

**Discussion - Kevin Wang, University of Toronto**

**Limits to Arbitrage and the Asset Growth Anomaly**

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# Background and Contribution

- **Background**

- **Asset Growth Anomaly**: asset growth  $\Rightarrow$  abnormal returns

- **Literature:**

- \* Titman, Wei, and Xie (2004): investor **underreaction**

- \* Cooper, Gulen, and Schill (2008): investor **overreaction**

- **Contribution**

- A careful study that provides **well-designed tests**

for the investor **underreaction** hypothesis.

- Highlight the role of **limits to arbitrage**.

A very important step to understand the existence of the anomaly.

- Provides an interesting example in understanding **market efficiency**.

# Questions and Comments

## 1. Relative vs absolute abnormal performance

- The tests of this paper compare **relative** abnormal performance.

The relative performance is consistent with existence of limits to arbitrage. But it does not directly show the difficulty to arbitrage.

- It would be **more convincing** if one can obtain evidence on cost-adjusted performance of portfolios with high limits to arbitrage.
- Specifically, **given the 1-10 TAG-based strategy**, could one follow Korajczyk and Sadka (2004) and Lesmond, Schill, and Zhou (2004) to **adjust for trading costs**?

## Table IV, Panel C

Panel C: Short-sale Constraints Inversely Proxied by  $INST_H$

$INST_H$					
1 (high)	<i>Raw</i>	1.456***	0.597	0.859***	[4.09]
	<i>Adj</i>	0.150	-0.470***	0.619***	[3.48]
	$\alpha$	0.240	-0.435***	0.676***	[3.34]
2	<i>Raw</i>	1.631***	0.072	1.559***	[6.59]
	<i>Adj</i>	0.269*	-0.934***	1.203***	[5.98]
	$\alpha$	0.611***	-0.847***	1.458***	[6.06]
3 (low)	<i>Raw</i>	1.669***	-0.166	1.835***	[6.89]
	<i>Adj</i>	0.250	-1.258***	1.507***	[6.35]
	$\alpha$	0.647**	-0.924***	1.571***	[5.75]
3-1	<i>Raw</i>	0.213	-0.763***	0.977***	[3.53]
	<i>Adj</i>	0.100	-0.788***	0.888***	[3.32]
	$\alpha$	0.407	-0.488**	0.896***	[3.13]

## Table IV, Panel D

Panel D: Transaction Cost Proxied by *BIDASK*

<i>BIDASK</i>					
1 (low)	<i>Raw</i>	1.506**	0.346	1.160***	[3.13]
	<i>Adj</i>	0.368	-0.708***	1.076***	[3.10]
	$\alpha$	0.800**	-0.318	1.118***	[2.90]
2	<i>Raw</i>	1.686**	0.209	1.476***	[3.90]
	<i>Adj</i>	0.396	-0.966***	1.362***	[3.99]
	$\alpha$	0.789**	-0.748***	1.537***	[4.10]
3 (high)	<i>Raw</i>	2.169***	-0.412	2.582***	[7.10]
	<i>Adj</i>	0.688***	-1.609***	2.297***	[6.69]
	$\alpha$	1.301***	-1.126***	2.426***	[6.83]
3-1	<i>Raw</i>	0.663	-0.758*	1.421***	[3.32]
	<i>Adj</i>	0.319	-0.901***	1.220***	[3.06]
	$\alpha$	0.501	-0.808**	1.309***	[3.32]

- For example, Panels C and D of Table IV show that the abnormal performance is different for stocks with **different short-sale constraints or transaction cost (bid-ask spread)**.
- The relative performance is **consistent** with existence of limits to arbitrage.
- But the **absolute performance** for stocks with high limits to arbitrage is at a **rather high** level.
- Even for stocks with **low** short-sale constraints or transaction cost, the absolute performance seems very significant.
- In other words, if I carry out a 1-10 strategy, **could the cost really outweigh such big raw profits?**

## 2. Underreaction or overreaction

- The paper emphasizes that the tests are for the investor **underreaction** hypothesis.
- There could be **other mispricing-based hypotheses**, such as the **overreaction** story suggested by Cooper, Gulen, and Schill (2008).
- It is **not crucial** to this paper whether it is underreaction or overreaction. This paper is centered on limits to arbitrage.
- If the focus is on limits to arbitrage, I suggest it may be better to change the tone of the paper as **testing both under- and over-reaction hypotheses** (or even for any mispricing-based story?).