How Wise are Crowds? Insights from Retail Orders and Stock Returns

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Discussion: Emiliano S. Pagnotta, NYU Stern

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Conventional Wisdom: Institutional Investor

Conventional Wisdom: Institutional Investor

Conventional Wisdom: Retail Investor

Recent Evidence: Bernie or Burns?

More Fundamentally: Why studying retail investors?

- Do retail investors enhance/hurt the price discovery process?
- Market Efficiency
  - Retail investors are less and less relevant from long term perspective
  - (Increasingly sophisticated) Institutional investors are dominant
  - Is this good/bad news for market efficiency?
    - Some positive evidence (Boehmer Kelley 2009)
    - Still an open question: "There is no clear theoretical presumption that—absent any policy intervention—the rise of sophisticated investors should necessarily be beneficial to market efficiency", J. Stein (AFA 2009 P. Address)
- Gain insights about more sophisticated investors
  - Even if not quantitatively important...they face a simple problem (no agency problem, internal conflicts,...)
  - "intermediate step" to understand more complex behavior

Main Findings

- Buy-Sell imbalances of market and limit orders predict the cross section of returns within a month (up to 20 days)
- Market order imbalances predict (negative) tone of news up to a month. Limit order imbalances do not.
- Market orders show daily return momentum, limit orders are contrary to daily returns.

This paper in the literature

Closest Papers	Market and Period	Retail Order Flow Sample	Leading Source of Correlation with Returns
Kaniel Saar Titman 2008	NYSE 2000-2003		Liquidity Provision Premium
Kaniel, Liu, Saar, Titman 2008	same		Information about firms' cash-flows
Barber, Odean , Zhu 2009	TAQ up to 2000		Mechanical: retail buying predicts more retail buying
Dorn, Huberman, Sengmueller 2008	German Broker 1998-2000		Mechanical
Kelley Tetlock	Big US OTC Market Center 2003-2007	Market and limit orders	Information (Market orders), Liquidity Premium (limit orders)

Return Predictability and Violations of Market Efficiency

- This is **not** the interesting point of the paper....
- The effect of order imbalance in the Fama-McBeth regressions is stronger for small-illiquid stocks, negligible for big size low spread stocks
- Robust predictability pattern: the autocorrelation of index returns by size is zero for largest most liquid stocks, positive for small stocks (daily, weekly,...)
- Amihud and Mendelson (1987, 1989) show that prices can look like random walk but in fact there is a partial adjustment to information (that the market makers may not see)
- Kelley and Tetlock: not a violation of semi-strong form efficiency (retail order flow is not public info)

Retail market orders and news tone

- **New Finding**: Retail market order imbalance predicts (negative) news tone
- Consistent with KSLT 08 (earning announcements)
- Different from KLT 08: liquidity provision to institutions seems less plausible than at the NYSE.
- No reversals on horizons up to 60 days: pure order splitting/temporary price pressure less plausible...
- **Take away:** Retail investors may be well-informed about fundamentals
- Thought provoking!

Information content of retail trades in perspective

- Older studies (before 2000) reached opposite conclusions.
- **Interesting question: Why is the information content increasing?**

Possible Explanations

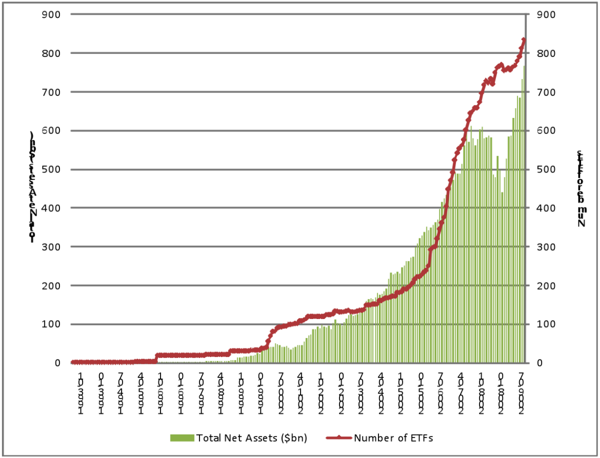
- Broker's order selection/internalization?
  - Kelley Tetlock no significant differences between order flows from brokers that do and don't internalize
  - Brokers did not start internalizing during the very last few years only...
- New networks of insider traders camouflaging? (on the news show)
- Learning? (e.g. Seru et al. 2010). Evolutionary elimination of behavioral investors?

