WHAT DO SHORT SELLERS KNOW?

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Black hats or white hats for short sellers?

PRACTICE OF SHORT SELLING AGAIN ATTACKED AS UNETHICAL

Its Foes Assert It Serves No Useful Purpose, While Others Say It Is Tightly Woven Into the Fabric of Modern Business

New York Times, p. 129
4 Oct 1931

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Short sellers: heroes or villains?

- Are short sellers able to identify overvalued stocks, helping them get to the "right" price?

- Or can they drive prices below fundamental value?

The answers to these questions should ultimately guide our policy choices.

Empirical evidence

- Long literature shows that shorting predicts accounting information/events

- Boehmer, Jones, and Zhang (2008): short sellers are informed
  - Heavy short selling predicts relative underperformance at all horizons up to 3 months.
  - Because shorting flow is not observable in real time, this indicates the presence of private information.

- Most recently: shorting related to news flow
  - Engelberg, Reed, and Ringgenberg (2010) : Short sellers do better on news days, are good at processing publicly released news, but cannot anticipate news.
  - Fox, Glosten, and Tetlock (2010): Shorting precedes negative wire stories.

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Our study

- Assess how much of short sellers' information advantage (i.e., their alpha) can be attributed to undisclosed news about fundamentals.

  - Does this relation differ across investor types?
  - Does this relation differ between aggressive (presumably informed) and passive (presumably uninformed) short sellers?
  - How does the information short sellers use differ from the information analysts use for estimates and recommendations?

Data

- All non-exempt short sales in the NYSE System Order Database
  - October 2000 (inception of Reg FD) – September 2005
  - All US-domiciled common stocks
  - Combine with First Call database for earnings and analyst events

- We use a daily flow measure of shorting activity (vs. monthly short interest, which is a stock measure).

- We aggregate all short sales in a given stock on a given day and normalize by total trading volume in that stock.

Differentiate investor types based on NYSE account types

- Each order is identified by member firms for enforcement purposes.
- We group short sales into six categories:

  - Individual
  - Institutional program trades
  - Institutional non-program trades
  - Member-firm proprietary program trades
  - Member-firm proprietary non-program trades
  - Other

News surprise measures from FirstCall

- Earnings news: (actual EPS – consensus forecast) / std (forecasts in qtr t).
  - Alternatively standardize by time-series std of numerator.

- Analyst news events:
  - Buy/sell recommendation changes: number of notches up or down.
  - Analyst forecast changes: current consensus – previous consensus.

Basic methodology

- Dependent variables are measures of either earnings or analyst news, or future returns over the next 2 to 20 trading days.

- Main explanatory variable is shorting as a fraction of trading volume over the past five trading days, plus controls:
  - Market cap (previous month end)
  - Book-to-market (six months ago)
  - Previous month's return volatility (daily observations)
  - Previous six month return (up to previous month)
  - Previous month's turnover

- Monthly Fama-MacBeth regressions, using Newey-West (1) standard errors.

- Similar results using pooled regressions with standard errors clustered by date.

- All variables are predetermined and standardized.

Is there more shorting before earnings related events?

$$UE_{i,t} = b_0 + b_1 short_{i,t-5,t-1} + \gamma X_{it} + e_{i,t}$$

	all	Indi.	Inst. np	Inst. p	Prop. np	Prop. p	other
Earnings announcements	-0.202	0.027	-0.207	-0.131	-0.071	-0.109	0.178
	-2.16	0.41	-1.89	-1.46	-1.41	-1.47	4.39
Recommendation changes	-0.086	-0.036	-0.100	-0.005	-0.027	-0.024	-0.022
	-6.77	-2.50	-7.67	-0.53	-2.24	-2.59	-2.26
Analyst forecast revisions	0.000	-0.001	-0.001	0.000	0.000	0.001	0.000
	-2.68	-4.60	-3.83	-0.20	1.51	3.56	0.16

- Some evidence that shorters become more active prior to these news events.
- NB: Short interest effect established elsewhere reflects longer-term strategies.

Is short sellers' information different on news days?

$$r_{i,t,t+k} = b_0 + (b_1 + c_0 d_t) short_{i,t-5,t-1} + \gamma X_{i,t-1} + e_{i,t}$$

