
ABFER 9th Annual Conference

Understanding Retail Investors: Evidence from China

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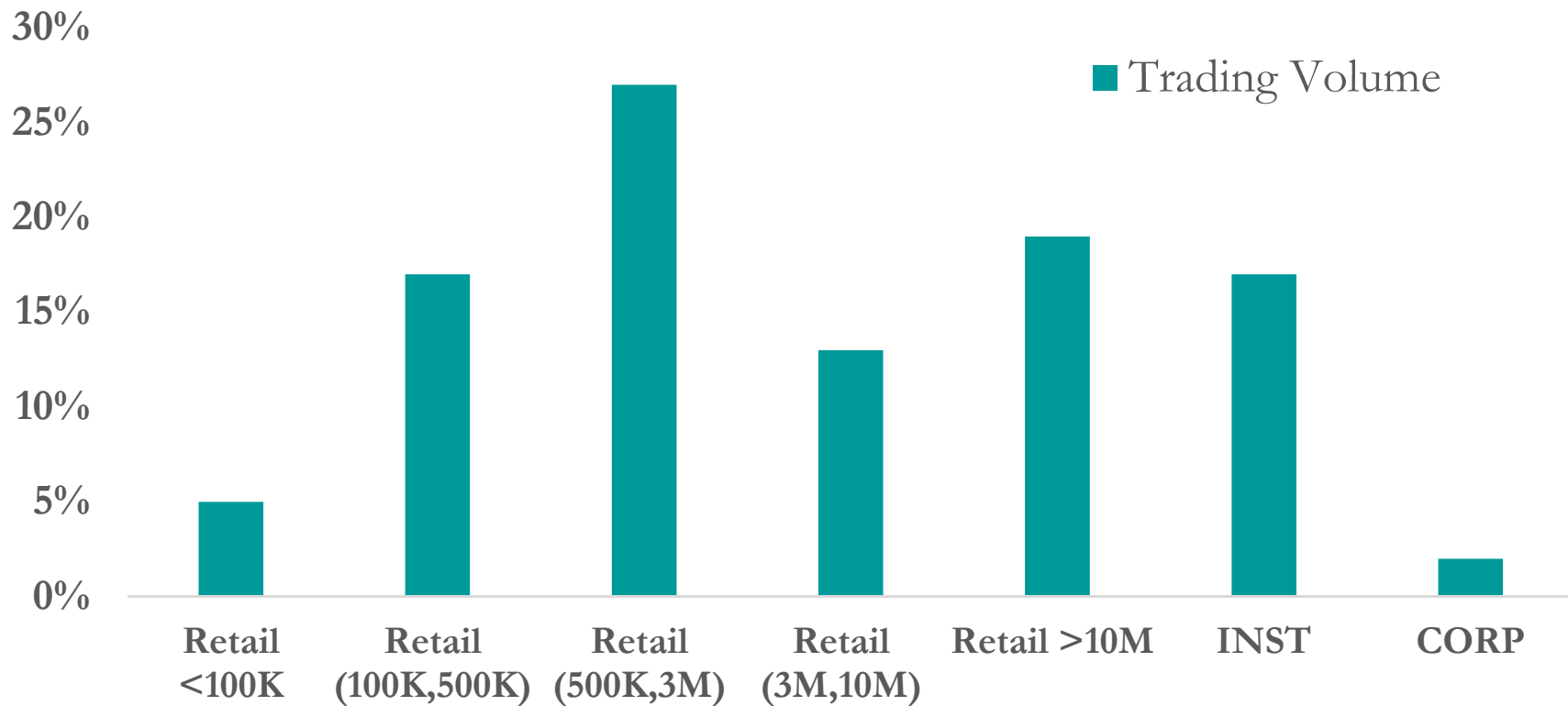
Donghui Shi, Fudan University

