American Disclosure Options

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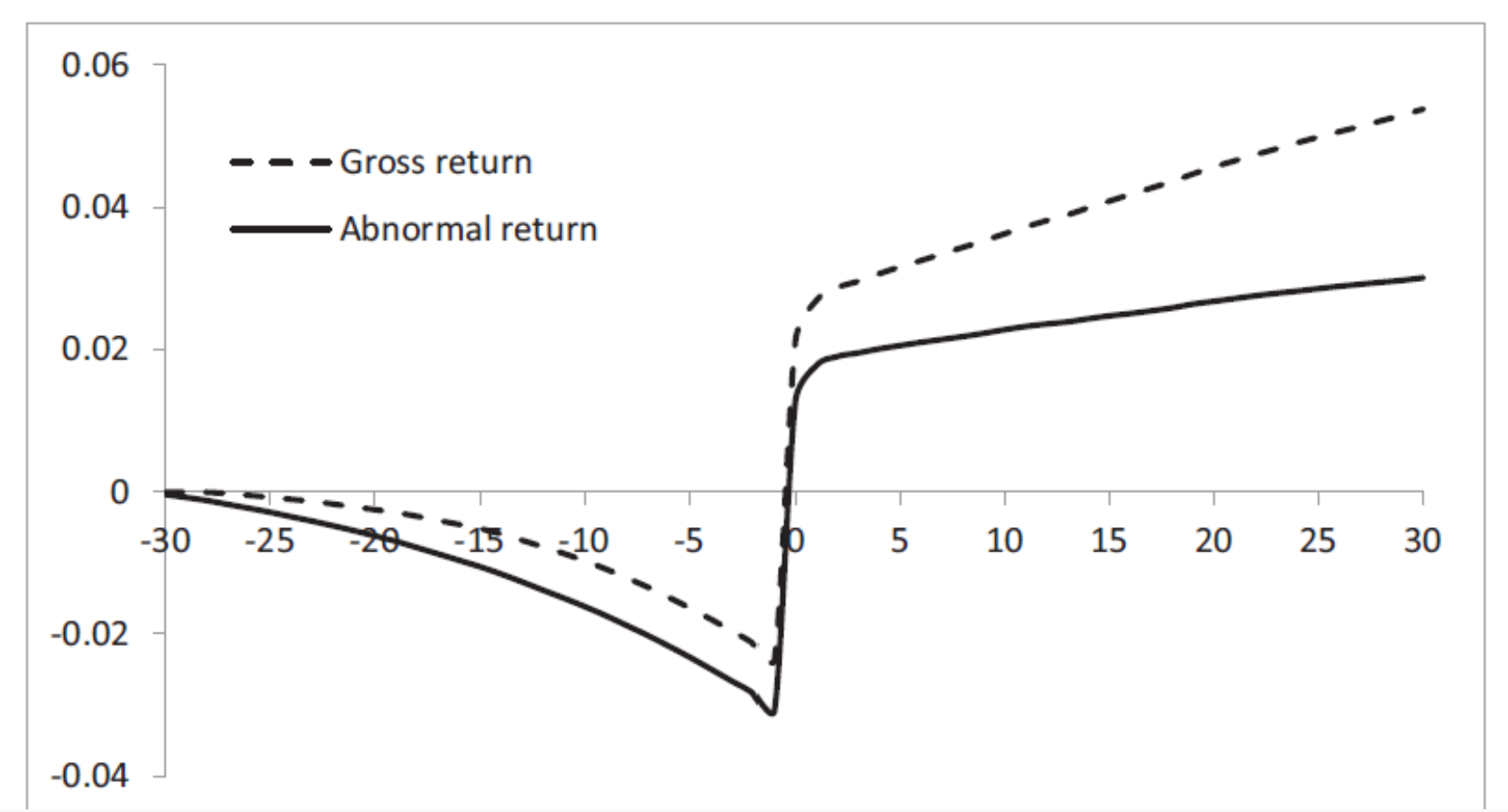
Jump Returns



Kapadia-Zekhnini (JFE, 2019)

No News is Bad News?

- Firms concerned about short-term stock price may delay the announcement of bad news.
- If the market thinks a firm may have news, each day that passes increases the likelihood that the news is bad, and the market reacts accordingly.
- Even bad news can look relatively good once expectations have fallen sufficiently $\rightarrow$ positive jumps.

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- Even bad news can look relatively good once expectations have fallen sufficiently $\rightarrow$ positive jumps.
- Why are jumps positive from an ex ante perspective?
- Positive risk premium in our model.

Literature

- Static voluntary disclosure
  - Grossman (1981), Milgrom (1981)- unraveling
  - Dye (1985), Jung & Kwon (1988) - possibly uninformed
  - Dye & Hughes (2017) - risk-averse investors (nondisclosure increases variance)
- Dynamic voluntary disclosure
  - Acharya, DeMarzo & Kremer (2011) - single firm, exogenous announcement, risk neutrality (bad news $\rightarrow$ disclosure moved up)

Theory

Model

- Time interval $[0, 1]$
- Two firms, each learns its value $\tilde{x}_i$ at a uniformly distributed random time $\tilde{\theta}_i$ (times are independent)
- Disclosures are discretionary but must be truthful.