Predictive return effect (in bps) of 1σ additional short selling, 2-day holding period (Table 4)
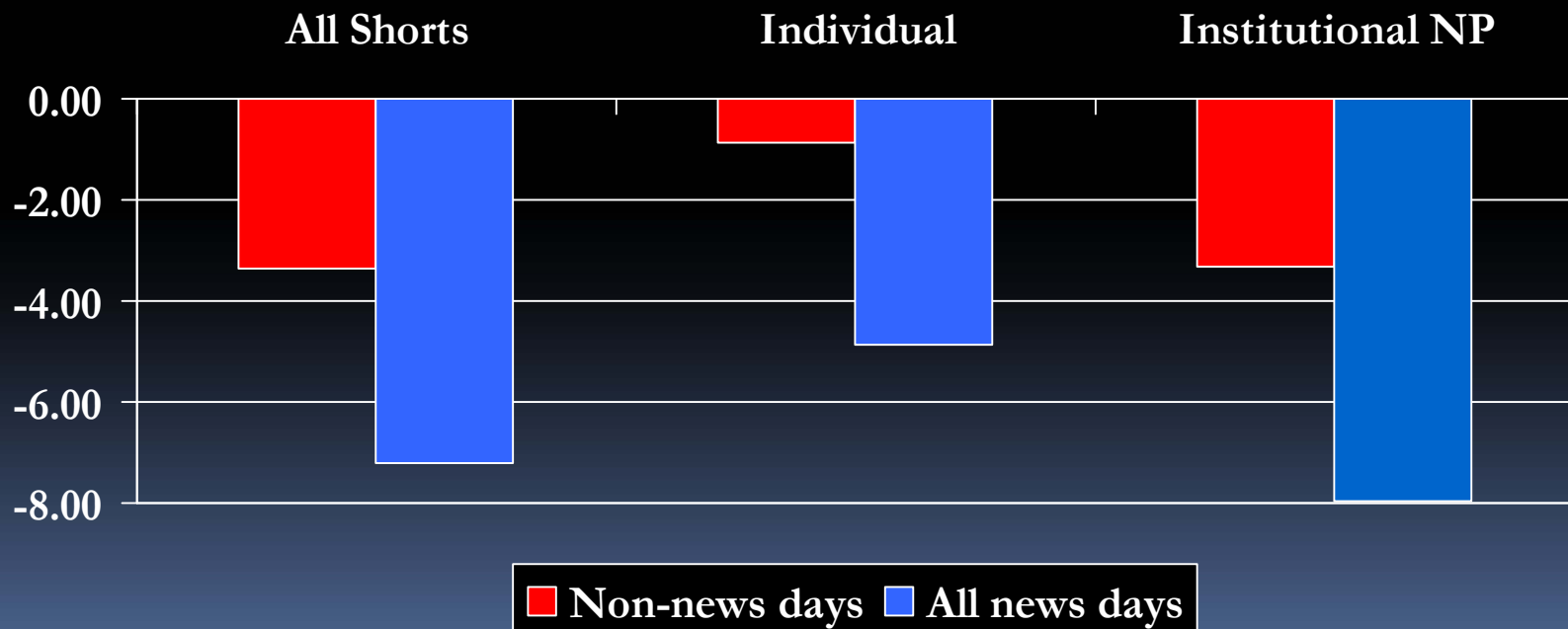
Shorting measures are calculated over a 5-day period

Shorting returns on news days

- Similar results for three news types individually

- Results are stable over time

- Alternative perspective
  - Only 11.6% of sample days are news days.
  - Underperformance with a one-standard deviation increase in shorting: $11.6\% * (3.36 + 3.84) + (1 - 11.6\%) * 3.36 = 3.80$ bp per day
  - Fundamental news is responsible for $22\% = .84/3.8$ of the total effect. The corresponding percentages are 43% for individual traders and 24% for institutional NP trades.

Do short sellers trade on standard factors?

- Our results may capture basic strategies that load on value or size, or general risk patterns.

- Two modifications to the model:
  - Use FF adjusted returns.
  - Add Fama-French factor sensitivities to the return model: $\left(c_4 MKTbeta_t + c_5 HMLbeta_t + c_6 SMLbeta_t\right) short_{i,t-5,t-1}$

Shorting alpha and controls for FF factor loadings

ret[t,t+1]   No beta controls   FF3 beta controls

$$r_{i,t,t+k} = b_0 + (b_1 + c_0 d_t) short_{i,t-5,t-1} + \gamma X_{i,t-1} + e_{i,t}$$

short   -0.0347 ***   -0.0198 ***
short*d   -0.0450 ***   -0.0443 ***

We find similar results for each type of news surprise individually.

Shorting in response to FF3 betas affects mainly shorting return on non-news days
 Shorting return on news days is unrelated to FF3 betas

Future work

- Sort out some possible mechanisms
  - Short sellers and analysts gather similar info
  - Analysts tip short sellers
  - Short sellers tip analysts
  - Short sellers usually provide liquidity

- Focus more on differences across investor types.

- Control for elevated variance on news days.

- Starting this year, the daily shorting flows are publicly available each day. Effects?

Conclusions

- First comprehensive look at what short sellers know about a wide range of _unexpected_ earnings-related information.

- Both individual and institutional short sellers anticipate earnings and analyst-related news at daily to weekly horizons.

- Fundamental news surprises only occur on 12% of days but account for between 23% and 47% of the informativeness of short sales.

- More evidence that short sellers are important contributors to market efficiency - regulators should take note.