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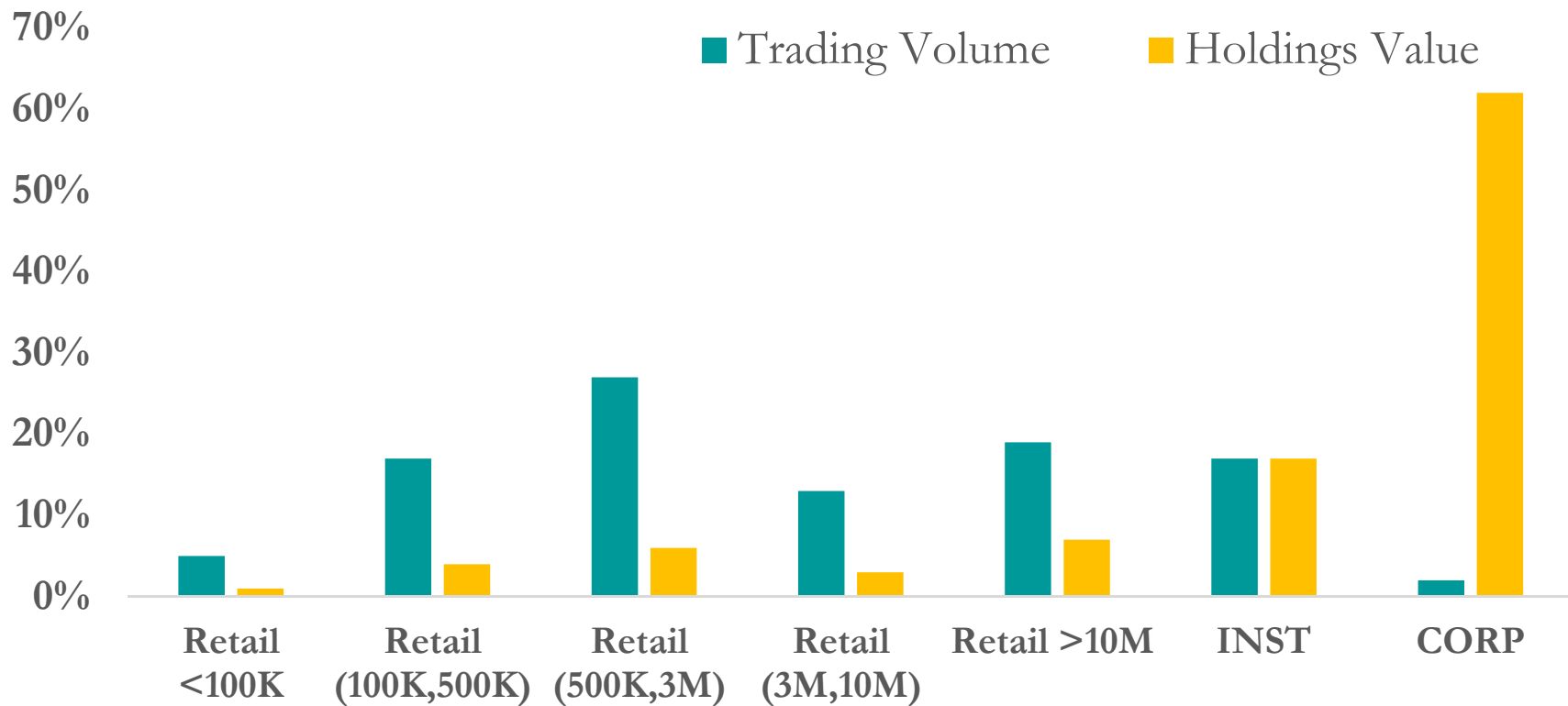
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Why Chinese Retail Investors?



Why Chinese Retail Investors?



Chinese Retail Investors: A 20-Year Debate



- Investors:
 - Investing vs. Gambling?

- Capital Market:
 - Financing platforms vs. Casinos?

- Market Efficiency
 - Information

Research Questions

- This study examine two fundamental questions of retail investors in Chinese stock market with account level data.
 - How retail investors contribute to price discovery?
 - Can they predict future returns?
 - What drives retail investors trading behaviors?
 - Information? Liquidity? Behavioral?

