

The Noise Share of the 52-Week Price-Peak Effect on Mergers and Acquisitions

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Overview

Research Question:

How do **different types of information** in the target share price affect the **effect of the 52-week high** on takeover premia?

Motivation:

- Prospect Theory (Kahneman and Tversky, 1979): assess gains or losses relative to a **reference point** (Baker et al., 2012, JFE).
- A **worse information environment** amplifies the reference point effect (Li et al., 2021; Ma et al., 2019, JFE; Mussweiler and Strack, 2000, ABS4; Wilson et al., 1996, ABS4).

Contributions:

- Effect of price-peak **depends on** noise% of its share price.
- Effect of price-peak does **not depend on** other info%.
- Necessary to **separate noise** from informativeness proxies.
- Reference reliance is **not always value-destroying**.
- Resolve the debate:** whether info - reference point effect.

Price info and noise measures

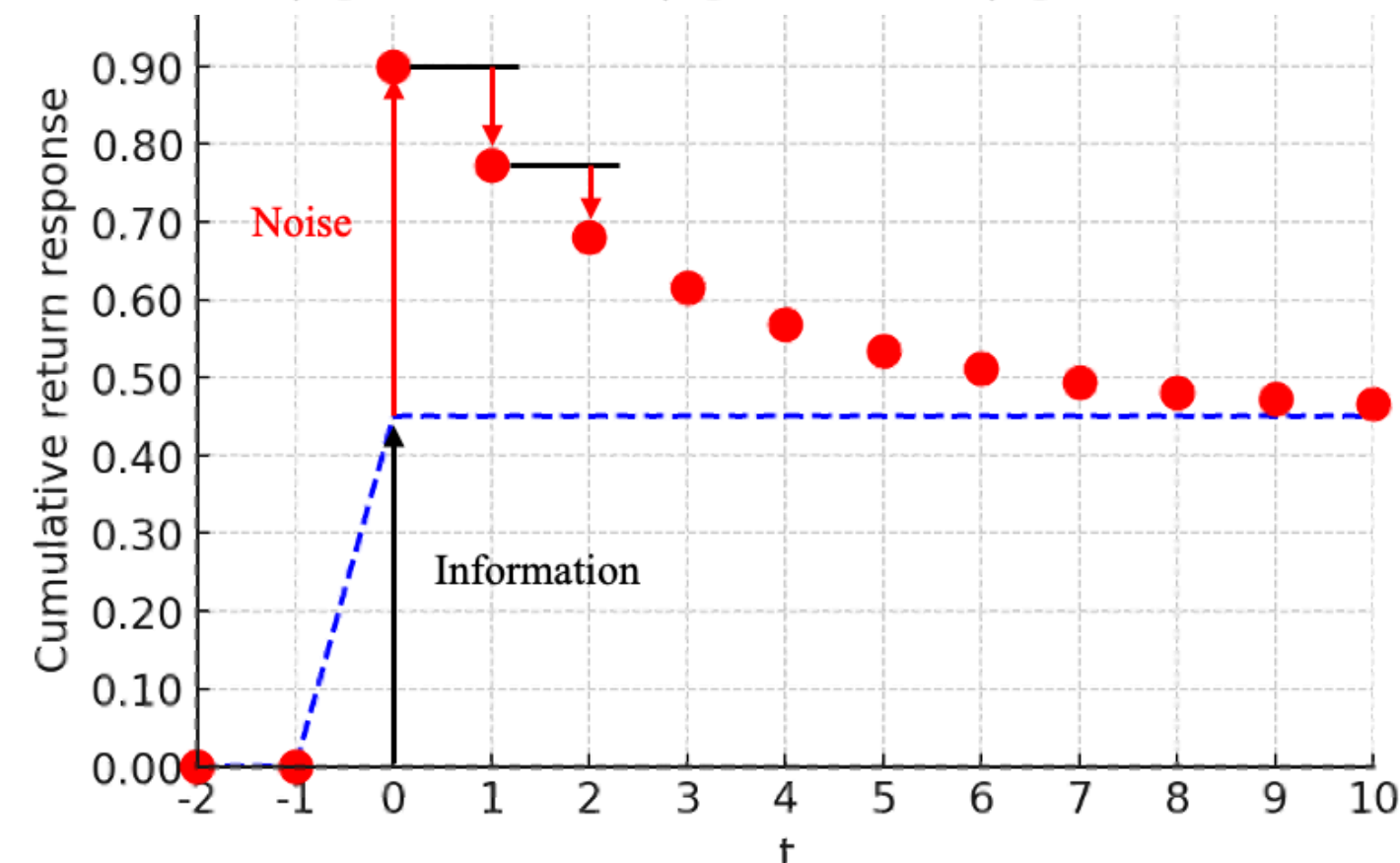
Brogaard et al. (2022, RFS):

