# Informed Trading under the Microscope: Evidence from 30 Years of Daily Hedge Fund Trades

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# Motivation



- How do we study something that we care about but cannot directly observe?
- Growing interest in hedge fund trades, but data availability constrains empirical investigation.
  - SEC 13F quarterly holding filling
  - Abel Noser (formerly known as ANcerno) or other proprietary institutional transaction data with limited coverage

# Institutional trade size bins



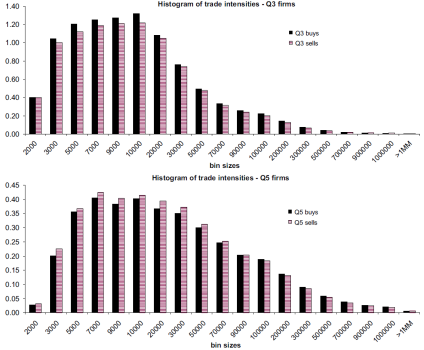



Fig1, CRS2009

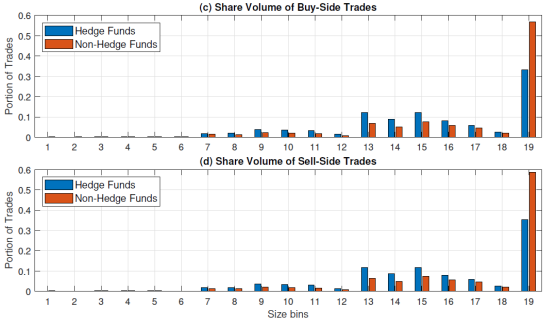



Fig 1, this paper

# Summary



This paper develops a measure for aggregate hedge fund trades by stock-date:

Hedge fund ownership changes $\xrightarrow{\textit{Estimate}}$ *Quarterly* parameters on net buying size bins

Hedge fund ownership changes $\xleftarrow{\textit{Proxy}}$ *Daily* parameters on net buying size bins

The paper further shows that the measure captures informed trading

- before corporate events
- enhanced by satellite data usage

# Contributions

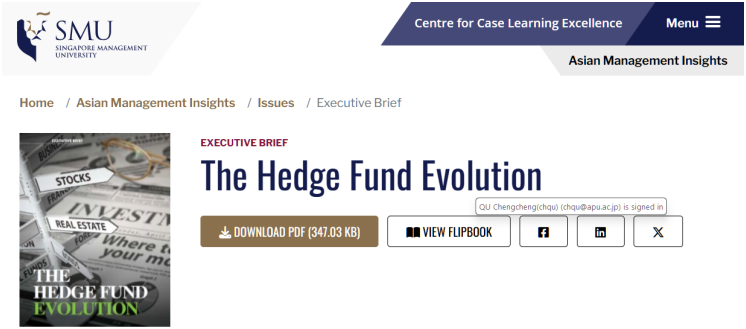


- Methodological contribution
  Extend the CRS approach to overall hedge fund vs. non-hedge fund ownership changes using publicly available data.
- Empirical contribution
  Useful granular daily measures to track hedge fund or non-hedge fund activities

# Comment 1



- Market evolution vs. measure stability
- Hedge fund industry has changed a lot in 30 years.



# Comment 1



- Three 10-year subsamples demonstrate robustness, but the decade splits appear somewhat ad hoc. Any reason?
- Does the measure capture the same underlying evolution or major changes through the sample period?
- Does the predictive power remain stable, strengthened, or weakened over time?
- If necessary, when should the parameters be updated?

# Comment 2



What concerns me more is...
The assumption for calculating net buying bins with TAQ data

- Marketable buys (sells) match to ask(bid) quotes so we can mark a trade as a buyer(seller) initiated
- Assume informed traders like HFs tend to trade with market or marketable orders
- Do HFs persistently submit market orders? Especially in recent years?
- Otherwise, the net buying is not always from HFs or informed traders but can be from their counterparty.

# Comment 2



It was the case...

| | February 2001 (Before) | June 2001 (After I) | November 2001 (After II) |
|---|---|---|---|
| A. Overall trading | | | |
| Average stock price | $33.30 | $20.72 | $20.86 |
| Average quoted spread (bpts) | 35.36 | 18.18 | 22.86 |
| Average quoted spread (cents) | 4.43 | 2.94 | 3.83 |
| Average (high-low)/high | 0.057 | 0.061 | 0.052 |
| Average daily trading volume per stock ($) | $12,284,832 | $10,602,273 | $9,128,487 |
| Total value traded ($) | $304.0 bn | $218.1 bn | $200.4 bn |
| Total shares traded | 9.1 bn | 10.5 bn | 9.6 bn |
| B. Institutional trading | | | |
| Number of stocks | 1,424 | 1,424 | 1,424 |
| Number of brokers | 112 | 133 | 140 |
| Number of orders | 54,716 | 66,098 | 57,021 |
| % Market orders | 56.1 | 51.7 | 59.1 |
| % Limit orders | 43.9 | 49.3 | 40.9 |
| % Marketable | 24.6 | 21.7 | 22.0 |
| % Non-marketable | 19.4 | 26.6 | 18.9 |

Nasdaq institutional order types back to 2001 (Werner, 2003)

# Comment 2



Seems has shifted a lot...