Previous Literature

■ US retail investors literature

- Barber and Odean (2000, 2001, 2002, 2008), Kaniel, Saar, and Titman (2008), Kelley and Tetlock (2013), Boehmer, Jones, Zhang, and Zhang (2021), Welch (2021), Eaton, Green, Roseman, and Wu (2021), Barber, Huang, Odean, and Schwarz (2021)

■ Retail investors in other markets

- Grinblatt and Keloharju (2000), Sengmueller (2008), Barber, Lee, Liu and Odean (2009), Linnainmaa (2010), Grinblatt, Keloharju, and Linnainmaa (2012), Fong, Gallagher, and Lee (2014), Dorn, Huberman, Barrot, Kaniel and Sraer (2016), Bach, Calvet, and Sodinish (2020), Balasubramaniam, Campbell, Ramadorai and Ranish (2021)

■ Chinese retail investors literature

- Li, Geng, Subrahmany and Yu(2017), Chen, Gao, He, Jiang and Xiong (2019), Jiang, Liu, Peng, and Wang (2020), Liu, Peng, Xiong, and Xiong (2021), Liao, Peng, and Zhu (2021), Titman, Wei, and Zhao(2022), Hu, Liu, and Xu (2021), An, Lou, and Shi (2022)

Contributions

- Our study, with its large coverage of the market for a recent sample period, is one of the most thorough and comprehensive studies of Chinese retail investors.
 - We separate retail investors into groups based on account sizes and provide unique, direct evidence on investor heterogeneity in trading and return predictability.
 - We examine different hypotheses for the return prediction patterns for different retail investor groups, and provide clear evidence on the sources of the negative or positive predictive power of different retail investors.

Possible Concerns

- Too descriptive? Just summary statistics?
 - We do provide important stylized facts for the Chinese stock market.
 - We also provide thorough analyses of sources of return predictive patterns.

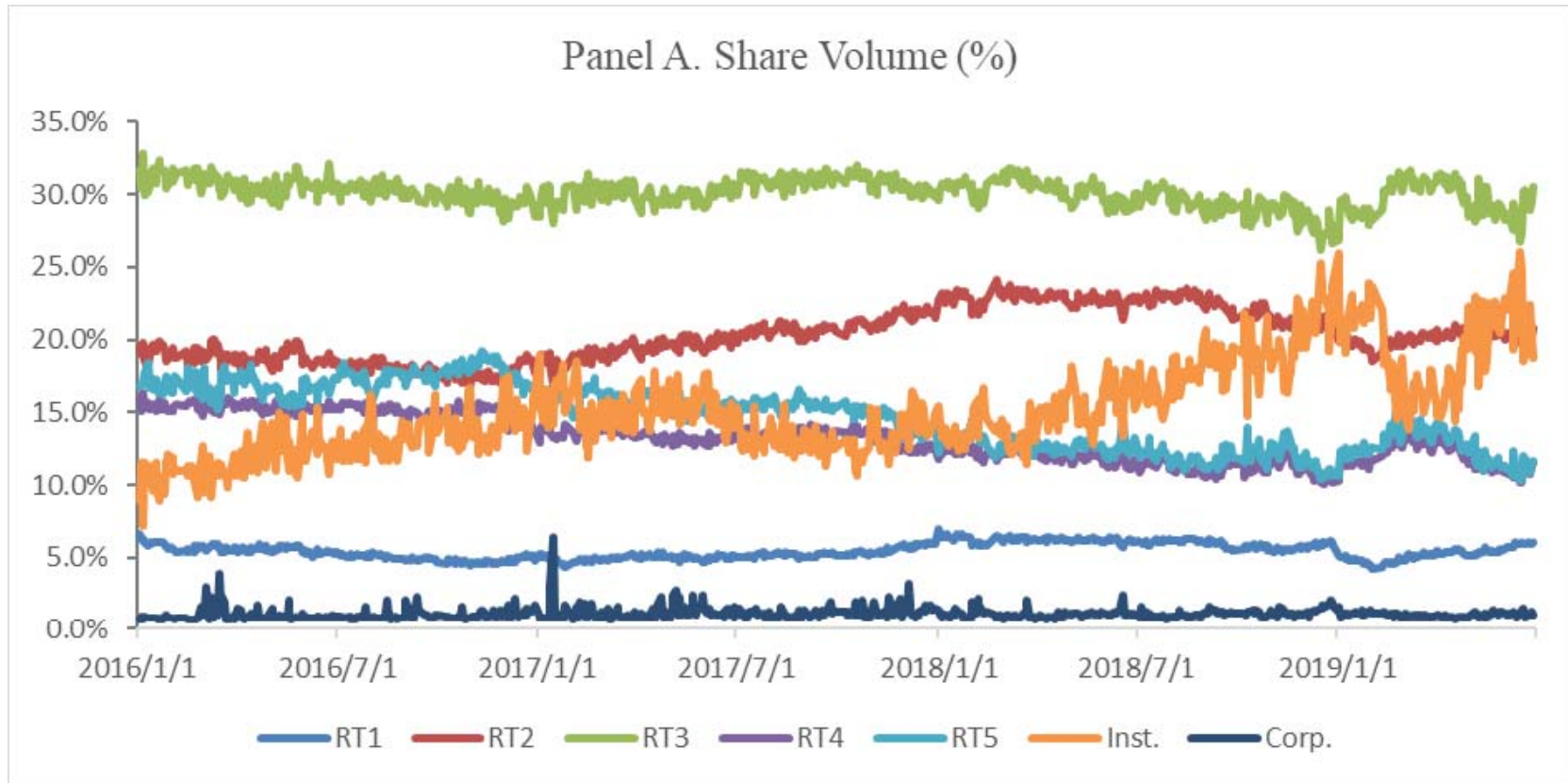
- Are these patterns already found in U.S.?
 - The literature on U.S. retail investors have mixed results on our research questions.
 - Set-ups in the U.S. are quite different from those in China.
 - Understanding current status of Chinese retail investors is important for both academics and regulators.

