Market Returns and a Tale of Two Types of Attention

Zhi Da, Jian Hua, Chih-Ching Hung, and Lin Peng

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解读者：屠雪永

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Outline

- Introduction
- Data and variable definitions
- Empirical study
- Conclusion

1. Introduction-- Motivation

- It remains an open question whether the stock-level attention measures contain at least some information about the systematic component of returns

- Examining the aggregate attention of different types of investors could enhance our understanding of what drives the market announcement premium.

1. Introduction-- Literature

- Retail attention drives higher short-term returns and a subsequent reversal
  - (Barber and Odean 2008; Da, Engelberg, and Gao 2011)

- Institutional attention facilitates a permanent reaction to information and is associated with a risk premium
  - (Ben-Rephael, Da, and Israelsen 2017; Ben-Rephael et al. 2021)

1. Introduction-- Contribution

- The aggregate attention from retail investors and institutional investors have distinctly different abilities in predicting future market returns
- Our findings help uncover high frequency investor attention dynamics that are important for aggregate prices that previous studies have not explored
- Our evidence provides new insights into the growing literature on return premiums and uncertainty resolution

2. Data

- Data: CRSP , the merged CRSP-Compustat database.
- Period：2004.07~ 2018.12
- Retail investor attention: Google Trends (available since 2004)
- Institutional investor attention: Bloomberg (available since 2010)

2.1 Variables

- Stock's abnormal retail attention (ASVI) : $\frac{SVI-\overline{SVI}}{\overline{SVI}}$
  - SVI :Google's daily Search Volume Index (SVI)
  - $\overline{SVI}$: SVI 's past six-month median
- Aggregate market-level retail attention (ARA):the market cap weighted average of firm-specific ASVI

- The high institutional attention indicator=$\begin{cases} 1, DMR = 3 \ or \ DMR = 4 \\ 0, \quad DMR < 3 \end{cases}$
- The daily maximum readership for a stock (DMR)
- Aggregate institutional attention (AIA) : the value-weighted average of the individual stock high institutional attention indicators

2.1 Variables

- Aggregate retail order imbalance: OIB^{Retail}
  - as the value-weighted average of stock-level retail order imbalances

$$OIBVOL_{i,t} = \frac{INDBVOL_{i,t} - INDSVOL_{i,t}}{VOL_{i,t}},$$

- where $INDBVOL_{i,t}$, is the identified daily retail-initiated **buy** volume, $INDSVOL_{i,t}$ is the identified daily retail-initiated **sell** volume, and $VOL_{i,t}$ is the **total** trading volume.

- OIB^{All}

2.2 control variables

- The Baker-Wurgler sentiment (BW)
- The term spread (TMS)
- The default yield spread (DFY)
- The Chicago Board Options Exchange Volatility Index (VIX)
- Daily market returns (MktRett)
- Aggregate abnormal turnover (AbnTurn)
- ……

3.1 Attention and Market Returns

$$MktRet_{t+n} = \alpha + \beta_1 Attention_t + \emptyset X_t + \varepsilon_{t+n},$$

Table 2

Panel A. Retail attention

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
MktRet	*t+1*	*t+2*	*t+3*	*t+4*	*t+5*	*t+6*	*t+2:t+6*	*t+2:t+6*
ARA_t	-0.746*	-0.874**	-0.747*	-0.754**	-0.745*	-0.770**	-3.993***	-4.663***
	[-1.88]	[-2.21]	[-1.78]	[-2.07]	[-1.81]	[-2.30]	[-2.72]	[-2.61]
$FEARS_t$								0.011
								[0.10]
BW_t	-0.179*	-0.166*	-0.159*	-0.183*	-0.171*	-0.164*	-0.868**	-1.141**
	[-1.83]	[-1.76]	[-1.77]	[-1.93]	[-1.88]	[-1.94]	[-2.04]	[-2.29]
TMS_t	-0.033**	-0.031**	-0.025*	-0.023	-0.018	-0.015	-0.116*	-0.176**
	[-2.11]	[-2.02]	[-1.73]	[-1.52]	[-1.29]	[-1.12]	[-1.74]	[-2.19]

- ARA has a significant and negative coefficient that ranges from -0.745 to –0.874 in predicting market returns for up to six days.

3. 1Attention and Market Returns

$$MktRet_{t+n} = \alpha + \beta_1 Attention_t + \emptyset X_t + \varepsilon_{t+n},$$

Table 2

Panel B. Institutional attention

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
MktRet	*t+1*	*t+2*	*t+3*	*t+4*	*t+5*	*t+6*	*t+2:t+6*	*t+2:t+6*	*t+2:t+6*
AIA_t	0.398*	0.324	0.202	0.165	-0.028	0.166	0.781	1.137	1.387*
	[1.76]	[1.39]	[1.10]	[0.84]	[-0.16]	[0.85]	[1.25]	[1.51]	[1.71]
ARA_t									-4.165**
									[-2.14]
$FEARS_t$								-0.033	-0.002
								[-0.30]	[-0.02]
BW_t	-0.113	-0.088	-0.087	-0.099	-0.091	-0.069	-0.432	-0.608	-0.702
	[-0.90]	[-0.73]	[-0.68]	[-0.76]	[-0.69]	[-0.58]	[-0.72]	[-0.89]	[-1.05]