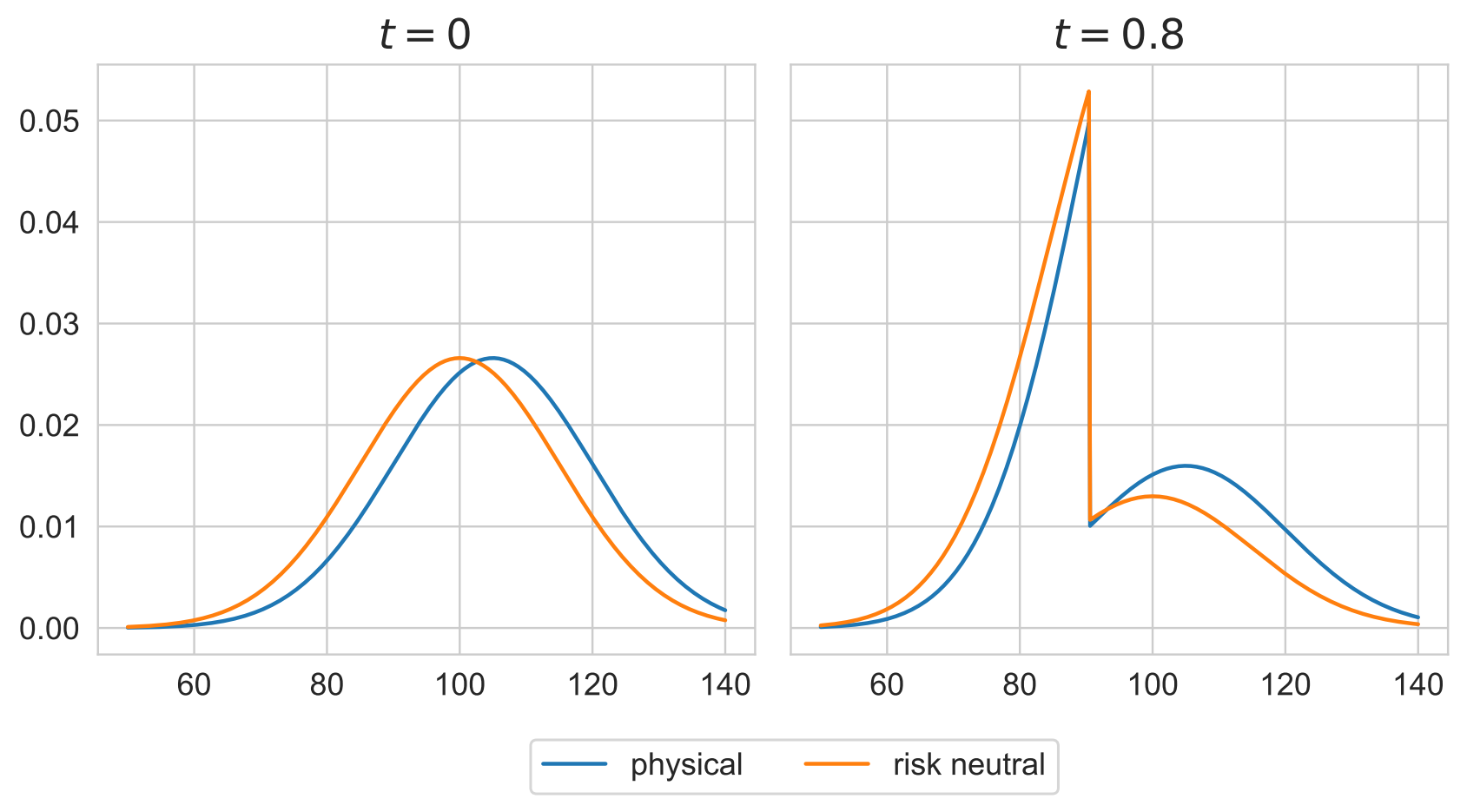
Pricing

- Representative CARA investor who consumes $\tilde{w}$ at date 1
- $(\tilde{x}_1, \tilde{x}_2, \tilde{w})$ are joint normal. Distribution is symmetric in $\tilde{x}_1$ and $\tilde{x}_2$, which have correlation $\rho \geq 0$.
- Constant risk-free rate (set $= 0$).
- SDF $\propto$ marginal utility
- Mostly work under risk-neutral probability
- Assume firms care about short-run prices and maximize the risk-neutral expectation of the average price between $t = 0$ and $t = 1$.

Single-Firm Benchmark

- Single firm model is just a series of static models indexed by $t =$ probability of being informed.
- Equilibrium price P_t is the cutoff for disclosure in static model.
- If the firm knows its value and $\tilde{x} > P_t$, then the firm discloses (or has already disclosed).
- P_t is a weighted average of the risk-neutral expectation of $\tilde{x}$ conditional on $\tilde{x} < P_t$ and the unconditional risk-neutral expectation. Weights are
  - Prob (informed and $\tilde{x} < P_t$) and
  - Prob (uninformed)
  - divided by sum of probabilities.

Densities Conditional on No Disclosure



Risk premium $(\mathrm{E}[\tilde{x}] - P)/P = -\mathrm{cov}(\tilde{m}, \tilde{x}/P)$ increases over time.

Announcement Returns

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  - positive when signals are announced when observed
  - zero when signals are announced when the boundary falls to the signal
- They are never negative.

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- They are never negative.
- This is due to the complete discretion we assume. In reality, there are forces that reduce discretion.

Acharya-DeMarzo-Kremer

- Single firm. Exogenous public announcement. Risk neutral.
- Value to keeping disclosure option alive:
  - Announcement might be good news.
  - Could lift price above true value.
  - Pre-announcement, current price must be sufficiently far below value before disclosure is optimal.
  - I.e., option must be sufficiently far in the money.

ADK Continued

- Exogenous announcement could be disclosure by nonstrategic firm.
- Exogenous announcement occurs at known date.
- Positive probability of disclosure by strategic firm immediately following exogenous announcement (bad news $\Rightarrow$ clustering).

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- In "Extensions," ADK write down marginal condition for exogenous announcement at random date.

Nonstrategic Firms and Negative Disclosures

- The ADK model is a simple reduced-form way to model limited discretion over timing.
- Some firms with complete discretion and some firms with no discretion.
- No discretion $\Rightarrow$ some negative disclosures.

Our Contributions

- Derive ADK marginal condition from usual diff eq / value matching / smooth pasting.
- Solve ADK model in our CARA/normal/uniform setting.
- Solve ADK model with both firms being strategic.
- Allow risk aversion and analyze risk premia.
- Confirm some model predictions using earnings announcements.

