Retail vs. Institutional

"We've decided to tell individuals we treat them like institutions, and tell institutions we treat them like individuals."
The role of retail traders

- Are retail investors informed? Do they make systematic mistakes in their trading decisions?
  - Can they predict future returns?
  - Are they trading in the wrong directions?

- Conflicting results:
  - Boehmer, Jones and Zhang (2008)
  - Kelley and Tetlock (2013)
  - Barrot, Kaniel and Sraer (2016)

- The challenge: How to track retail investors?
Tracking Retail Investors: Trade Size

- Historically, small trades were more likely to come from retail customers, while institutions were likely behind the larger reported trades.
  - Lee and Radhakrishna (2000) use a $20,000 cutoff

- Once algorithms become an important feature of institutional order executions in the early 2000’s, “slice and dice” becomes the norm of institutional trades.
  - During our recent sample period retail order flow actually has a slightly larger average trade size compared to other order flow.

- Problem: trade size doesn’t seem to be a good proxy nowadays.
Tracking Retail Investors: Proprietary Datasets

- Kaniel, Saar and Titman (2008) and Boehmer, Jones and Zhang (2008) use proprietary account-type data from the NYSE during the early 2000’s.
  - A small market share of overall retail order executions.
- Kelley and Tetlock (2013) have data from a single U.S. wholesaler.
- Barrot, Kaniel and Sraer (2016) have data from one French brokerage firm.

- Problem 1: These datasets are not publicly available.
- Problem 2: Relatively small subsets of overall retail order flow.
Our Data

- Publicly available
- Covers substantial amount of retail order flow
- Easily implementable

Can be used to study retail investors with respect to:
- Behavioral biases
- Amount and nature of their information
- Seasonality and time-series properties
Handling of Retail Market Orders

- Most equity orders initiated by retail investors never go to the NYSE, Nasdaq, or another exchange.

- The vast majority of marketable retail orders are executed by:
  - **Internalization**: filled from the broker’s own inventory
  - **Wholesalers**: broker has made arrangements to route orders to an entity such as Knight, Citadel, UBS.

- Off-exchange orders executed internally or by wholesalers are almost always reported to a FINRA Trade Reporting Facility (TRF)
  - included in the “consolidated tape” of all reported transactions as exchange code “D”.

Subpenny Price Improvement

- For orders executed internally or by a wholesaler, the retail customer often receives a price that is a fraction of a penny per share better than the prevailing NBBO (national best bid or offer price).
  - Ex: for a retail sell, the internalizing or wholesaling counterparty often agrees to pay slightly more than the National Best Bid.
  - This price improvement is typically only a small fraction of a cent. Common price improvement amounts: 0.01, 0.1 cents.
  - Allows broker to claim that the customer did better than if the order had been sent to an exchange.

- But broker still makes money on this:
  - Receives payment for order flow from wholesaler
  - On internalized trades, broker is likely to earn some bid-ask spread even with price improvement.
Most retail orders are price-improved.

Other on-line discount retail brokers provide very similar statistics.
Retail vs. Institutional Subpennies

- Subpenny price improvements are not a feature of institutional order executions.
  - Reg NMS prohibits orders from having subpenny limit prices.
  - Internalizers and wholesalers go to great lengths to avoid interacting with institutional order flow.

- Exception: Reg NMS allows executions at the quote midpoint.
  - As a result, institutions often use crossing networks and midpoint peg orders that generate transactions at the midpoint price.
  - Quoted spread is now typically 1c per share, so many transactions are reported at a half-penny.
  - Some dark pools and crossing networks also allow negotiation around the midquote, so “midpoint” prints can be 0.4-0.6 cents.
Our Retail Identification Strategy

- For all trades reported to a FINRA TRF (exchange code ‘D’ in TAQ)
  - Suppose $Z_{it}$ is the fraction of a penny associated with transaction price $P_{it}$.
  - If $Z_{it}$ is in the interval $(0,0.4)$, it indicates a retail seller-initiated transaction.
  - If $Z_{it}$ is in the interval $(0.6,1)$, it indicates a retail buyer-initiated transaction.
  - Transactions at a round penny ($Z_{it} = 0$) or near the half-penny ($0.4 \leq Z_{it} \leq 0.6$) are not assigned to the retail category.
More on Data and Sample

- We merge TRF transaction data from TAQ with stock return data and accounting data from CRSP and Compustat, respectively.