Data

- Account level data from a major exchange
 - Sample period: January 2016 to June 2019
 - Number of accounts: Over 53 million accounts

| | Account value (CNY) | Number of Accounts('000) |
|------|---------------------|--------------------------|
| RT1 | <100K | 31,410 |
| RT2 | (100K,500K) | 15,282 |
| RT3 | (500K,3M) | 5,827 |
| RT4 | (3M,10M) | 735 |
| RT5 | >10M | 235 |
| INST | | 40 |
| CORP | | 47 |

Figure 1.



Retail Order Flows: Order Imbalance

- For each type of investor G trade stock i on day d , the order imbalance measures are:

$$Oib(i, d, G) = \frac{\sum_{j \in G} Buyvol(i, d, j) - \sum_{j \in G} Sellvol(i, d, j)}{\sum_{j \in G} Buyvol(i, d, j) + \sum_{j \in G} Sellvol(i, d, j)}$$

| | Mean | Std | Correlation | | | | | |
|---------|--------|-------|-------------|--------|--------|--------|--------|---------|
| | | | OibRT1 | OibRT2 | OibRT3 | OibRT4 | OibRT5 | OibINST |
| OibRT1 | -0.021 | 0.187 | | | | | | |
| OibRT2 | -0.011 | 0.171 | 0.802 | | | | | |
| OibRT3 | -0.006 | 0.166 | 0.610 | 0.710 | | | | |
| OibRT4 | 0.002 | 0.250 | 0.194 | 0.244 | 0.256 | | | |
| OibRT5 | 0.019 | 0.352 | -0.151 | -0.158 | -0.163 | -0.091 | | |
| OibINST | -0.011 | 0.455 | -0.315 | -0.365 | -0.380 | -0.263 | -0.188 | |
| OibCORP | -0.004 | 0.720 | 0.022 | 0.029 | 0.021 | -0.007 | -0.043 | -0.044 |

Question 1. Can Retail Investors Predict Future Returns?