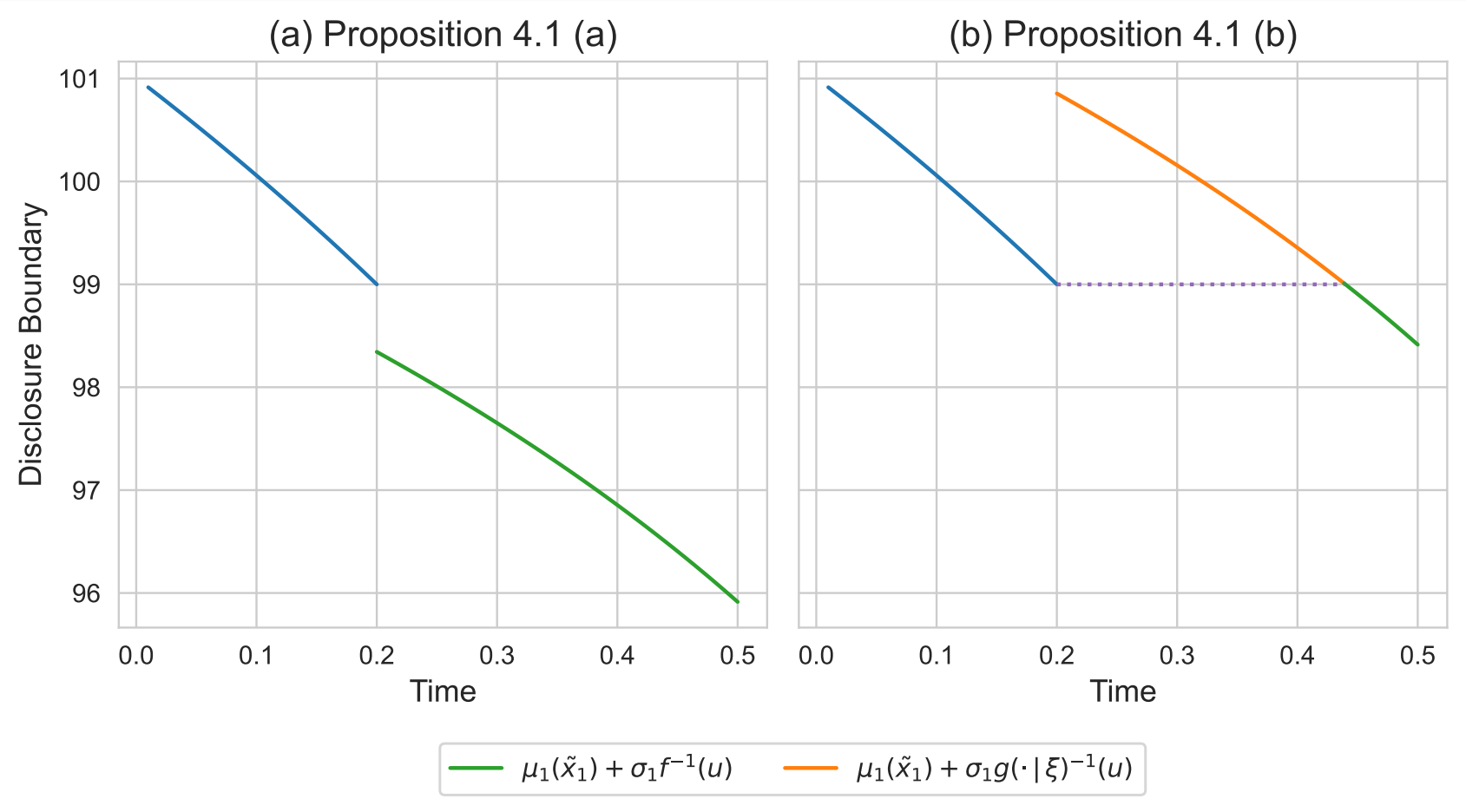
Marginal Condition

- We want to derive a necessary condition for the optimal disclosure threshold at date t to be some number b.
- A firm with value $\tilde{x} = b$ must be indifferent between disclosing and not disclosing.
- The cost of not disclosing is the foregone price increase $b - P_t$.
- The benefit of not disclosing is the possibility of another announcement that lifts the firm's price.
- For the last firm, there is no benefit. The boundary is $b = P_t$.

Last Firm

- Very similar to single firm model.
- But instead of steadily decreasing, boundary/price can jump up when the first firm discloses.
- So, what does the market know about the nondisclosing firm?

Proposition 4.1



The first disclosure (at $t = 0.2$) is higher in the right panel.

Post-disclosure equilibrium in left is same formula as single-firm model.

Arrival Rate of Disclosures

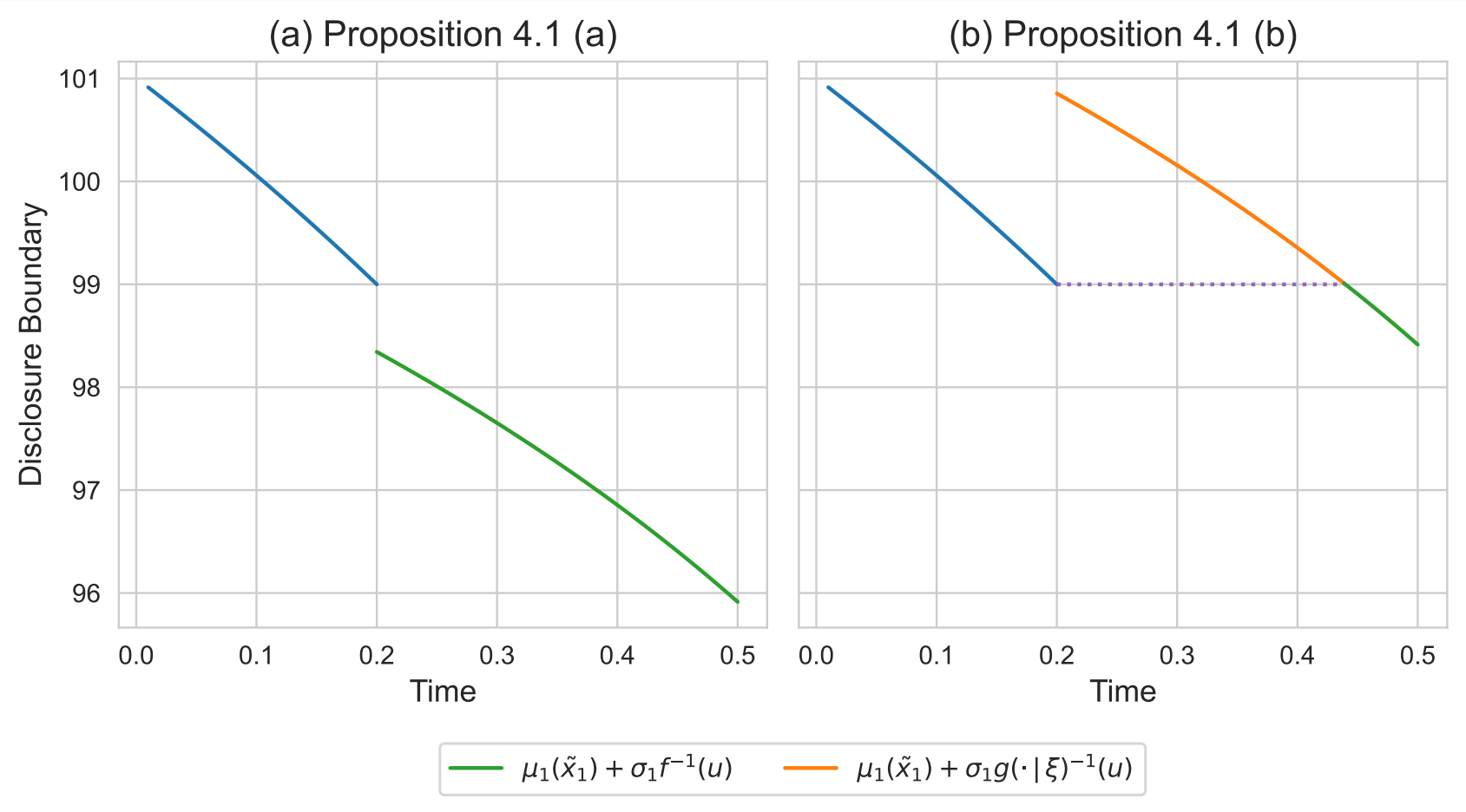
- Expected value of waiting = benefit conditional on disclosure $\times$ probability of disclosure.
- In ADK model, disclosure is at a known date. In extension, probability of disclosure is exogenous.
- With multiple strategic firms, probability of arrival depends on equilibrium disclosure policy.

Types of Disclosures

1. Just learned value and it is above boundary
2. Knew value and was keeping it secret $\Rightarrow$ disclosure = boundary.

