

Market Returns and a Tale of Two Types of Attention

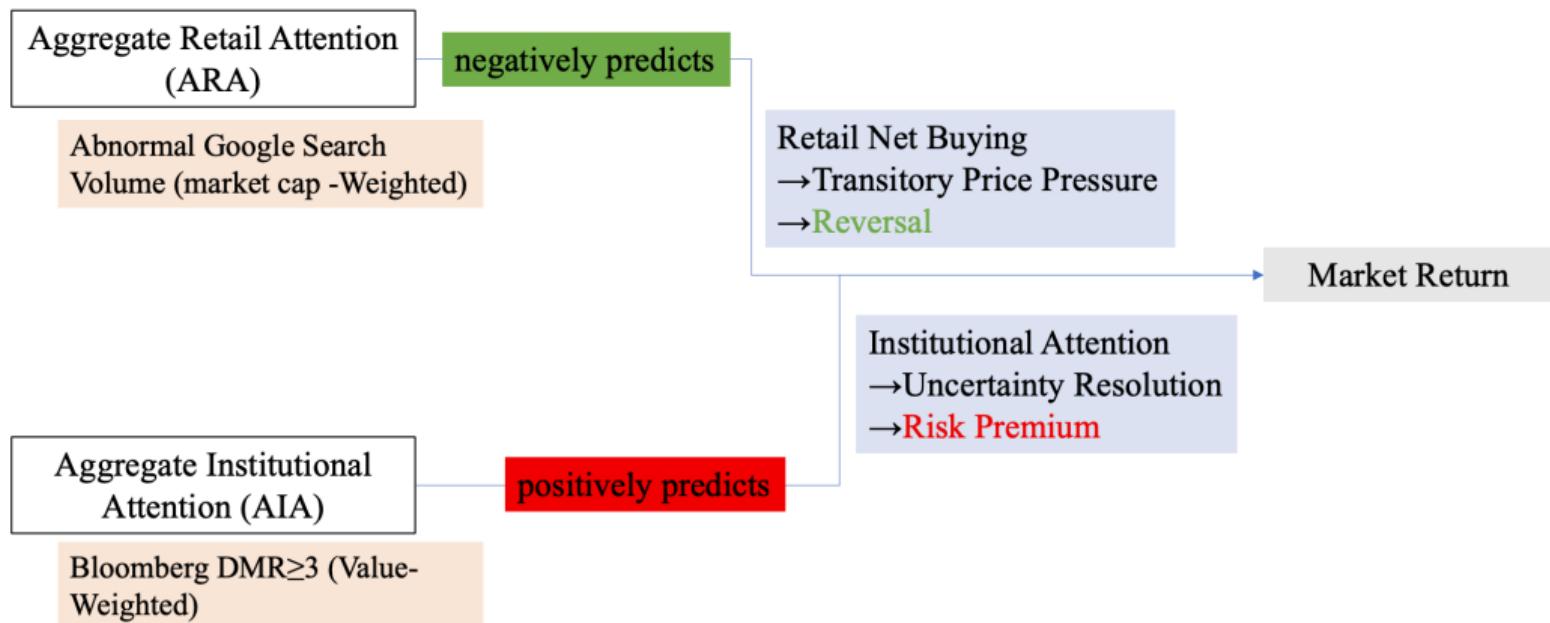
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Summary



Research Question

- How aggregate investor attention is associated with market returns?
 - aggregate retail attention(ARA) negatively predicts the one-week-ahead market returns
 - aggregate institutional attention(AIA) positively predicts market returns

Research Motivation

- Retail and institutional investors exhibit distinct attention patterns.
- While stock-level attention is well-documented, it remains unclear if these effects aggregate to form systematic time-series predictors.
 - stock-level attention effects may be inconsequential for the broad market and for well-diversified investors if the effects are idiosyncratic or are only associated with small stocks.
- This study study how aggregate attention of different types of investors is associated with market returns.

Contribution

- Literature on investor attention.
 - Prior studies: focus on stock-level attention.
 - Extend: aggregate attention from retail investors and institutional investors have distinctly different abilities in predicting future market returns.
- Literature on return premiums and uncertainty resolution.
 - Prior studies: macroeconomic risk, earnings announcements, information consumption.
 - Extend: return premiums are positively associated with institutional investor attention around important news announcements.

Hypotheses

H1: ARA negatively predicts future market returns

- Retail investors are net buyers of attention-grabbing stocks.
- Aggregate buying creates temporary upward price pressure at $t + 1$.
- Since buying is non-informational, prices revert to fundamentals, leading to negative returns.

H2: AIA positively predicts market returns around major news.

- Institutions focus on scheduled macro/firm news.
- Their attention signals active monitoring of systematic risks.
- As uncertainty is resolved when news breaks, investors earn a positive risk premium.