- Fama-MacBeth regression for each investor group G :

$Ret(i, d)$

$$= a_0(d) + a_1(d)Oib(i, d - 1, G) + a_2(d)'Controls(i, d - 1) + u_1(i, d).$$

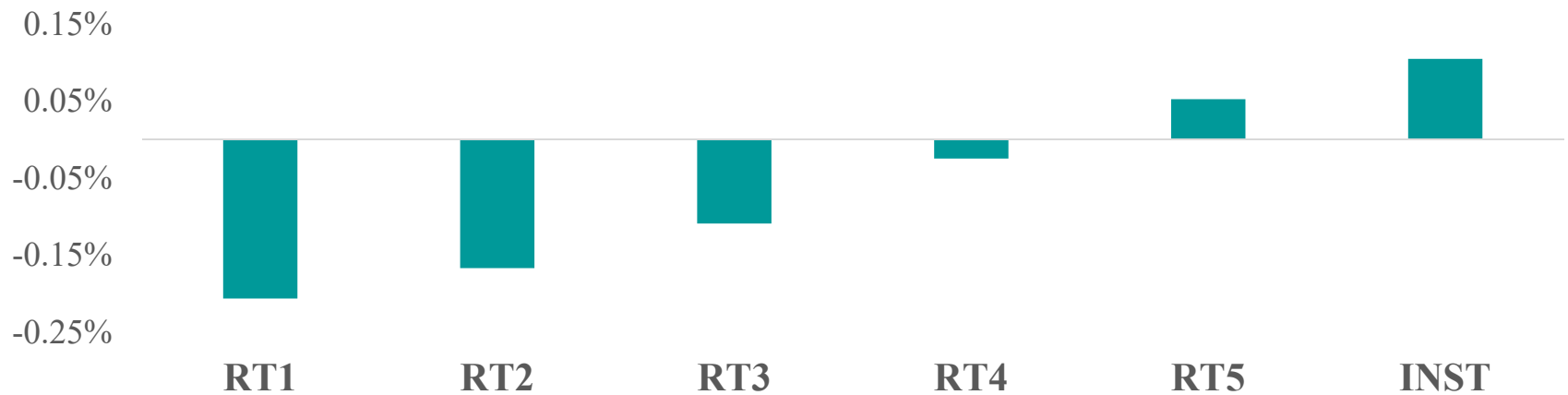
- If retail investors correctly predict future returns: $a_1 > 0$
- If retail investors incorrectly predict future returns: $a_1 < 0$
- If retail investors trading has nothing to do with future returns: $a_1 = 0$
- Newey-West (1987) standard errors with 5 lags.