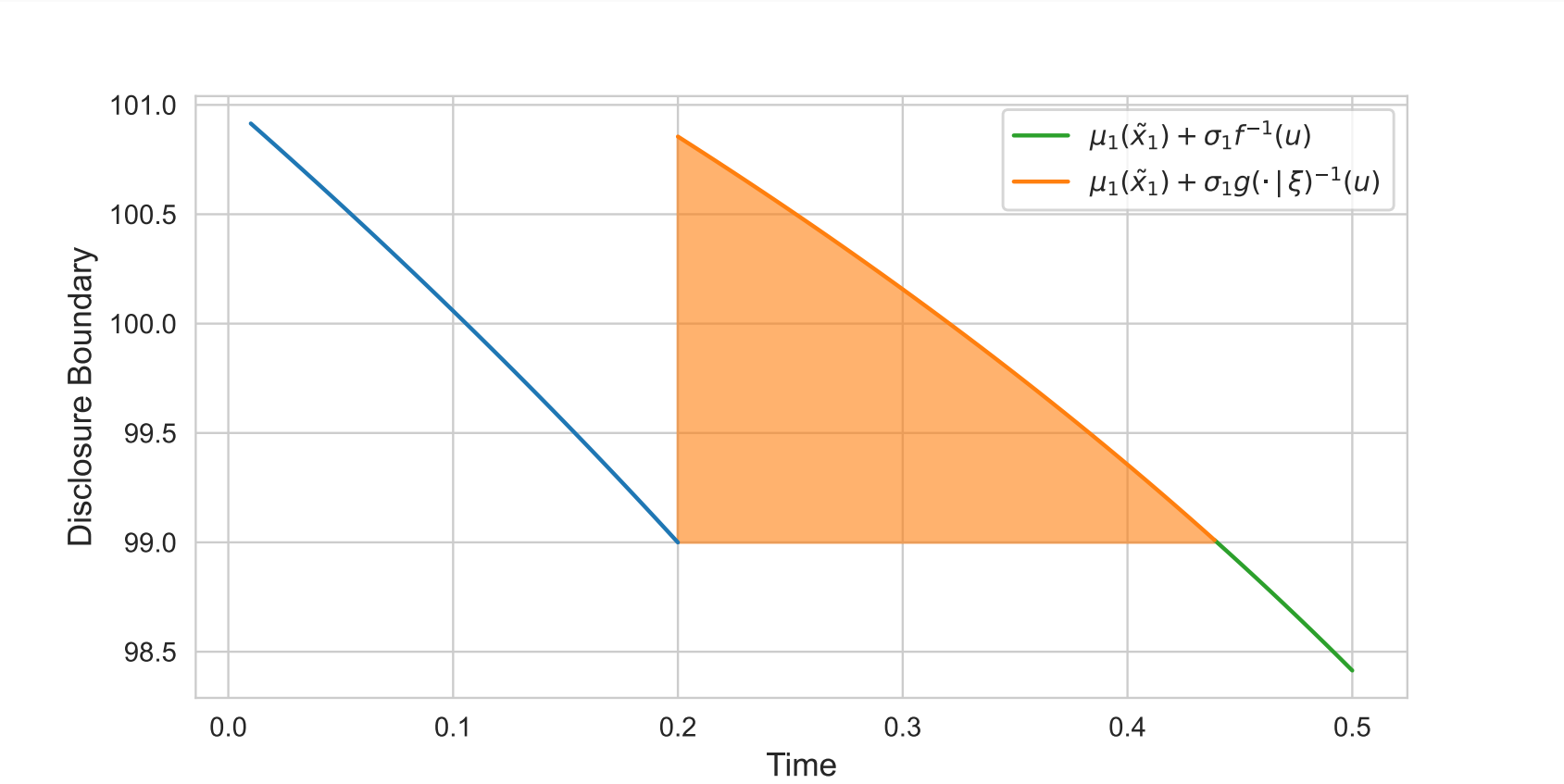
- Arrival rate of type #1 depends on boundary and exogenous arrival of signals
- Arrival rate of type #2 depends on boundary and slope of boundary. (Steep slope implies more possible signal values traversed in given interval of time $\Rightarrow$ higher arrival rate.)

Proposition 4.2: Two Strategic Firms



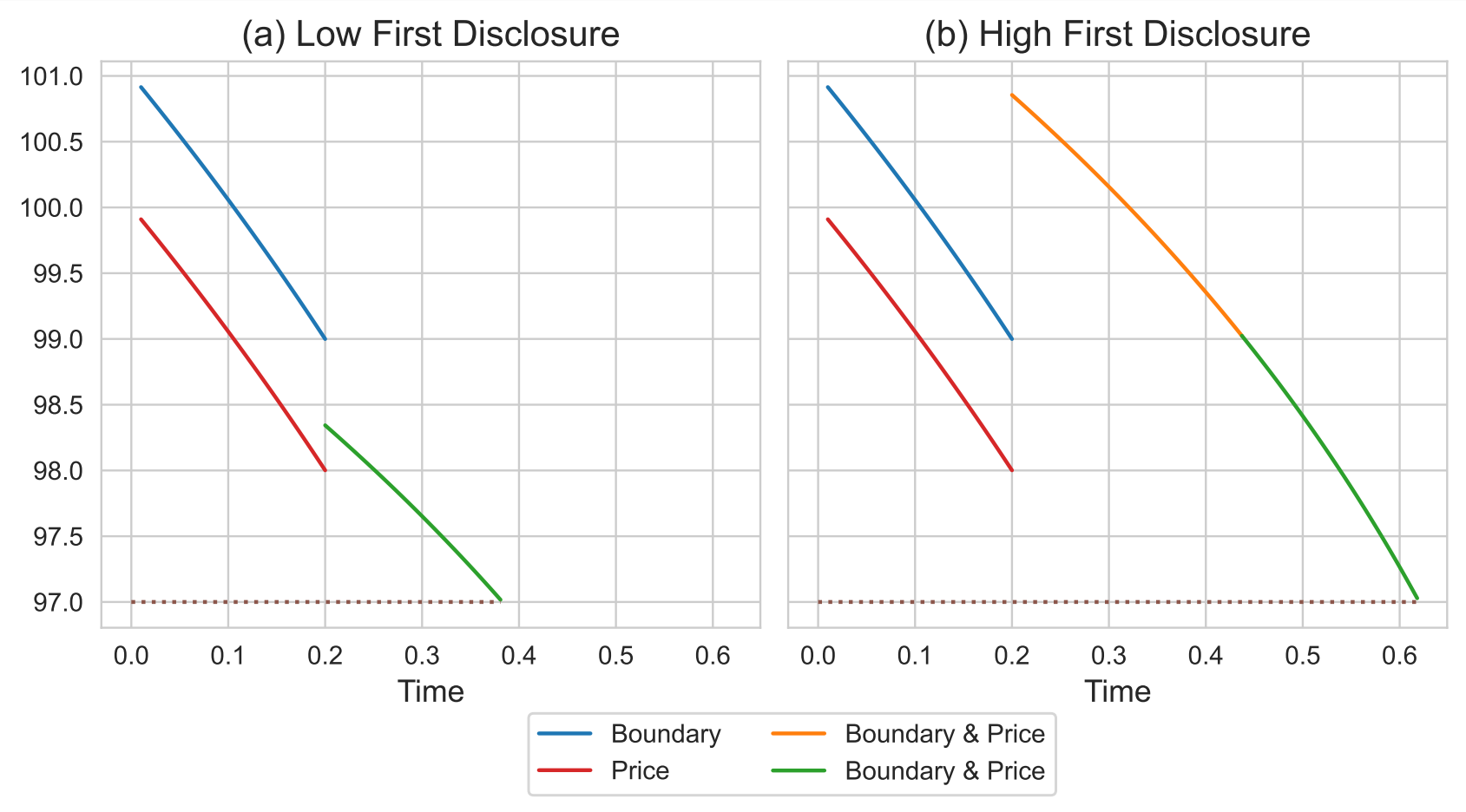
Disclosures at the boundary are as in the left panel. Their arrival rate does not matter, because the realized benefit of waiting is zero.

