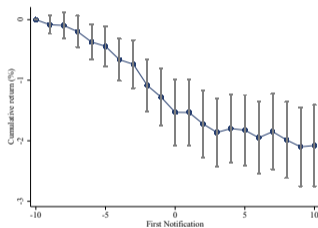
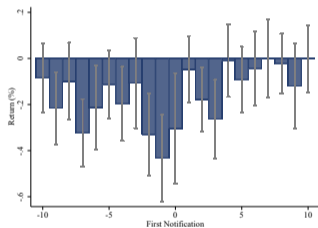
Return

Stock reaction to different types of announcements

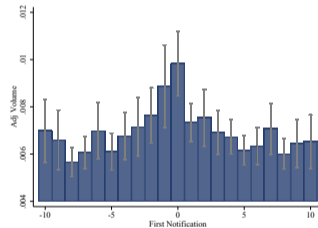


Stock market reaction to HFs' public notification

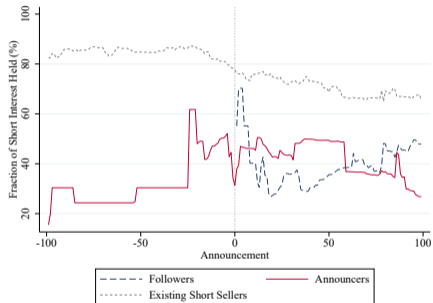
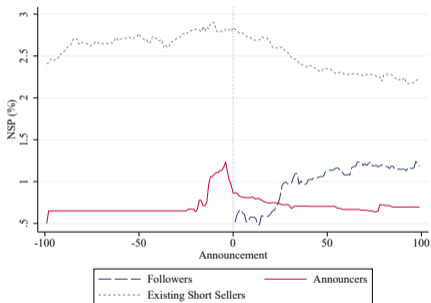
Drop in return (-0.4%), negative cumulative return (-2%), increasing trading volume (1%) on position notification dates.



Return



Shorting activities of existing Short sellers



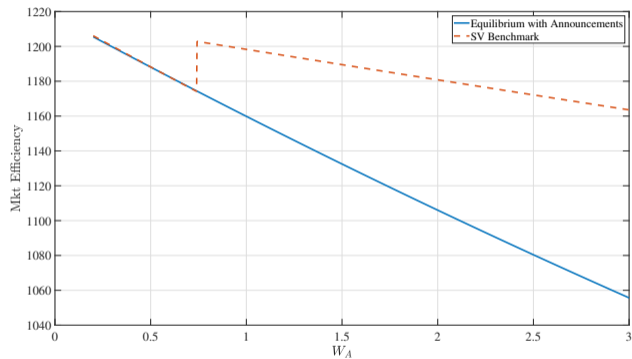
Return

Cost of disclosing

- ▶ Legal cost: Nobilis Health Corp. sued Anson Funds and others for \$300 million in damages relating to an alleged 'scheme'.
- ▶ Short squeeze: Andrew Left announced that Citron Research is no longer releasing bearish reports on 29 January 2021. (Loss from Gamestop)

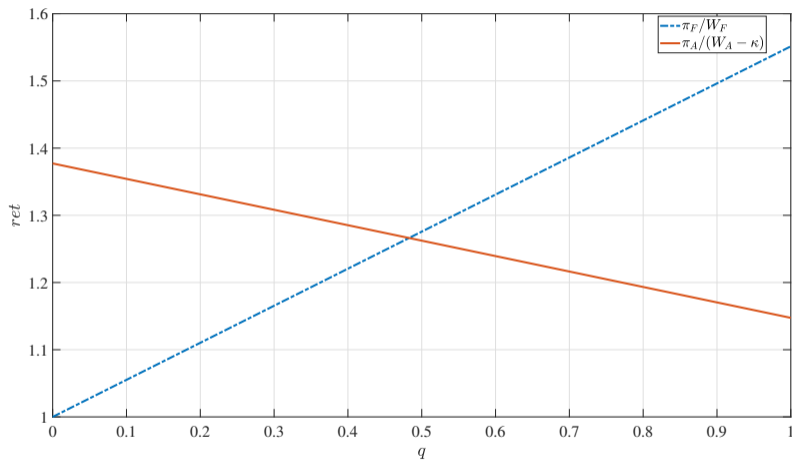
[Return](#)