Financial Innovation and Household's Investments

- Why is that individual investors trade in the first place?
  - Retirement, Consumption smoothing, hedging, meeting life goals... (Non-information driven)
  - Information about a firms' fundamentals
- Conjecture: Recent Revolution in Investment instruments may play important role.
  - Households' investment problem fundamentally changed: asset allocation more complex (easy broad exposures to derivatives, commodity futures, international assets, etc.), security selection less complex (delegation, index funds,...)
  - Asset allocation changed significantly: bigger weight on Mutual Funds + ETFs.
  - Consequence: more **information** in individual stocks order flow (far less "noise")

ETF REVOLUTION

FIGURE: ETF Net Assets and Number of ETFs (1993-2010)



Source: Petajisto (2010)

Evolution or Financial Innovation?

- Potential interesting test: Look at information content of retail options order flow before and after 2000.
- If no significant difference financial innovation is more plausible

Theory: Why paying for order flow?

Challenge to Conventional Wisdom

- Parlour and Seppi 2003:
  - "Retail order flow is widely believed to be uninformed"
  - Source of payments: Competition between OTC market makers to attract **uninformed** flow
  - Profitable because liquidity provision rents more than compensate for adverse selection risks
  - Consequences on prices: wider bid-ask spreads, consumers welfare decreases.
- **Based on Kelley and Tetlock this makes no sense!**
- Why do Market makers then still pay for order flow?
  - Either this practice is dying...
  - Or we need a new conceptual framework

Theory: Why paying for order flow?

Alternative View

- Conjecture: OTC MM pay for order flow because they purchase a signal
  - Loose money with retail traders and profit from other traders
- Insights from models with decentralized trade:
  - Investors in an OTC market may be willing to participate in small trades in which they loose money to learn a signal (Golosov Lorenzoni Tsyvinski 2010)
  - This may over-incentivize research and information acquisition, not obvious whether is welfare improving

Is this consistent with return predictability over a month?

- Interesting empirical question: can one make profits (after transaction costs) trading on retail order flow information?
- If so, why is that the (informed) OTC Market maker does not eliminate the predictability persistence in the data? does it question her rationality?
  - Optimal rate of information transmission into prices (Kyle 1985)
  - Arrival of subsequent information may induce MM to trade less aggressively
  - But OTC MM are not monopolists: risk of losing profits against informed competitors will induce more aggressive profile (Holden Subrahmanyam 1992)
  - Limited capital? Why not selling the signal to some other unconstrained investor?
- Consequences on market quality?

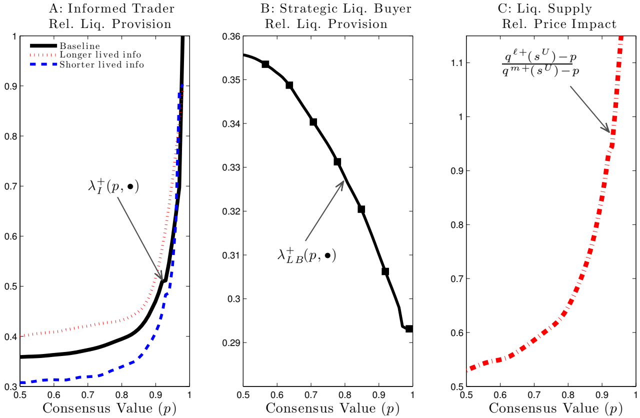
Limit order imbalance does not predict news tone

- Plausible take away: Retail limit order flow in OTC markets do not predict news tone. Why?
  - Retail traders do not monitor the market often (more difficult to include limit orders in their trading plan)
  - Orders of magnitude higher operational latencies than sophisticated traders. When latency gap is extremely large slow investors (retail or institutional) do not submit limit orders (Pagnotta Philippon 2011)
- Implausible take away (Kelley Tetlock):
  - Informed investors don't use limit orders
  - Evidence against supporting experimental evidence (Bloomfield O'Hara Saar 2005) and models of information with limit order trading (Kaniel Liu 2006, Pagnotta 2010)