- VAR model, decompose return variance into:
- noise:** irrational price deviations from its info-efficient value.
- market** (rm), **private** (trading), **public** (ri) information.

$$r_{m,t} = a_0^* + \sum_{l=1}^5 a_{1,l}^* r_{m,t-l} + \sum_{l=1}^5 a_{2,l}^* x_{t-l} + \sum_{l=1}^5 a_{3,l}^* r_{t-l} + e_{r_{m,t}}$$

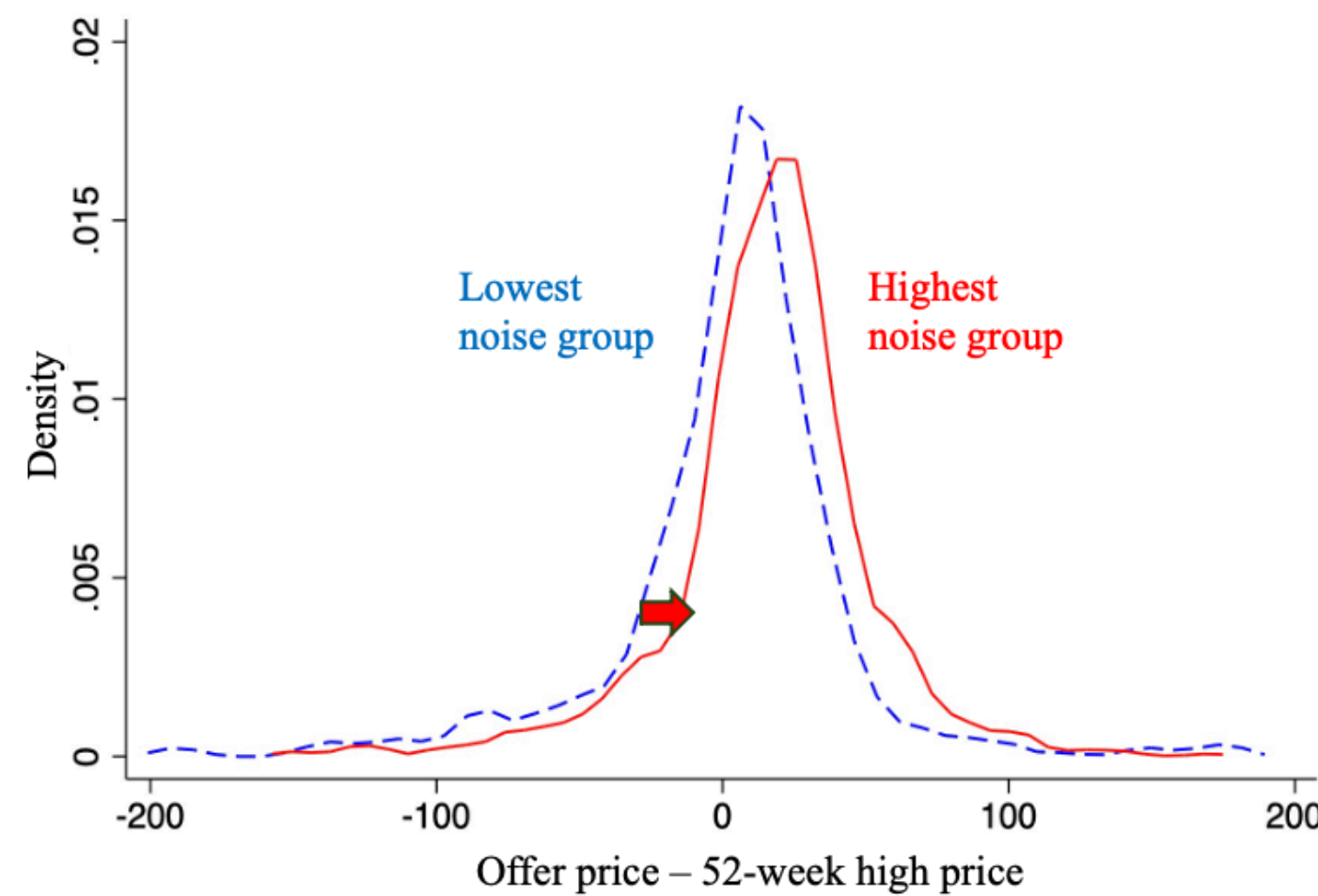
$$x_t = b_0^* + \sum_{l=1}^5 b_{1,l}^* r_{m,t-l} + \sum_{l=1}^5 b_{2,l}^* x_{t-l} + \sum_{l=1}^5 b_{3,l}^* r_{t-l} + e_{x,t}$$

$$r_t = c_0^* + \sum_{l=1}^5 c_{1,l}^* r_{m,t-l} + \sum_{l=1}^5 c_{2,l}^* x_{t-l} + \sum_{l=1}^5 c_{3,l}^* r_{t-l} + e_{r,t}$$