Realized Benefit of Waiting



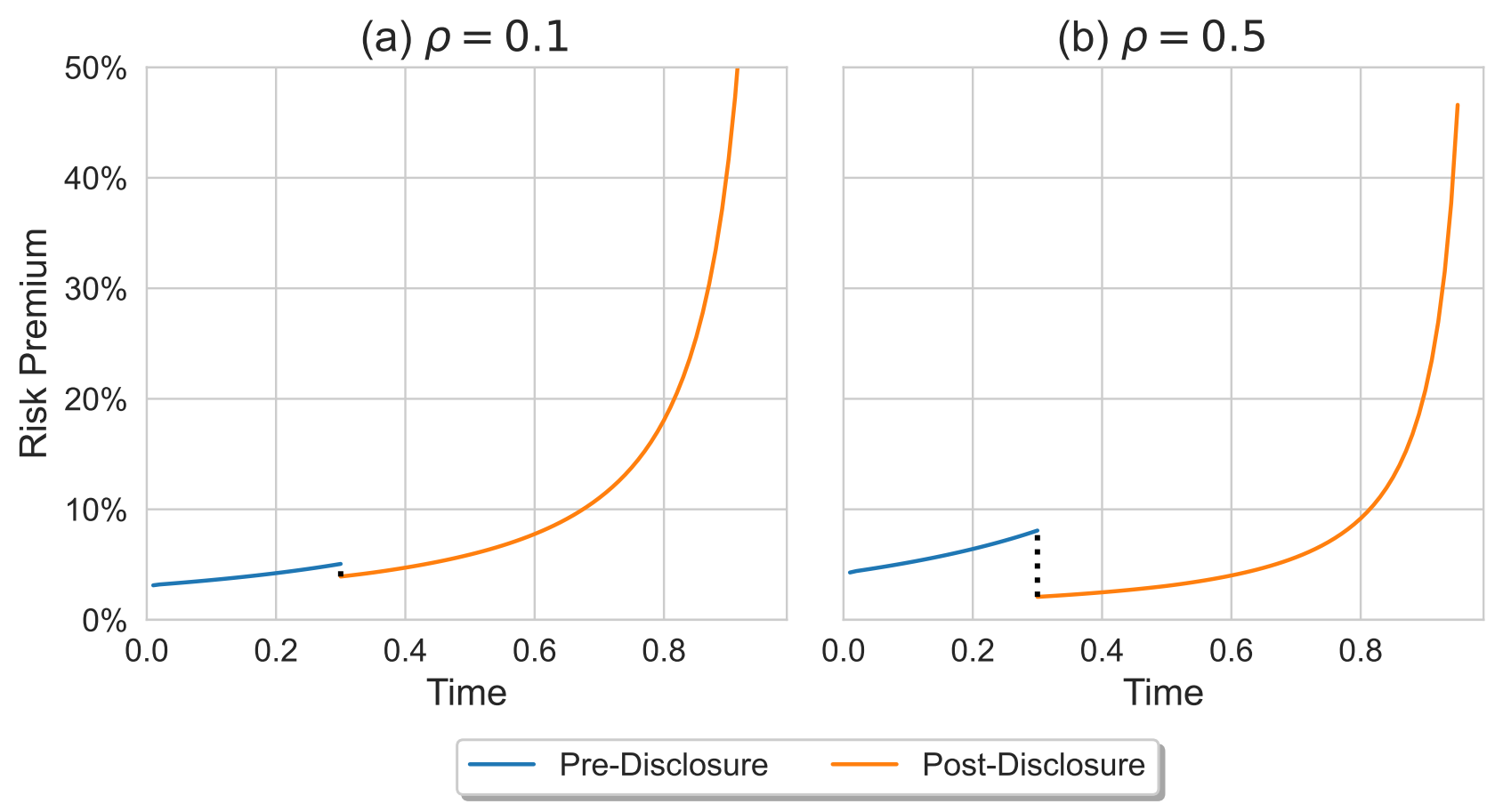
There is a benefit only in the right panel of previous figure, and it is the orange shaded area.

