Disagreement and Stock Prices in the JASDAQ

An Empirical Investigation Using Market Survey Data

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Overview of the paper

- Empirical analysis of "disagreement" models in behavioral finance using JASDAQ data.

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  - See Hong and Stein (2007) for the survey of recent works

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- Stock price when short-sale constraint is binding:

$$P_t = P_t^O \equiv f\left(\mathrm{E}_t^O[P_{t+1}]\right) > F_t$$

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- #1. "Current return" implication: $\sigma_t\left(P_{t+1}\right) \Uparrow \longrightarrow P_t \Uparrow$
- When the disagreement about future stock price $\sigma_t\left(P_{t+1}\right)$ is large, current stock price will be higher. So the return from last month to this month $\Delta p_t = p_t - p_{t-1}$ will be higher.

$$\Delta p_t = \alpha + \beta \sigma_t\left(P_{t+1}\right), \qquad \beta > 0 \tag{1}$$

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- $\sigma_t\left(P_{t+1}\right)$ is high when price level is high. So we use the normalized measure:

$$DIS_t\left(p_{t+1}\right) = \frac{\sigma_t\left(P_{t+1}\right)}{\mu_t\left(P_{t+1}\right)}.$$

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- $ADIS_t\left(p_{t+1}\right)$ is the conditional-volatility -adjusted measure of disagreement.

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- TOPIX also has derivative markets.

Estimation results for current returns of JASDAQ

Dependent variable: $\Delta p_t = \ln(JQ_t) - \ln(JQ_{t-1})$

	(1)	(2)	(3)	(4)
constant	-0.687	-0.201	4.098^{***}	4.034^{***}
$(\times 100)$	$[-0.29]$	$[-0.30]$	$[4.38]$	$[4.48]$
DIS_t	0.106			
	$[0.19]$			
$ADIS_t$		1.248^{***}	1.248^{***}	1.228^{***}
		$[2.94]$	$[2.80]$	$[2.82]$
cv_t			-8.062^{***}	-7.912^{***}
$(\times 100)$			$[-6.99]$	$[-6.67]$
Δp_{t-1}				0.080
				$[0.73]$
$\overline{R}^2$	-0.2	6.1	23.5	23.3

Estimation results for current returns of TOPIX

Dependent variable: $\Delta p_t = \ln(TOPIX_t) - \ln(TOPIX_{t-1})$

	(1)	(2)	(3)	(4)
constant	4.791^{***}	-0.178	3.474^{***}	3.347^{***}
$(\times 100)$	$[3.32]$	$[-0.30]$	$[3.14]$	$[3.32]$
DIS_t	-1.215^{***}			
	$[-3.52]$			
$ADIS_t$		-0.714	-0.714	-0.673
		$[-1.38]$	$[-1.42]$	$[-1.33]$
cv_t			-3.316^{***}	-3.115^{***}
$(\times 100)$			$[-2.98]$	$[-3.00]$
Δp_{t-1}				0.042
				$[0.44]$
$\overline{R}^2$	6.4	0.7	8.5	7.7

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  - $\widetilde{\mathrm{E}}_t \left[P_{t+1} - F_t\right] > \widetilde{\mathrm{E}}_t \left[P_{t+1} - P_t^O\right]$.
- $\widetilde{\mathrm{E}}_t \left[\Delta p_{t+1}\right]$ will be lower when $\sigma_t \left(P_{t+1}\right)$ is high because when $\sigma_t \left(P_{t+1}\right)$ is large, current price is too high. As a result, the expected return based on the market wide survey $\widetilde{\mathrm{E}}_t \left[\Delta p_{t+1}\right] = \widetilde{\mathrm{E}}_t \left[p_{t+1}\right] - p_t$ will be lower.

$$\widetilde{\mathrm{E}}_t \left[\Delta p_{t+1}\right] = \alpha + \beta \sigma_t \left(P_{t+1}\right) \qquad \beta < 0 \qquad (2)$$

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  - The sample of respondents are varying over time.

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  - $p_{mon,t}$: Next Monday closing price; right after the mean and S.D. of forecasts are revealed to the investors.

Estimation results for expected returns

Dependent variable: $\widetilde{\mathrm{E}}_t\left[\Delta p_{t+1}\right]$

	JASDAQ		TOPIX	
	(3)	(4)	(3)	(4)
constant	1.009^{***}	0.711^{***}	1.396^{***}	1.126^{***}
	[7.84]	[2.88]	[8.65]	[2.87]
$ADIS_t$	-0.079	-0.096	0.050	0.054
	[−1.02]	[−1.25]	[0.21]	[0.23]
cv_t		0.562		0.246
(x100)		[1.00]		[0.66]
Δp_t	-0.043^{**}	-0.030^{**}	-0.096^{***}	-0.090^{***}
	[−2.06]	[−2.03]	[−4.48]	[−4.20]
$\overline{R}^2$	7.4	9.1	13.6	13.4

Estimation results for ex post returns

Dependent variable: $\Delta post_t$

	JASDAQ		TOPIX	
	A-1	A-2	B-1	B-2
constant	-0.001	-0.005^{*}	-0.003^{*}	-0.008^{*}
	$[-0.89]$	$[-1.65]$	$[-1.68]$	$[-1.71]$
$ADIS_t$	-0.256	-0.277	-0.176	-0.164
	$[-1.12]$	$[-1.28]$	$[-0.85]$	$[-0.80]$
cv_t		0.748		0.467
(x100)		$[1.26]$		$[1.05]$
Δp_t	0.129^{***}	0.147^{**}	0.124^{**}	0.136^{***}
	$[3.59]$	$[3.51]$	$[4.12]$	$[4.16]$
$\overline{R}^2$	11.7	11.8	6.7	6.4

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- Previous empirical studies are about cross-section. But, this paper is about the dynamics of market price index.