Answer 1a. Over Next Day

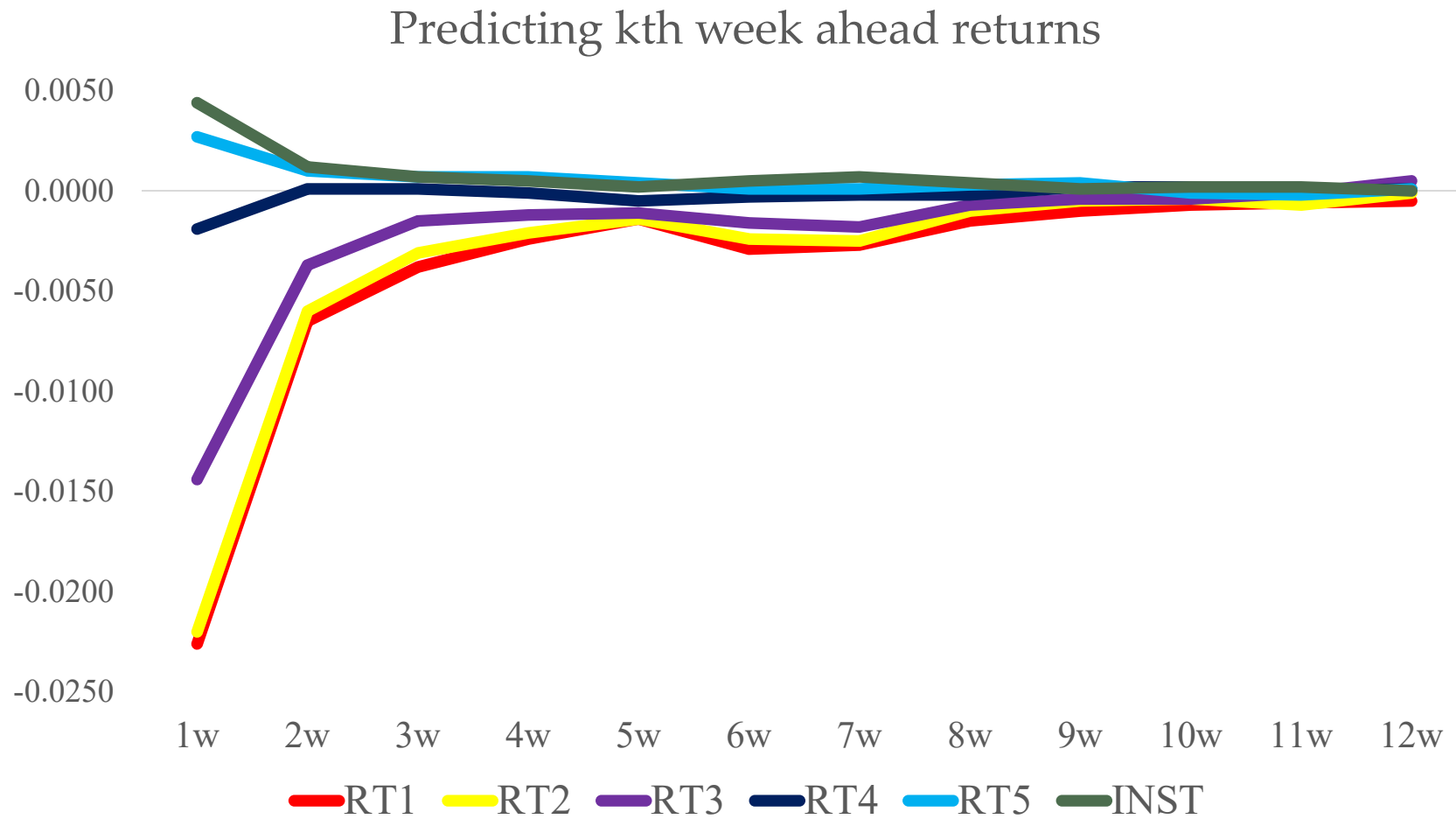
- Can retail investors predict future stock returns?

| Dep.var | Ret | Ret | Ret | Ret | Ret | Ret |
|-------------------|------------|------------|------------|------------|-----------|-----------|
| Oib.var | RT1 | RT2 | RT3 | RT4 | RT5 | INST |
| Oib(-1) | -0.0093*** | -0.0091*** | -0.0065*** | -0.0009*** | 0.0012*** | 0.0016*** |
| Interquartile Ret | -0.21% | -0.17% | -0.11% | -0.02% | 0.05% | 0.10% |