Proposition 4.3: Two Strategic Firms

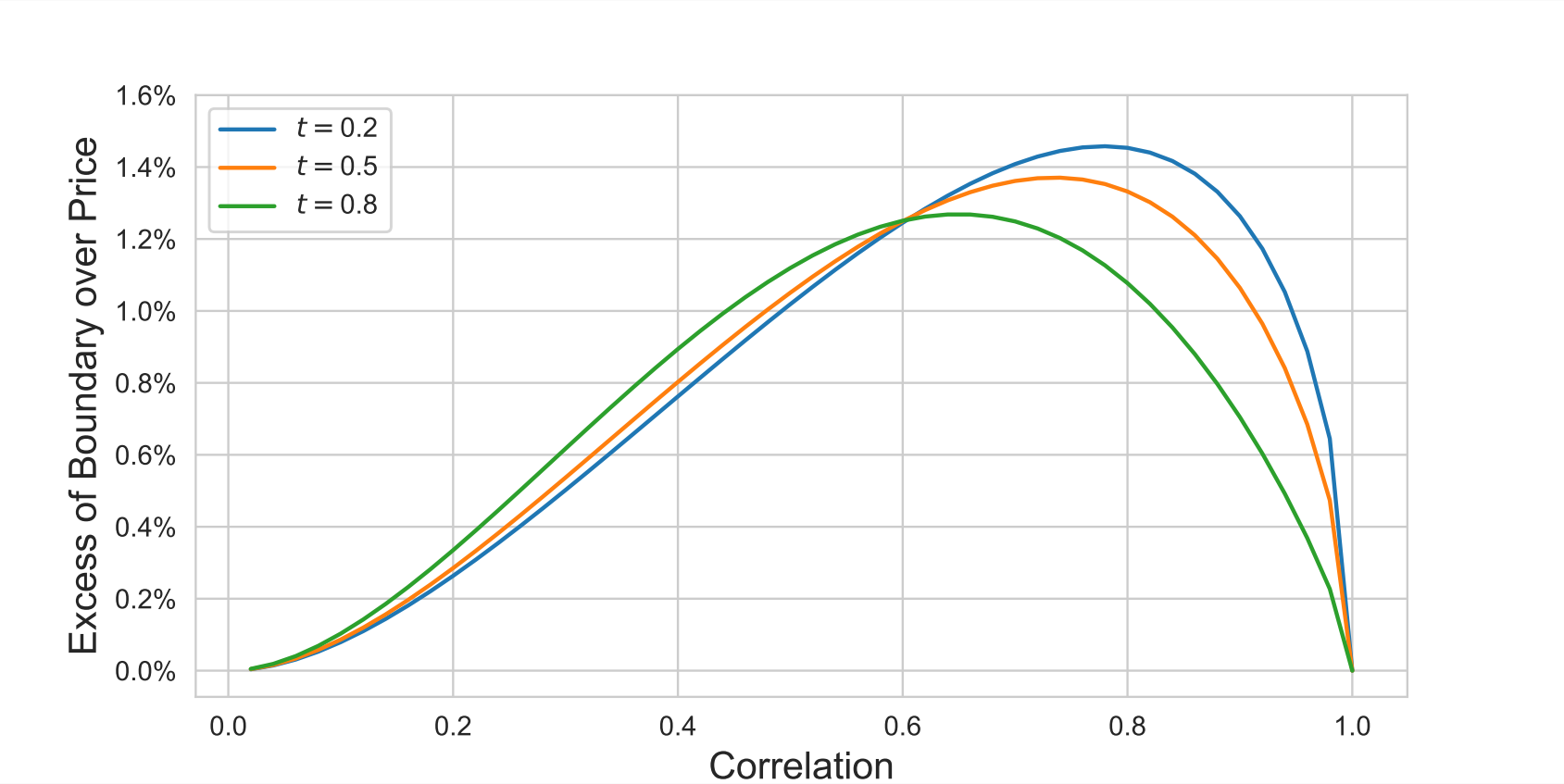


Match cost of waiting $B_t - P_t$ to expected benefit of waiting to find B_t before anyone discloses. P_t then given by Bayes' rule.

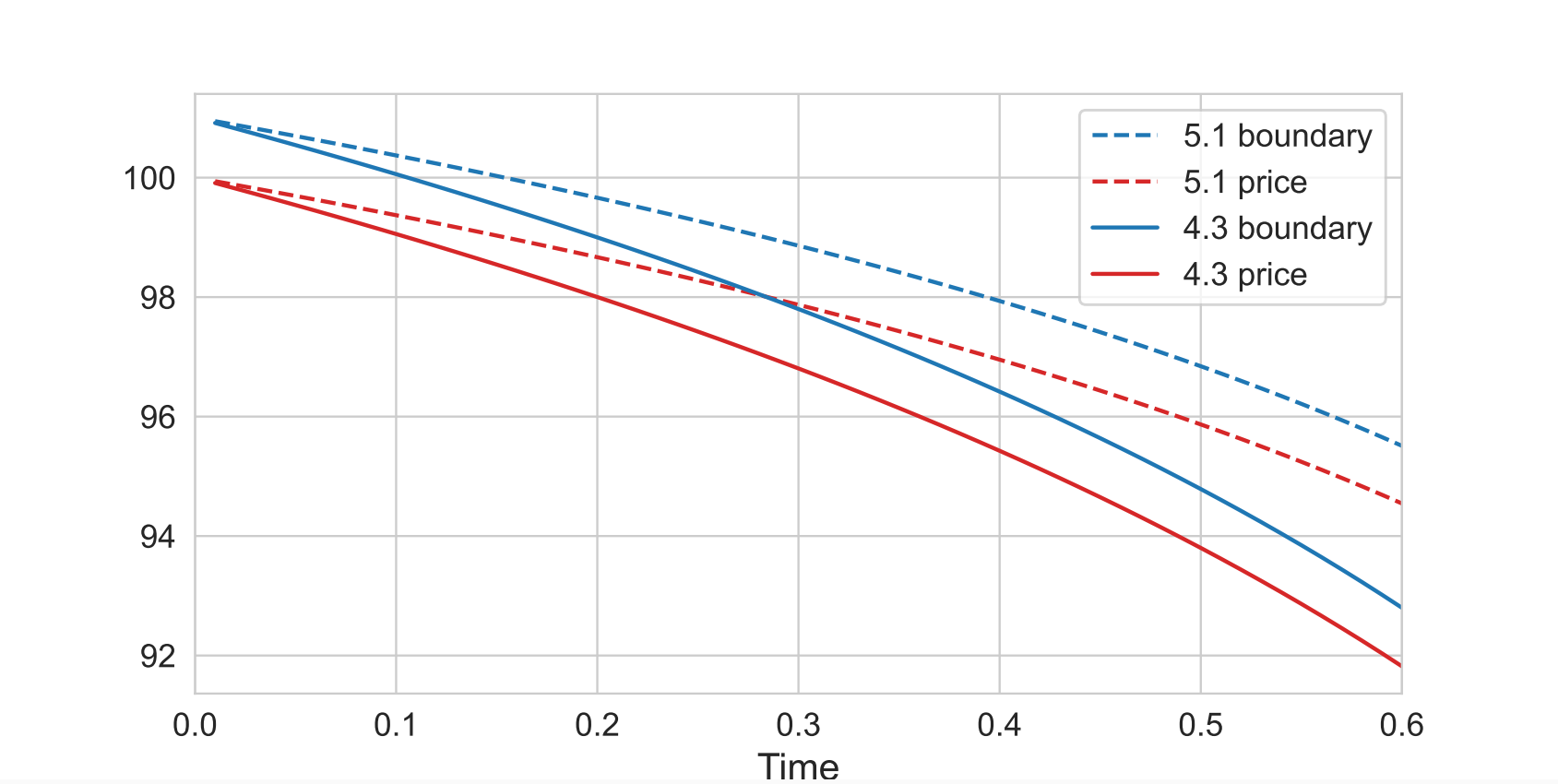
Risk Premia


(a) $\rho = 0.1$
(b) $\rho = 0.5$
Risk Premium
50%
40%
30%
20%
10%
0%
0.0
0.2
0.4
0.6
0.8
Time
Pre-Disclosure
Post-Disclosure

Correlation and the Option Value



Proposition 5.1: One Strategic and One Nonstrategic



Boundary and price drop faster with two strategic firms, because it is worse if two firms are keeping their values secret.

Empirics

Summary of Empirics (Earnings Announcements)

- Look at changes in announcement dates relative to
  - Previous year's date
  - Forecast of date by Wall Street Horizons
- Higher peer and aggregate announcement returns pre disclosure $\Rightarrow$ delayed disclosure

Empirical Literature

- DeHaan, Shevlin & Thornock (2015) - firms announce bad earnings news on Friday afternoons
- Johnson & So (2018) - using same Wall Streets Horizons data that we use, show firms delay earnings announcements when news is bad
- We look at strategic timing based on peer announcements rather than a firm's own news.
- Strategic timing of other announcements: Tse and Tucker (2010), Sletten (2012), Aragon and Nanda (2017), ...