Key Contrast: Behavioral Noise (Retail) vs. Rational Risk Pricing (Institutional)

Sample and Variable

- Sample: all common shares traded on the NYSE, AMEX, NASDAQ, and NYSE Arca from July 2004 through December 2019.
- ARA (Aggregate Retail Attention):
 - The market cap weighted average of firm-level Abnormal Search Volume Index (ASVI) derived from Google Trends.

$$ASVI_{i,t} = \frac{SVI_{i,t} - \text{Median}(SVI_{i,t-180:t-1})}{\text{Median}(SVI_{i,t-180:t-1})}$$

- AIA (Aggregate Institutional Attention):
 - The value-weighted proportion of stocks experiencing high Bloomberg Daily Maximum Readership (DMR) scores (≥ 3).

$$HighAIA_{i,t} = \begin{cases} 1 & \text{if } DMR_{i,t} \geq 3 \\ 0 & \text{if } DMR_{i,t} < 3 \end{cases}$$

Model

- Time-series regression

$$MktRet_{t+n} = \alpha + \beta_1 Attention_t + \Phi X_t + \epsilon_{t+n} \quad (1)$$

- Market Returns ($MktRet$):
 - CRSP value-weighted returns for the next n days
- Avoiding Look-Ahead Bias
 - Google and Bloomberg data are measured in GMT or calendar days, overlapping with the day $t + 1$ market returns (measured at 4:00 p.m. EST).
 - skip the $t + 1$ return.
 - The analysis focuses on predictability for **day $t + 2$ to $t + 6$** (the following week).

Result 1: ARA negatively predicts future market returns

- Higher aggregate retail attention is associated with significantly negative market returns for the week that follows

Panel A: Retail attention (ARA)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
MktRet	$t + 1$	$t + 2$	$t + 3$	$t + 4$	$t + 5$	$t + 6$	$t + 2:t + 6$
ARA _t	-0.814** [-2.24]	-0.902** [-2.30]	-0.801** [-2.03]	-0.859*** [-2.58]	-0.655 [-1.62]	-0.805*** [-2.64]	-2.879** [-2.22]

Result 1: Why negative?

- Market liquidity states: (1)the VIX index, which proxies for market makers' required compensation for liquidity provision;
- (2)the level of market liquidity as measured by a value-weighted effective spread across stocks.

Panel A: ARA

	VIX			Aggregated effective spread			Short sale fee		
	High (1)	Low (2)	(1) – (2)	High (3)	Low (4)	(3) – (4)	High (5)	Low (6)	(5) – (6)
Coefficient	-5.167	-1.170	-3.997	-6.303	-0.667	-5.636	-17.968	-4.000	-13.968
White <i>t</i> -statistic	[−2.92]***	[−1.23]	[−1.99]**	[−3.59]***	[−0.59]	[−2.70]***	[−3.47]***	[−0.90]	[−2.04]**
Boot <i>t</i> -statistic	[−2.87]***	[−1.19]	[−2.01]**	[−3.48]***	[−0.60]	[−2.69]***	[−3.52]***	[−0.87]	[−2.01]**
Hodrick <i>t</i> -statistic	[−2.02]**	[−1.28]	[−2.11]**	[−2.12]**	[−0.44]	[−2.14]**	[−2.75]***	[−0.48]	[−1.83]*
1 std. mag. (bps)	-27.96	-6.29		-32.79	-3.46		-75.70	-20.59	
N	1,951	1,952		1,951	1,952		627	628	

Return Predictability of ARA by Liquidity

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

Panel A: Retail attention and returns of liquidity-sorted portfolios							
	Full sample (1)	High VIX (2)	Low VIX (3)	(2) – (3)	High spread (4)	Low spread (5)	(4) – (5)
1	–3.443** [–2.54]	–4.276** [–2.51]	–0.956 [–0.98]	–3.320* [–1.69]	–5.699*** [–3.42]	–0.579 [–0.51]	–5.120** [–2.54]
(Liquid)							
2	–4.497*** [–2.61]	–5.490*** [–2.77]	–1.230 [–1.25]	–4.260* [–1.92]	–6.975*** [–3.50]	–0.631 [–0.54]	–6.343*** [–2.75]
3	–5.445*** [–2.75]	–6.964*** [–3.21]	–1.271 [–1.18]	–5.693** [–2.35]	–7.287*** [–3.33]	–1.323 [–1.09]	–5.964** [–2.38]
4	–5.411*** [–2.86]	–6.455*** [–2.95]	–1.549 [–1.45]	–4.906** [–2.02]	–7.515*** [–3.42]	–1.194 [–0.95]	–6.321** [–2.50]
5	–5.675*** [–3.41]	–6.581*** [–3.19]	–1.949* [–1.93]	–4.632** [–2.02]	–7.036*** [–3.44]	–1.509 [–1.25]	–5.527** [–2.33]
(Illiquid)							
5–1	–2.232*** [–3.63]	–2.305*** [–3.42]	–0.994** [–2.15]	–1.312 [–1.60]	–1.337* [–1.94]	–0.930* [–1.85]	–0.407 [–0.48]

Results 2: AIA positively predicts market returns

- Higher aggregate institutional attention is associated with positive market returns

Panel B: Institutional attention (AIA)									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>MktRet</i>	<i>t + 1</i>	<i>t + 2</i>	<i>t + 3</i>	<i>t + 4</i>	<i>t + 5</i>	<i>t + 6</i>	<i>t + 2:t + 6</i>	<i>t + 2:t + 6</i>	<i>t + 2:t + 6</i>
<i>AIA_t</i>	0.396*	0.240	0.225	0.114	0.299	0.053	0.296	0.927	1.089*
	[1.75]	[1.18]	[1.15]	[0.61]	[1.63]	[0.32]	[0.55]	[1.52]	[1.72]
<i>ARA_t</i>									-2.643*
									[−1.71]

Result 2: Why positive?