Implication 1: The impact of announcements on market efficiency



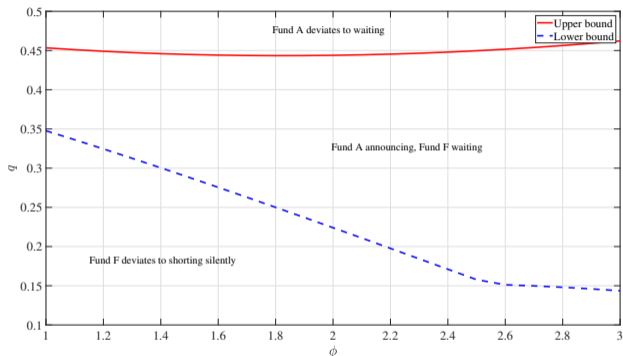
Return

How returns change if noise trader risk increases



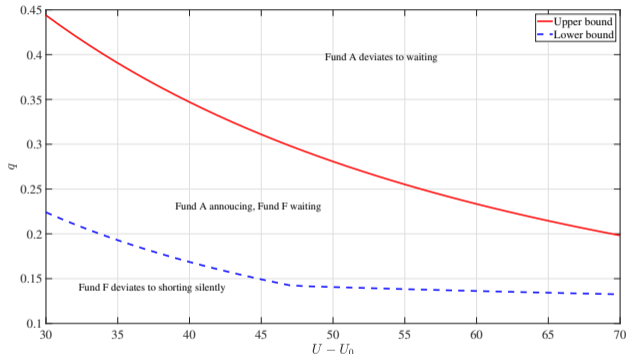
The return of fund F is more sensitive to the probability of a larger demand shock.

Implication 2: How funds change if the maximum leverage increases



When the maximum leverage increases, the price efficiency increases in one asset with announcements, while other assets remain mispriced. [Return](#)

Implication 3: How funds change if the volatility of demand shock increases



The fundamental value is 100. When the surprise in mispricing is larger in the interim period, funds are more willing to wait. Small funds are less likely to reveal their information. [Return](#)

Summary statistics of regression sample

| | All | Target is announced | Target is not announced |
|------------------------------|-------|---------------------|-------------------------|
| Daily Cost of Borrow Score | 2.09 | 1.71 | 2.10 |
| Lender Concentration | 0.24 | 0.20 | 0.24 |
| Percentage of Lendable Value | 14.70 | 17.00 | 14.70 |
| Percentage of Up | 0.12 | 0.25 | 0.11 |
| Percentage of Down | 0.22 | 0.35 | 0.22 |
| Analyst Dispersion | 0.11 | 0.32 | 0.11 |
| Fund Size | 52.80 | 4.11 | 53.90 |
| Stock Size | 4.16 | 6.95 | 4.10 |
| CAPM Alpha | -0.16 | -2.99 | -0.10 |
| Log Turnover | -5.69 | -4.97 | -5.70 |
| IVOL | 2.30 | 2.98 | 2.29 |
| Obs. | 1362 | 29 | 1333 |

Borrowing Constraints and Announcements: Robustness

| | Coefficient | z-value | Marginal Effects |
|----------------------|-------------|---------|------------------|
| Lender Concentration | -1.754 | -2.18** | -0.00734 |
| Fund Size | -0.0244 | -2.09** | -0.000102 |
| Stock Size | 0.0216 | 3.71*** | 0.000090 |
| CAPM Alpha | -0.0104 | -1.79* | -0.000044 |
| Log Turnover | 0.002 | 0.02 | 0.000008 |
| IVOL | 0.0382 | 0.58 | 0.000160 |
| Obs. | 1,309 | | |
| Pseudo R^2 | 0.193 | | |

| | Coefficient | z-value | Marginal Effects |
|------------------------------|-------------|---------|------------------|
| Percentage of Lendable Value | 0.0114 | 1.29 | 0.000060 |
| Fund Size | -0.0232 | -2.04** | -0.000122 |
| Stock Size | 0.0189 | 3.55*** | 0.000099 |
| CAPM Alpha | -0.0094 | -1.6 | -0.000049 |
| Log Turnover | 0.0402 | 0.43 | 0.000211 |
| IVOL | 0.0367 | 0.61 | 0.000193 |
| Obs. | 1,308 | | |
| Pseudo R^2 | 0.181 | | |

*** Significant at 1%, ** Significant at 5%, * Significant at 10%