Earnings Announcements

- Good setting to study our model, because:
  - Peer firms announce in well-defined period
  - Ex ante measures of when firms are expected to announce
- Bad setting to study our model, because:
  - Repeated game: commitment to a predictable strategy may be an equilibrium of a repeated game
  - Advance scheduling reduces scope for strategic timing

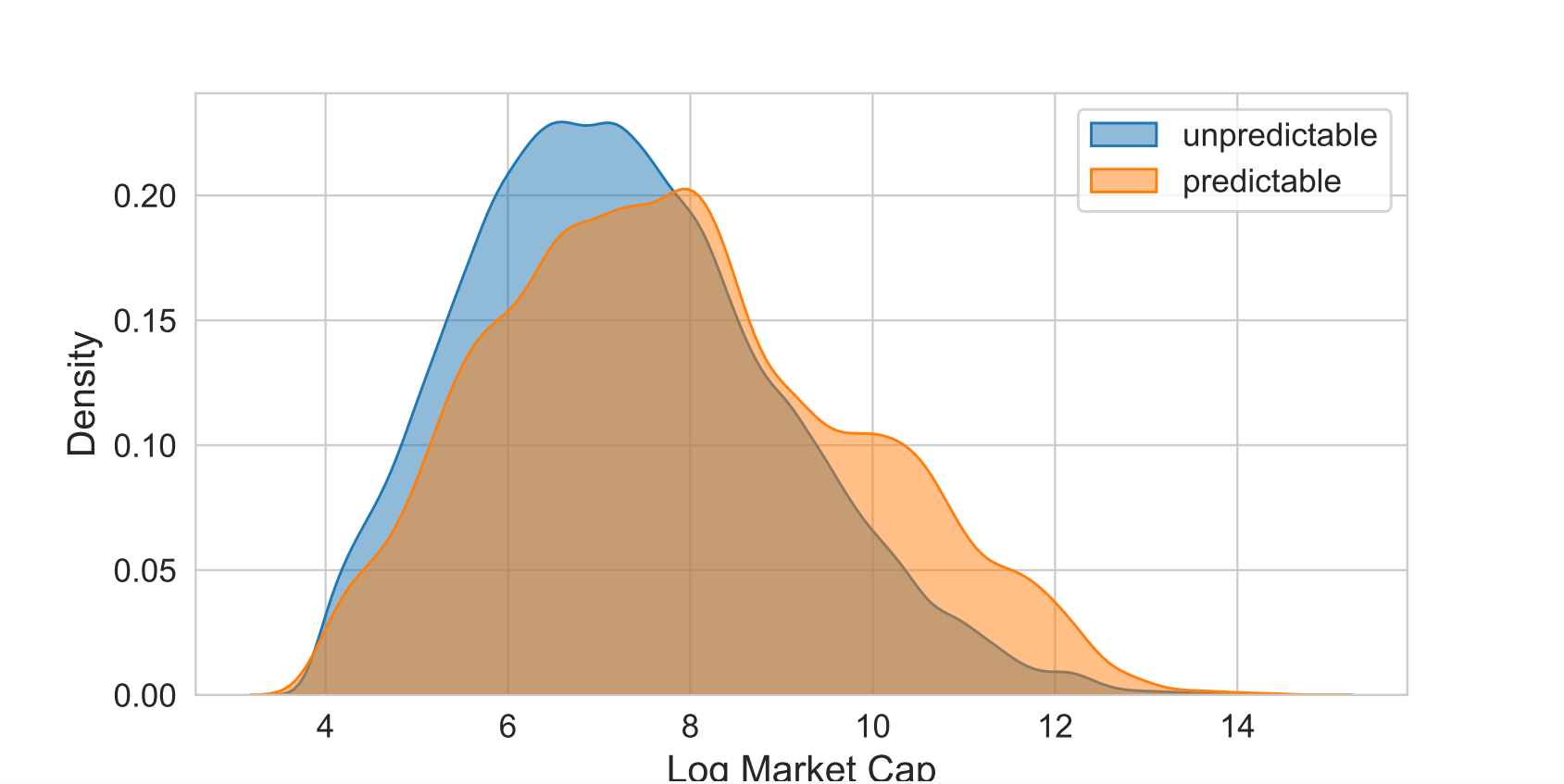
Anticipated Announcement Dates

- date 4 quarters earlier $\rightarrow$ year-on-year changes
- Wall Street Horizons forecast $\rightarrow$ WSH forecast errors
- 5,300 firms and 147,000 announcements