- AIA positively predicts daily market returns, although the coefficients are not significant

3.2 Aggregate Attention, Trading Activities, and Market States

Table 3. Attention and order imbalances

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OIB^{Retail} *at day t*				OIB^{All} *at day t*			
ARA_t	0.640***	0.331***	0.470**	0.271***	-1.749	-0.949	1.386	1.052
	[3.81]	[4.30]	[2.32]	[2.71]	[-1.55]	[-1.08]	[1.34]	[1.14]
AIA_t	-0.068	-0.045	-0.011	-0.012	1.341**	0.459	1.172*	0.676
	[-0.85]	[-0.91]	[-0.15]	[-0.25]	[2.19]	[0.89]	[1.91]	[1.25]
OIB_{t-1}		0.230***		0.244***		0.153***		0.086***
		[5.96]		[6.34]		[6.75]		[4.37]
OIB_{t-2}		0.144***		0.143***		0.108***		0.074***
		[4.99]		[4.35]		[4.85]		[3.20]
OIB_{t-3}		0.147***		0.124***		0.062***		0.035*
		[4.95]		[4.68]		[2.82]		[1.69]
OIB_{t-4}		0.054*		0.053*		0.015		0.012
		[1.72]		[1.85]		[0.62]		[0.58]
BW_t			-0.016	-0.002			0.064	0.088
			[-0.46]	[-0.10]			[0.21]	[0.35]

- ARA is positively associated with more aggregate retail buying activities

3.2 Aggregate Attention, Trading Activities, and Market States

Table 4. Market return predictability: Market states

Panel A. VIX and effective spread (July 2004 through December 2018)

	High VIX (1)	Low VIX (2)	(1) - (2)	High spread (3)	Low spread (4)	(3) – (4)
ARA	-4.945***	-1.144	-3.804*	-7.331***	-0.411	-6.920***
White *t*-stat	[-2.76]	[-1.13]	[-1.85]	[-3.89]	[-0.35]	[-3.12]
Boot *t*-stat	[-2.65]	[-1.17]	[-1.83]	[-3.86]	[-0.36]	[-3.04]
1 std. mag. (bps)	-27.426	-6.396		-37.206	-2.261	
N	1823	1823		1821	1825	
AIA	1.087	-0.021	1.108	0.141	0.163	-0.022
White *t*-stat	[1.42]	[-0.04]	[1.20]	[0.22]	[0.26]	[-0.02]
Boot *t*-stat	[1.44]	[-0.04]	[1.20]	[0.23]	[0.26]	[-0.03]
1 std. mag. (bps)	11.484	-0.194		1.571	1.401	
N	1088	1087		1086	1089	

Panel B. Short sale fee (October 2006 through December 2011)

	High fee (1)	Low fee (2)	(1) - (2)
ARA	-17.574***	-4.315	-13.259*
White *t*-stat	[-3.37]	[-0.98]	[-1.95]
Boot *t*-stat	[-3.44]	[-0.96]	[-1.93]
1 std. mag. (bps)	-74.850	-22.694	
N	627	628	

- Retail demand for stocks can generate a stronger upwardprice pressure when market liquidity is lower and when short sale constraints are more binding.

3.3 Aggregate Attention Around Major News Releases

	Macro News (1)	No News (2)	(1) - (2)	All News (3)	No News (4)	(3) − (4)
ARA	-1.806	-5.546***	3.740*	-2.931**	-4.070***	1.139
White *t*-stat	[-1.19]	[-4.76]	[1.95]	[-2.18]	[-3.12]	[0.61]
Boot *t*-stat	[-1.17]	[-5.01]	[1.92]	[-2.14]	[-3.10]	[0.59]
1 std. mag. (bps)	-10.074	-30.943		-16.023	-23.342	
N	1917	1729		2223	1423	
AIA	2.209***	-0.718	2.926***	2.150***	-1.062	3.212***
White *t*-stat	[3.26]	[-1.08]	[3.09]	[3.41]	[-1.41]	[3.27]
Boot t-stat	[3.50]	[-1.16]	[3.04]	[3.44]	[-1.48]	[3.22]
1 std. mag. (bps)	21.955	-7.156		21.506	-10.283	
N	1087	1088		1251	924	

- Institutional investors anticipate the arrival of information, and their increased attention and information acquisition coincide with a greater reduction of uncertainty and a realization of a market risk premium

3.4 Attention on Days of Clustered Earnings Announcements

Table 6.