Sophisticated Investors in Exchanges

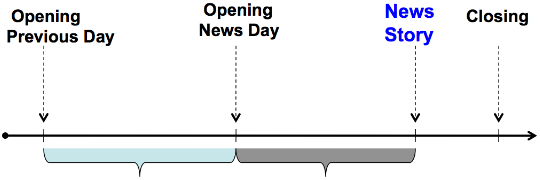
Looking into Trading Dynamics

Figure: Make-Take Trading Intensities and Relative Price Impact of Limit Orders



Source: Pagnotta (2010)

Testing Order Type's Relative Information Transmission in Exchanges



- News: same measure of negative news tone (Harvard4 + Loughran-McDonald's FinDic)
- Order Flow: prop. data from NYSE (2002: post decimalization, pre HFT, high trading consolidation period)
- Test: does the relative price impact of limit orders increase as the market approaches asset specific news release?
- Outlook of results: when tested on individual stocks, up to 70% display strong evidence of the information effect.

Looking forward

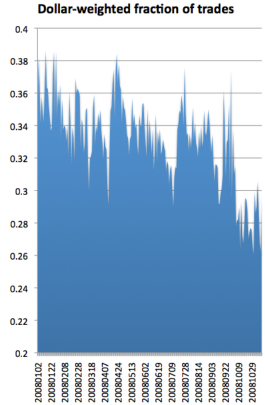
Retail investors as liquidity providers in equity markets

- Retail investors providing liquidity to whom?
  - Little institutional flow at the OTC market center (less than 1%)
  - Very little retail order flow at the NYSE (e.g. Boehmer and Kelley 09)
- Would retail investors survive as liquidity providers in an era of ultra-high-frequency market makers?
  - If retail coordination depends on observables like past returns and volume (Barber et al. 2009), HFT will easily eat them (front-running, etc.)

Looking forward

Big challenge even for institutions!

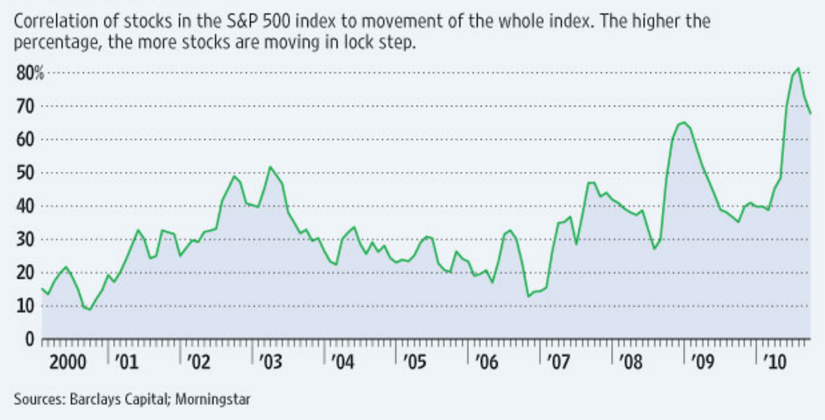
Figure: Fraction of Trades where HFT do not Participate (NASDAQ 2008)



Source: Pagnotta Philippon (2011)

LOOKING FORWARD

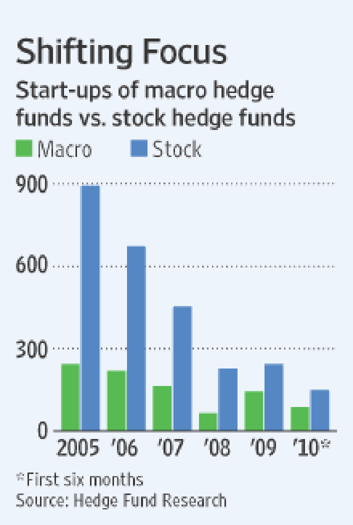
TOUGH TIMES FOR STOCK PICKERS



Looking forward

Tough times for stock pickers

"Stock picking is a dead art form" Jim Bianco on WSJ Sep. 24, 2010



Looking forward

- Trend: retail order flow in individual stocks may eventually become irrelevant...
  - Non-information driven: $\downarrow$
  - Liquidity provision: $\downarrow$
  - Stock picking: $\downarrow$
- Some interesting questions: Individuals and institutions
  - **Individuals**: real consequences of big shifts in households' asset allocation (e.g. disrupting effects on commodity prices, attenuation of home biases, real state cycles, ...)
  - Consequences of complex dynamic interaction of sophisticated **institutions** (e.g. high-frequency investors) on market stability, long-term liquidity, inefficient arm-races,...

Conclusion

- Nice empirical contribution!
- Lots of food for thought