Daily Interquartile Return Diff

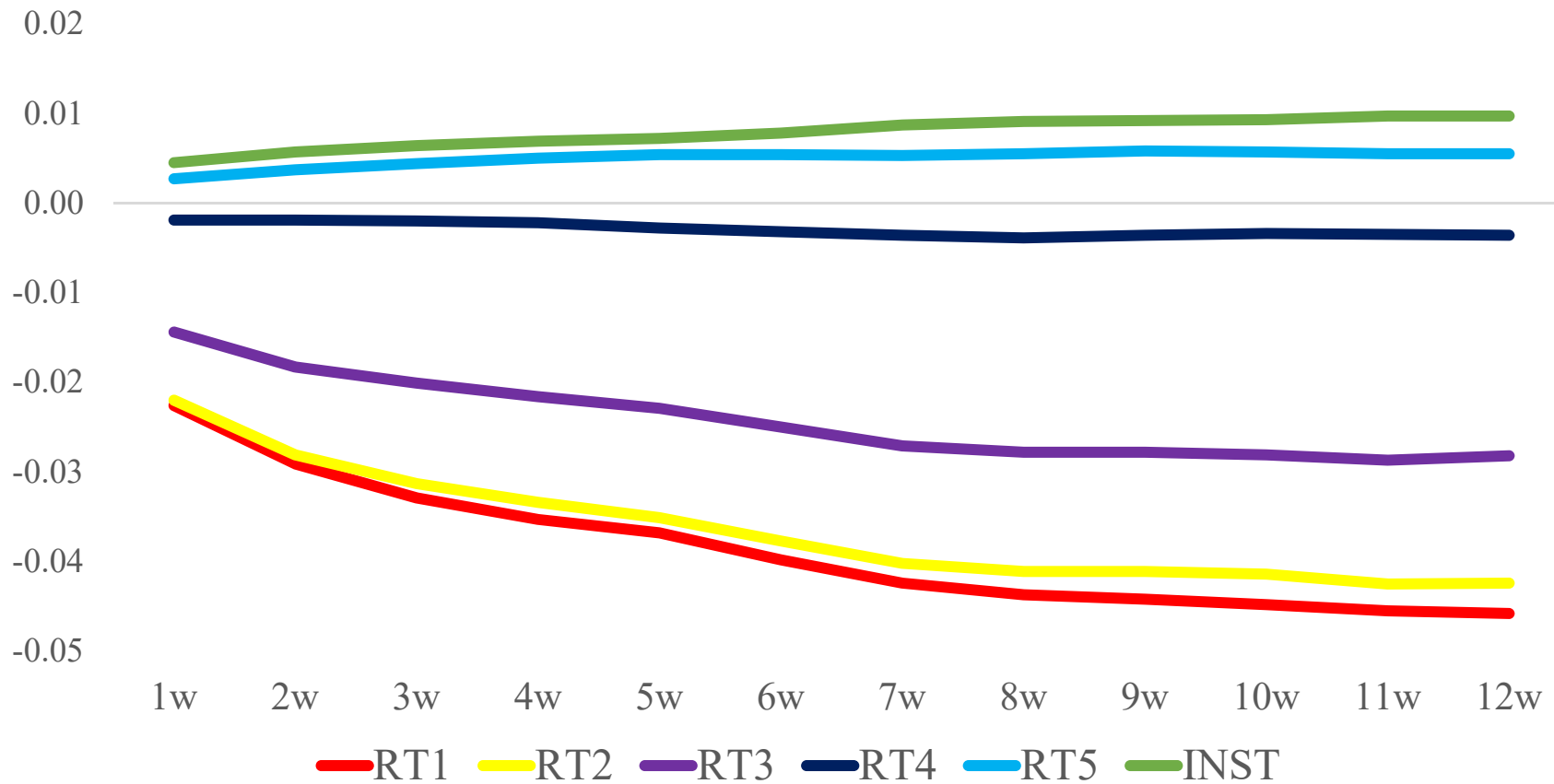


Answer 1b. Over 12 Weeks



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Predicting Cumulative Returns over k Weeks



Question 2: What Drives Retail Investor's Predictive Power?

- Hypotheses for explaining the order flow dynamics and their return predictive power for future returns:
 - Order flow persistence: Chordia and Subrahmanyam (2004)
 - Proxy: previous day order flow
 - Liquidity provision: Kaniel, Saar, and Titman (2008)
 - Proxy: previous returns
 - Behavior biases: Liu, Peng, Xiong and Xiong (2021)
 - Proxy for over-confidence: previous investor group's turnover
 - Proxy for gambling preferences: previous max daily returns
 - Information: Kelley and Tetlock (2013)
 - Proxy for public information: earnings surprise

Answer 2a: What Explains Retail Trading Patterns (Stage I)

| | OibRT1 | OibRT2 | OibRT3 | OibRT4 | OibRT5 |
|----------------|------------------|------------------|------------------|------------------|------------------|
| Oib(-1) | 0.1870*** | 0.1967*** | 0.1711*** | 0.0499*** | 0.1036*** |
| Ret(-1) | 0.5159*** | 0.7269*** | 0.4482*** | -0.2205*** | -1.2968*** |
| Ret(-6,-2) | -0.4214*** | -0.2196*** | -0.1063*** | -0.0804*** | -0.0485*** |
| Ret(-27,-7) | -0.0350*** | -0.0196*** | -0.0235*** | -0.0399*** | -0.0203*** |
| Overconf(-1) | 0.0894*** | 0.0611*** | 0.0657*** | 0.0418*** | -0.0881*** |
| Gamble(-1) | 0.0330* | 0.0784*** | 0.1731*** | 0.2423*** | -0.0671*** |
| Adj.R2 | 7.08% | 5.60% | 3.89% | 0.73% | 2.00% |