- We only include common stocks with share code 10 or 11 (which excludes mainly ETFs, ADRs, and REITs) listed on the NYSE, NYSE MKT (formerly the AMEX), or Nasdaq.

- We remove low-priced stocks by requiring the minimum stock price to be $1 from previous month-end.

- Our sample period is from January 3, 2010 to December 31, 2015.

- On each day, we have on average 3200 firms included in the sample.
## What Explains Retail OIBs?

<table>
<thead>
<tr>
<th>Dep.var</th>
<th>oibvol Coef.</th>
<th>t-stat</th>
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<tbody>
<tr>
<td>Intercept</td>
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<td>Own lag</td>
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<tr>
<td>Ret (w-1)</td>
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<tr>
<td>Ret (m-1)</td>
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<td>Ret (m-7, m-2)</td>
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<td>-12.10</td>
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<tr>
<td>lmtto</td>
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<tr>
<td>lvol</td>
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<td>size</td>
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<tr>
<td>lbm</td>
<td>-0.0275</td>
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</table>

- Retail traders are contrarians. Why?
  - Either they have information.
  - Or trade against other traders and thus provide liquidity.
  - Or both.
  - Or trade systematically into the wrong direction.
### Predicting the Cross-section of Future Stock Returns

<table>
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<tr>
<th>Dep. var</th>
<th>Bidask return</th>
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<th>CRSP return</th>
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<td>-0.0220</td>
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<td>0.35</td>
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<td>Return diff</td>
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<td>0.1144%</td>
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Retail OIB Predicts Returns in the Cross-Section

- Retail order imbalance strongly and positively predicts one-week ahead stock returns.

- The inter-quartile range for oibvol is 1.19 per week. Multiplying this by the regression coefficient of 0.0009 generates a weekly return difference of 9.96 basis points (or 5.12% per year annualized).

- Similar for other return measures.
- Predictability persists over at least three months.

- As a group, these retail investors are informed traders.
OTHER EVIDENCE
Subgroup Analysis

- Returns are most predictable for small, low price, low turnover firms.
- But returns are still significant for large firms!
Buy the stocks in the highest quintile of order imbalance (the most retail buys), short the lowest quintile (the most retail sells).

Report value-weighted raw and risk-adjusted FF3 returns.

Given the overlapping data, we adjust the standard deviations of the portfolio return time-series using Newey-West (1987) with the corresponding number of lags.

5% to 25% alpha. Mostly significant. No evidence of reversals. Results slightly noisier than FMB results.
Market Timing Ability of Retail Traders

- We regress future aggregate returns on aggregate retail order imbalance.
- No evidence that retail investors can predict future market returns or future returns in broad-market ETFs.

- Although retail investors display stock selection skills, they do not seem to be able to do market timing.
Market Conditions

- Barrot et al. find that retail traders are relatively more informed during market stress period.
- We find VIX has no impact on the predictive power of our retail OIB.
The Information in Odd Lots

- We find nothing special going on in odd lot orders.
The Magnitude of Price Improvement and Future Return

• Retail OIB is more informative when PI is small
• This means that brokers can predict the information content of incoming orders.
• This, in turn, means internalizers can price discriminate against more informed retail traders.
Conclusions

- We provide an easy way to use recent, publicly available U.S. equity transaction data to identify retail purchases and sales.

- Based on resulting retail order imbalances, we find that retail investors are informed at horizons up to 12 weeks.

- Stocks with net buying by retail investors outperform stocks with negative imbalances; the magnitude is approximately 20 basis points over the following week, or 10% per year annualized for the smallest third of firms, or about half that for the largest firms.

- Retail investors are better informed in smaller stocks with lower share prices. However, they do not exhibit any market timing ability.
The Barber and Odean Series


Some Theoretical Guidance

- Black (1986)
  - Retail traders: are they noise traders?
  - Noise traders make trades possible, because they allow those who have information to be paid.

- Shleifer and Summers (1990)
  - Some investors are not fully rational and their demand for risky assets is affected by their beliefs or sentiment that are not fully justified by fundamental news.
  - Results: limits to arbitrage, sentiment might be priced.
Research Questions

- Are retail investors informed? Do they make systematic mistakes in their trading decisions?
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