- High institutional attention precedes major scheduled news events that resolve uncertainties and cause the realization of risk premiums.
- Macro News: FOMC meetings, nonfarm payroll and PPI; All News: macro news + earnings of major firms.

Panel A: AIA

	Macro News			All News		
	Yes (1)	No (2)	(1) – (2)	Yes (3)	No (4)	(3) – (4)
Coefficient	2.076	–0.375	2.451	2.072	–0.714	2.786
White <i>t</i> -statistic	[3.20]***	[–0.63]	[2.78]***	[3.48]***	[–1.06]	[3.10]***
Boot <i>t</i> -statistic	[3.25]***	[–0.60]	[2.58]***	[3.65]***	[–1.03]	[2.84]***
Hodrick <i>t</i> -statistic	[2.33]**	[–0.44]	[2.79]***	[2.49]**	[–0.76]	[3.11]***
1 std. mag. (bps)	20.82	–3.74		20.64	–7.04	
<i>N</i>	1,219	1,212		1,395	1,036	

Return Predictability of AIA by Systematic Risk Exposure

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

Panel B: Institutional attention and returns of CAPM beta-sorted portfolios							
	Full sample (1)	All News (2)	No News (3)	(2) – (3)	Macro News (4)	No News (5)	(4) – (5)
1	0.859** [2.04]	1.369*** [3.40]	0.119 [0.24]	1.250** [1.97]	1.284*** [2.98]	0.398 [0.89]	0.886 [1.43]
2	0.965* [1.84]	1.826*** [3.57]	-0.257 [-0.43]	2.083*** [2.66]	1.846*** [3.36]	-0.025 [-0.05]	1.872** [2.44]
3	0.778 [1.17]	1.842*** [2.62]	-0.719 [-1.03]	2.561*** [2.58]	1.655** [2.13]	-0.290 [-0.46]	1.945* [1.95]
4	0.889 [1.21]	2.259*** [3.13]	-1.093 [-1.38]	3.352*** [3.13]	2.358*** [2.99]	-0.764 [-1.09]	3.121*** [2.96]
5	1.315 [1.36]	3.325*** [3.57]	-1.574 [-1.52]	4.899*** [3.53]	3.512*** [3.45]	-1.230 [-1.35]	4.742*** [3.47]
5–1	0.456 [0.59]	1.956*** [2.68]	-1.693** [-2.15]	3.649** [2.49]	2.228*** [2.77]	-1.628** [-2.35]	3.857*** [2.58]

Out-of-Sample Tests

- For retail attention, July 2004 through July 2006 as the training period and forecasts in August 2006. For institutional attention, the training period is January 2010 to February 2012, and forecast in March 2012.

$$R^2 = 1 - \frac{\left(MktRet_{[t+2:t+6]} - \widehat{MktRet}_{[t+2:t+6]} \right)^2}{\left(MktRet_{[t+2:t+6]} - \overline{MktRet}_{[t+2:t+6]} \right)^2} \quad (2)$$

Panel A: Baseline results				
	R ²	DM t-statistics	CW t-statistics	N
ARA				
Full sample	1.49%**	[2.20]	[2.16]	3,378
High VIX	2.70%***	[2.79]	[2.77]	1,637
Low VIX	-0.39%	[-0.43]	[-0.45]	1,741
High spread	2.23%**	[2.47]	[2.44]	1,423
Low spread	-0.50%	[-0.86]	[-0.80]	1,952
AIA				
Full sample	-0.36%	[-1.16]	[-0.96]	1,972
All News	1.08%*	[1.76]	[1.77]	1,120
No News	-0.60%	[-0.55]	[-0.61]	852
Macro News	1.19%*	[1.95]	[1.89]	978
No News	-0.39%	[-0.57]	[-0.61]	994

Ideas

- 局限性
 - 散户注意力（ARA）仅依赖谷歌搜索量（SVI），机构注意力（AIA）基于彭博终端阅读量，且主要衡量注意力的“强度”，未来可以进一步挖掘注意力的“内容”和“情绪”。
 - 分析机构阅读新闻的具体主题（政策风险、盈利预期还是 ESG 议题）对股价的影响。
 - 区分正向（利好消息）注意力和负向（利空消息）注意力对市场收益的非对称影响。