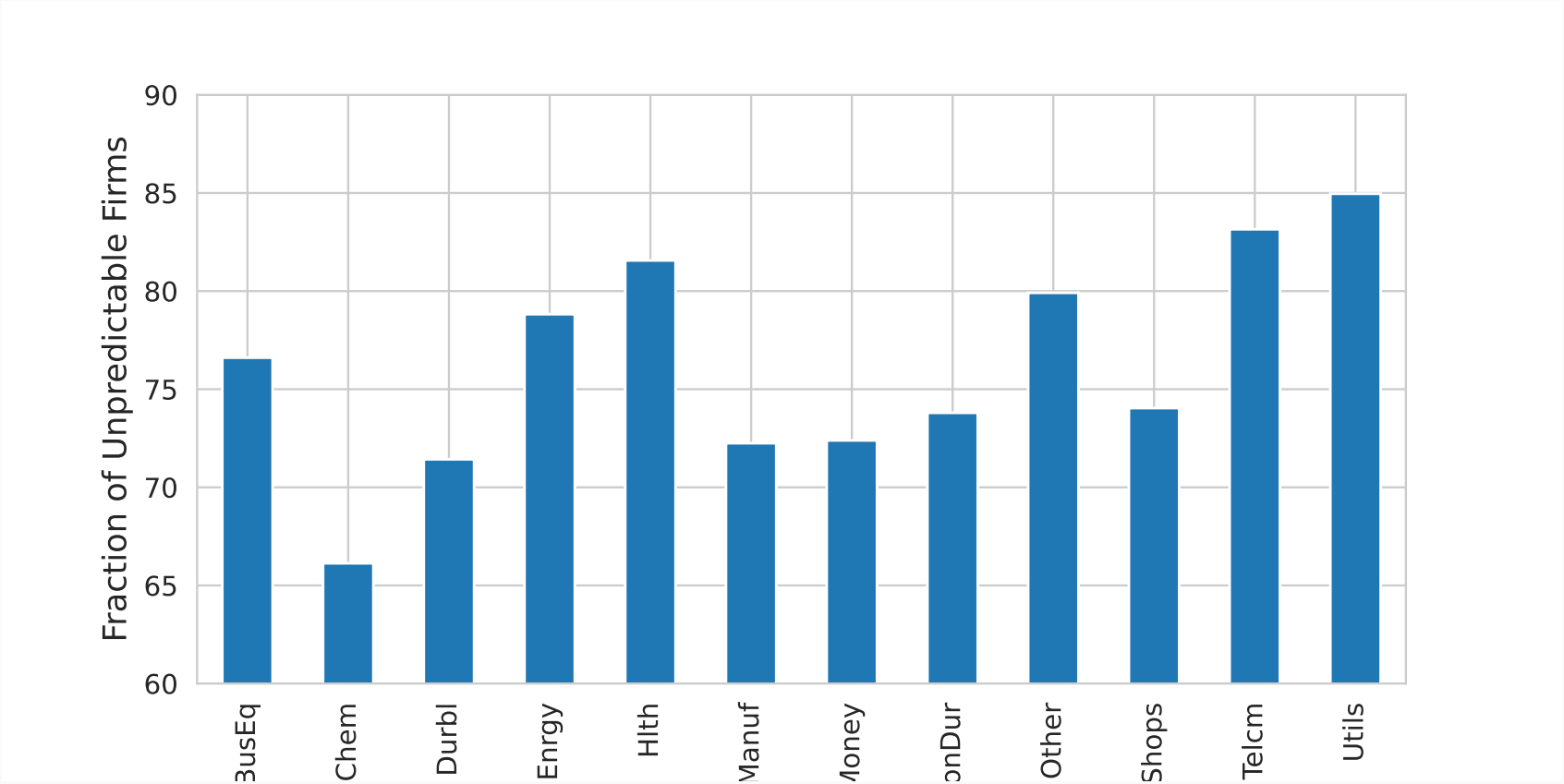
Exclude Predictable Firms

- WSH exactly correct more than 50% of the time, or
- announce on the same day of the week more than 90% of the time
- 4,000 firms and 115,000 announcements

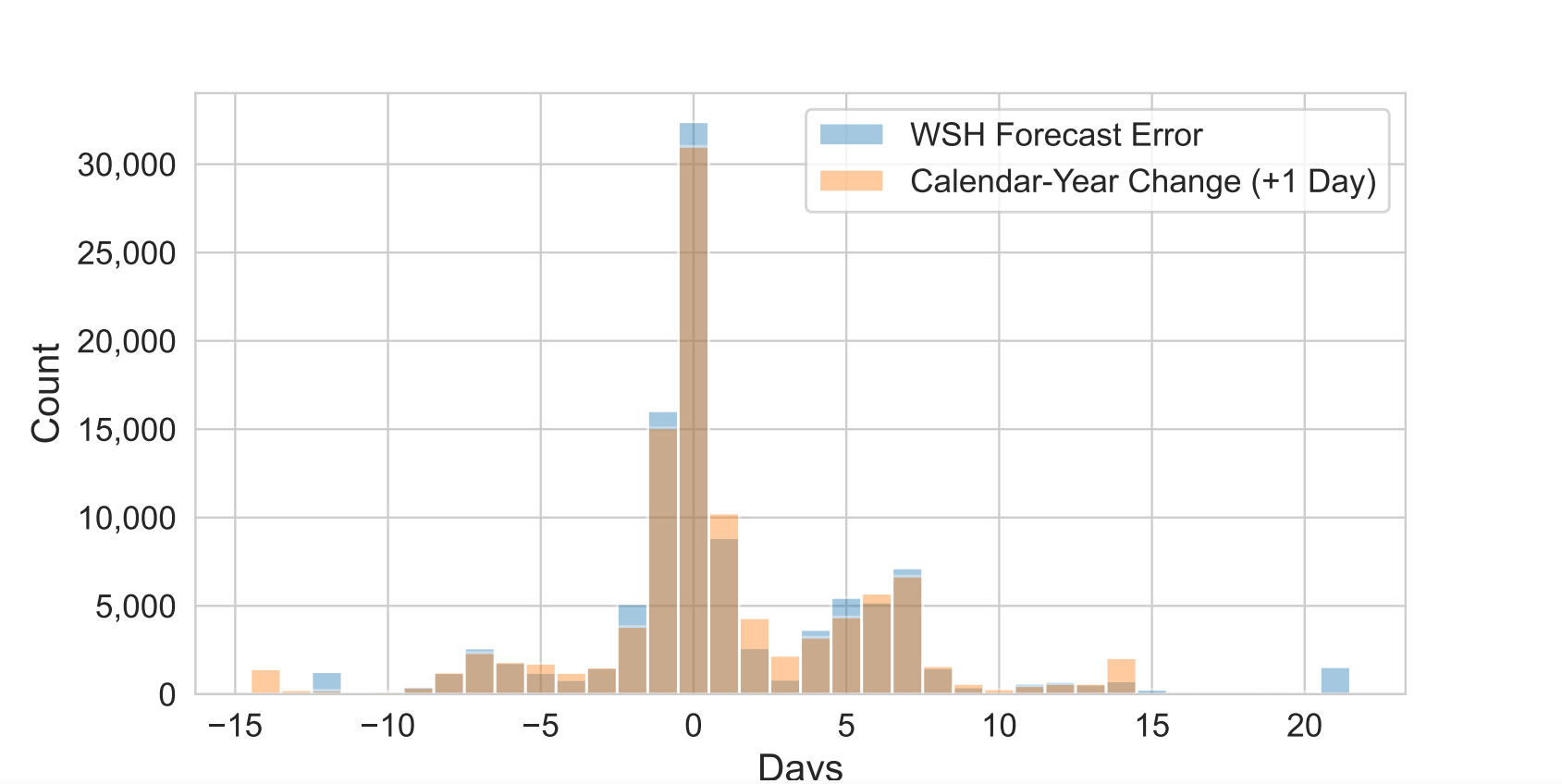
Market Caps of Retained and Excluded Firms



Industry Distribution of Retained Firms



Announcement Date Shifts for Retained Firms



Main Hypothesis

- Firms delay announcements when peers announce good news
- Firms move announcements up when peers announce bad news
- Uber & Lyft: from WSJ, May 4, 2022

  Lyft's commentary was so bad, Uber Technologies moved up its earnings release and conference call after watching its own shares trade off sharply in sympathy.

Windows for Peer Announcements

- Announcements early, on-time, or late
- Look at peer announcement returns in window before announcement for early and on-time
- Look at peer announcement returns in window before anticipated date for late
- Three-day windows in all cases
- Windows are after announcement scheduling. Hypothesis is that firms anticipate peer announcement returns when scheduling.
  - Schedule early or on-time if anticipate bad peer news
  - Schedule late if anticipate good peer news

Regression of Forecast Errors on Peer Returns

	(1)	(2)	(3)	(4)	(5)	(6)
R^{FF12}	0.07***	0.07***			0.04**	
	(0.02)	(0.02)			(0.02)	
R^{GICS4}			0.05***	0.04*		0.03
			(0.02)	(0.02)		(0.02)
R^{agg}					0.20**	0.19**
					(0.09)	(0.10)
Firm FE	Y	Y	Y	Y	Y	Y
Day FE	N	Y	N	Y	Y	Y
Num Obs	105,066	105,066	104,973	104,973	105,065	104,972

$^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Thanks!