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Answer 2b: What Explains the Predictive Patterns (Stage II)

| Interquartile return | RT1 | RT2 | RT3 | RT4 | RT5 |
|----------------------|-----------------|-----------------|-----------------|-----------------|----------------|
| Oib(-1,Persistence) | -0.1177% | -0.0962% | -0.0591% | -0.0125% | 0.0281% |
| Oib(-1,Liquidity) | -0.0290% | -0.0351% | -0.0261% | 0.0091% | 0.0097% |
| Oib(-1,Overconf) | -0.0337% | -0.0475% | -0.0484% | -0.0428% | 0.0257% |
| Oib(-1,Gamble) | -0.0314% | -0.0254% | -0.0271% | -0.0312% | 0.0425% |
| Oib(-1,Other) | -0.1778% | -0.1493% | -0.1008% | -0.0233% | 0.0490% |

Answer 2c: Roles of Public News

- Kelley and Tetlock (2013 JF), Boehmer et al. (2021 JF)
“... retail orders might contain firm-level information...”
- Earnings announcement event, for each quarter:
 - Can retail investors anticipate future earnings surprises?
 - Can retail investors process contemporaneous earnings news?
 - Do predictive patterns of retail investors change on event days?
- What about public news in general?

Answer 2c: Around Earnings News

- RT1-RT4 can't predict future earnings surprise, but RT5 can.

| Dep.var | CAR[-1,0] | CAR[-1,0] | CAR[-1,0] | CAR[-1,0] | CAR[-1,0] |
|---------|------------|------------|------------|-----------|-----------|
| Oib.var | OibRT1 | OibRT2 | OibRT3 | OibRT4 | OibRT5 |
| Oib(-2) | -0.0251*** | -0.0234*** | -0.0166*** | -0.0003 | 0.0023*** |
| Adj.R2 | 6.33% | 5.98% | 5.57% | 5.19% | 5.15% |

- RT1-RT4 don't respond to earnings surprise correctly, but RT5 do.

| | OibRT1 | OibRT2 | OibRT3 | OibRT4 | OibRT5 |
|-----------|------------|------------|------------|------------|--------|
| CAR[-1,0] | -1.9225*** | -1.8291*** | -1.4349*** | -0.8781*** | 0.1583 |
| Adj.R2 | 13.66% | 14.60% | 10.14% | 1.85% | 0.60% |

Answer 2c: Around Earnings News

- The predictive power becomes more negative for RT1-RT4 on event days, more positive for RT5 on event days.

| Dep.var | Ret OibRT1 | Ret OibRT2 | Ret OibRT3 | Ret OibRT4 | Ret OibRT5 |
|-------------------|---------------|---------------|---------------|---------------|---------------|
| Oib(-1) | -0.0079*** | -0.0070*** | -0.0038*** | -0.0008* | 0.0005** |
| Oib(-1)*Event(-1) | -0.0080*** | -0.0093*** | -0.0071*** | -0.0007 | 0.0014** |
| Event(-1) | 0.0011** | 0.0008* | 0.0006 | 0.0005 | 0.0005 |
| Adj.R2 | 7.36% | 7.16% | 6.82% | 6.38% | 6.35% |

Conclusion

- Using account level data from January 2016 to June 2019, we examine millions of retail investors with different account sizes.
 - Retail investors with smaller account sizes
 - buy and sell in the wrong directions
 - follow daily momentum
 - display behavior biases, which reduce their returns
 - public information doesn't help them
 - Retail investors with the largest account sizes
 - buy and sell in the correct directions
 - follow daily contrarian
 - don't display behavior biases, which increase their returns
 - public information help them

What Next?

- Retail investors continue to be an important part of the market
 - Investor education
 - Restrict riskier trading for the smallest accounts
 - Channel some of the investments into wealth products and pension plans

- The rise of institutions
 - Rapid growth of fund industry
 - New question: how to choose funds?
 - Information environments
 - Foreign institutions

Thanks!