The distribution of order aggressiveness levels over the trading day.

| Interval | Levels of order aggressiveness | | | | | | MO | LO | Total | % MO | % LO |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | | | | | |
| *Panel A: Institutional orders* | | | | | | | | | | | |
| 10:10–11:00 | 12,955 | 51,123 | 144,235 | 81,655 | 198,976 | 96,660 | 208,313 | 377,291 | 585,604 | 35.57% | 64.43% |
| 11:00–12:00 | 10,280 | 41,848 | 127,019 | 61,479 | 191,401 | 103,751 | 179,147 | 356,631 | 535,778 | 33.44% | 66.56% |
| 12:00–13:00 | 4914 | 26,148 | 86,249 | 37,984 | 144,762 | 71,835 | 117,311 | 254,581 | 371,892 | 31.54% | 68.46% |
| 13:00–14:00 | 2840 | 15,617 | 62,071 | 26,601 | 123,026 | 54,654 | 80,528 | 204,281 | 284,809 | 28.27% | 71.73% |
| 14:00–15:00 | 6318 | 43,049 | 122,911 | 57,459 | 224,649 | 90,832 | 172,278 | 372,931 | 545,218 | 31.60% | 68.40% |
| 15:00–16:00 | 9730 | 66,030 | 191,458 | 77,722 | 294,965 | 116,037 | 267,218 | 488,724 | 755,942 | 35.35% | 64.65% |

Australian Securities Exchange institutional order types in 2005 (Duong et al., 2009)

# Comment 3



DiD on RS Metrics satellite data, May 2009 - September 2018

- 48 stocks covered in RS Metrics as TREAT
- 3 matched stocks not in RS Metrics as CONTROL
- Any TREAT stocks already in RS Metrics before May 2019?
- Any TREAT stock's satellite data already available somewhere else in the pre-period?
- Any CONTROL stock's satellite data became available somewhere else?
- Details to clarify the identifying variation
- Maybe also test if the HF measure increases after a stock's satellite data became available?

# Minor comments



- Page 14, Eq (3), holding end-of-quarter with daily parameters or holding end-of-day with quarterly parameters?

$$\Delta Y_{i,d} = \alpha_d + \rho \Delta Y_{i,d-1} + \phi Y_{i,d-1} + \beta^U U_{i,d} + \beta^{UY} Y_{i,q-1} \times U_{i,d} + \sum_{Z=1}^{19} \beta(Z,v) F_{Z,i,d} + \epsilon_{i,d}, \quad (3)$$

Slightly different from CRS2009:

$$\begin{aligned}\Delta Y_{id} = {} & \alpha_d + \rho_d \Delta Y_{it-1} + \phi_d Y_{it-1} + \beta_U U_{id} \\ & + \beta_{Uv} Y_{it-1} U_{id} + b_{01} \sum_Z F_{Zid} + b_{02} \sum_Z Y_{it-1} F_{Zid} \\ & + b_{11} \sum_Z g_1(Z) F_{Zid} + b_{12} \sum_Z g_1(Z) Y_{it-1} F_{Zid} \\ & + b_{21} \sum_Z g_2(Z) F_{Zid} \\ & + b_{22} \sum_Z g_2(Z) Y_{it-1} F_{Zid} + \varepsilon_{id}. \qquad (8)\end{aligned}$$

# Minor comments



Terminology clarification

- The paper follows CRS2009 in referring to net buyer-initiated volume as ”order imbalance” and net trade size as ”order flow”.
- Maybe just a complaint from me, but this can be somewhat confusing:
- As orders and trades are often treated as distinct objects, at least for microstructure persons

# Conclusion



- A thoughtful paper with substantial depth.
- A useful method to proxy daily-level hedge fund or informed trading activities with publicly available data.
- Potential to apply to broad examinations on HF.
- Wish the authors the very best moving forward.

# Reference



Werner, Ingrid M. “Execution Quality for Institutional Orders Routed to Nasdaq Dealers Before and After Decimals.” SSRN Electronic Journal, ahead of print, 2003. https://doi.org/10.2139/ssrn.463061.

Duong, Huu Nhan, Petko S. Kalev, and Chandrasekhar Krishnamurti. “Order Aggressiveness of Institutional and Individual Investors.” Pacific-Basin Finance Journal, Special Section: Asia-Pacific Market Microstructure, vol. 17, no. 5 (2009): 533–46. https://doi.org/10.1016/j.pacfin.2009.05.001.