Main results & Graphic Illustration

- 52WH effect: \uparrow target52WH \Rightarrow \uparrow Offer premia (0.078%)
- Finding:** \uparrow noiseshare \Rightarrow \uparrow 52WH effect
- Eco sig: $\uparrow \sigma$ noiseshare \Rightarrow \uparrow 52WH effect (0.050%)



$$\text{Offer premium} = \beta_0 + \dots + \beta_3 \text{ noiseshare} \times \text{target52WH} + \dots$$

Y: Offer Premium	(1)	(2)	(3)
target52WH	0.078** (2.25)	0.095*** (2.65)	0.046 (1.19)
noiseshare		7.758* (1.78)	-1.064 (-0.19)
noiseshare x target52WH			0.260** (2.07)
FullControls	Y	Y	Y
IndustryEffect	Y	Y	Y
TimeEffect	Y	Y	Y
N	2824	2824	2824
AdjustedR2	0.336	0.337	0.340

Y: Offer Premium	(1) Pri	(2) Pub	(3) Mkt
target52WH	0.113** (2.45)	0.089* (1.75)	0.083** (2.12)
infoshare	3.943 (0.81)	-1.863 (-0.45)	-3.934 (-0.54)
infoshare x target52WH	-0.134 (-1.33)	-0.028 (-0.34)	-0.046 (-0.38)
FullControls	Y	Y	Y
IndustryEffect	Y	Y	Y
TimeEffect	Y	Y	Y
N	2824	2824	2824
AdjustedR2	0.184	0.183	0.183

Mechanism

- noisy info environment** \Rightarrow **undervaluation** \Rightarrow \uparrow reliance
- \Rightarrow \uparrow Absolute deviation from efficient valuation
- 3&4. \Rightarrow \uparrow Uncertainty or \Rightarrow \uparrow Arbitrage costs

Y: Offer Premium	(1) Institution Sub5-L	(2) Institution Sub5-H	(3) Analyst Sub5-L	(4) Analyst Sub5-H
noiseshare x target52WH	0.763* (1.77)	1.105 (1.34)	0.424** (1.99)	0.444 (1.00)
target52WH	-0.006 (-0.04)	0.015 (0.11)	-0.003 (-0.05)	0.060 (0.50)
FullControls	Y	Y	Y	Y
IndustryEffect	Y	Y	Y	Y
TimeEffect	Y	Y	Y	Y
N	167	246	881	542
AdjustedR2	0.514	0.602	0.283	0.447

Y: Offer Premium	(1) Error Sub5-L	(2) Error Sub5-H	(3) Score Sub5-L	(4) Score Sub5-H
noiseshare x target52WH	0.595*** (2.78)	0.368 (1.22)	1.279*** (3.17)	0.067 (0.24)
target52WH	-0.183* (-1.86)	-0.057 (-0.90)	-0.145 (-1.36)	0.163* (1.82)
FullControls	Y	Y	Y	Y
IndustryEffect	Y	Y	Y	Y
TimeEffect	Y	Y	Y	Y
N	332	429	443	441
AdjustedR2	0.549	0.364	0.535	0.345

- Valuation measures:** High \Rightarrow overvalue, Low \Rightarrow undervalue
- Pricing error (Rhodes-Kropf et al., 2005, JFE); Mispricing score (Stambaugh et al., 2015, JF).

Other Ys: bidder CAR & success rate

Noise \Rightarrow — **1)** the penalty to bidders; **2)** the risen deal success rate

Y: CAR	(1) Low	(2) Medium	(3) High
$\widehat{\text{offer_premium}}$	-0.380* (-1.91)	-0.323** (-2.27)	0.096 (0.54)

Y: success	(1) Low	(2) Medium	(3) High
offer_big_52WH	1.783*** (2.96)	0.672 (1.36)	0.412 (0.65)

Main Referenced Paper: -Baker, M., Pan, X., Wurgler, J., 2012. The effect of reference point prices on mergers and acquisitions. J Financ Econ 106, 49–71. -Brogaard, J., Nguyen, T.H., Putnins, T.J., Wu, E., 2022. What Moves Stock Prices? The Roles of News, Noise, and Information. The Review of Financial Studies 35, 4341–4386.