MktRet (bps)	(1) *t*	(2) *t*	(3) *t+1*	(4) *t+1*
EAC^{AM}	-12.224	-13.598	-7.197	-5.580
	[-0.99]	[-1.11]	[-0.85]	[-0.65]
EAC^{PM}	24.737***		9.436	
	[2.61]		[1.20]	
EAC^{PM} *HighARA		36.482***		-4.391
		[2.82]		[-0.37]
EAC^{PM} *(1− HighARA)		14.711		21.240**
		[1.25]		[1.97]
BW_t	-11.294	-11.081	-13.422	-13.673*
	[-1.35]	[-1.32]	[-1.63]	[-1.67]
TMS_{t-1}	-3.227**	-3.216**	-2.895**	-2.908**
	[-2.12]	[-2.11]	[-1.98]	[-1.98]
DFY_{t-1}	-19.565*	-19.300*	-14.271	-14.584
	[-1.95]	[-1.93]	[-1.50]	[-1.53]

- Early realization of market return in clustered afterhours earnings announcement days may be a result of excessive buying triggered by retail investor attention.
- Such price pressure pre-announcement effectively shifts the return premium from day t+1 to day t.

3.5 Cross-Sectional Evidence

分样本，做回归，关注度预测[t-2,t-6]收益

Panel A. Retail attention and returns of liquidity-sorted portfolios

	Full Sample	High VIX	Low VIX		High spread	Low spread	
	(1)	(2)	(3)	(2) - (3)	(4)	(5)	(4) - (5)
1	-3.253**	-4.586***	-0.775	-3.811*	-6.367***	-0.713	-5.654***
(Liquid)	[-2.31]	[-2.62]	[-0.76]	[-1.88]	[-3.46]	[-0.60]	[-2.59]
2	-4.370**	-5.812***	-1.174	-4.638**	-7.624***	-0.900	-6.723***
	[-2.49]	[-2.81]	[-1.15]	[-2.01]	[-3.42]	[-0.75]	[-2.66]
3	-5.350***	-7.298***	-1.326	-5.972**	-8.250***	-1.387	-6.862**
	[-2.71]	[-3.25]	[-1.19]	[-2.38]	[-3.39]	[-1.11]	[-2.51]
4	-5.345***	-6.906***	-1.594	-5.313**	-8.304***	-1.466	-6.838**
	[-2.80]	[-3.05]	[-1.44]	[-2.11]	[-3.38]	[-1.13]	[-2.46]
5	-5.507***	-6.644***	-2.117**	-4.527*	-7.280***	-1.976	-5.304**
(Illiquid)	[-3.26]	[-3.16]	[-2.05]	[-1.93]	[-3.24]	[-1.60]	[-2.07]
5-1	-2.254***	-2.058***	-1.342***	-0.716	-0.913	-1.263**	0.350
	[-3.74]	[-3.06]	[-2.84]	[-0.87]	[-1.26]	[-2.56]	[0.40]

- The illiquid portfolio is more likely to suffer from price pressure that leads to greater reversal afterward.

3.5 Cross-Sectional Evidence

Panel B. Institutional attention and returns of CAPM beta-sorted portfolios

	Full Sample	All News	No News		Macro News	No News	
	(1)	(2)	(3)	(2) - (3)	(4)	(5)	(4) - (5)
1	0.629	1.230***	-0.341	1.571**	1.229***	-0.049	1.278*
(Low)	[1.33]	[2.83]	[-0.63]	[2.27]	[2.66]	[-0.10]	[1.90]
2	0.846	1.789***	-0.473	2.262***	1.901***	-0.312	2.214***
	[1.50]	[3.26]	[-0.70]	[2.61]	[3.25]	[-0.52]	[2.65]
3	0.811	2.030***	-0.882	2.912***	1.955**	-0.487	2.442**
	[1.19]	[2.72]	[-1.12]	[2.69]	[2.39]	[-0.70]	[2.28]
4	0.858	2.447***	-1.334	3.781***	2.599***	-1.024	3.622***
	[1.14]	[3.18]	[-1.51]	[3.23]	[3.12]	[-1.33]	[3.20]
5	1.335	3.655***	-1.820	5.475***	3.815***	-1.383	5.198***
(High)	[1.36]	[3.66]	[-1.58]	[3.59]	[3.53]	[-1.38]	[3.53]
5-1	0.706	2.425**	-1.479	3.903***	2.587**	-1.334	3.921***
	[0.94]	[2.38]	[-1.36]	[2.64]	[2.31]	[-1.42]	[2.70]

- The positive market return predictability of AIA is stronger for portfolios with higher exposures to systematic risk,

V. Conclusion

- Daily ARA **negatively** predicts the one-week-ahead market returns, especially during periods of **poor market liquidity**. High ARA is also associated with greater net aggregate retail demand for stocks.

- In contrast, daily AIA **positively** predicts future market returns, especially prior to the release of important **macroeconomic news** or major firms' **earnings announcements.**

Summary

- The full text studies the relationship between retail investors ' attention ,institutional investors' attention and market return.

- Constructs two attention indicators --ARA and AIA for retail investors ' attention ,institutional investors' attention , respectively.

- The study finds that the attention of daily retail investors negatively predicts market returns, and institutional investors are positively predicts market returns and studied the middle mechanism.