

# Hengjie Ai, Ravi Bansal, Hongye Guo, Amir Yaron: Identifying preference for early resolution from asset prices

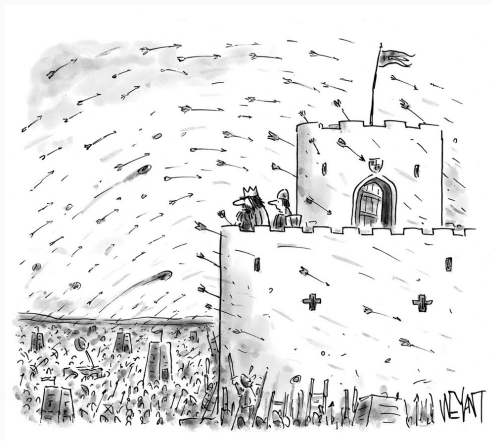
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Discussion by Jaroslav Borovička (NYU and Federal Reserve Bank of Minneapolis)

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## SUMMARY OF THE PAPER



*"I'm starting to think we should cancel the press briefings."*

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<https://www.newyorker.com/cartoons/daily-cartoon/friday-april-26th-white-house-press-briefings>

Want to learn about fundamental preference parameters from asset prices

- long tradition
- here, focus on the preference for early/late resolution of uncertainty

Kreps and Porteus (1978):  $U_t = \phi(C_t, E_t[U_{t+1}])$

- preference for early resolution when  $\phi$  convex in the second argument
- e.g., isoelastic Epstein and Zin (1989) case  $\gamma > 1/\psi$
- intertwines preference for timing of uncertainty with RA and IES

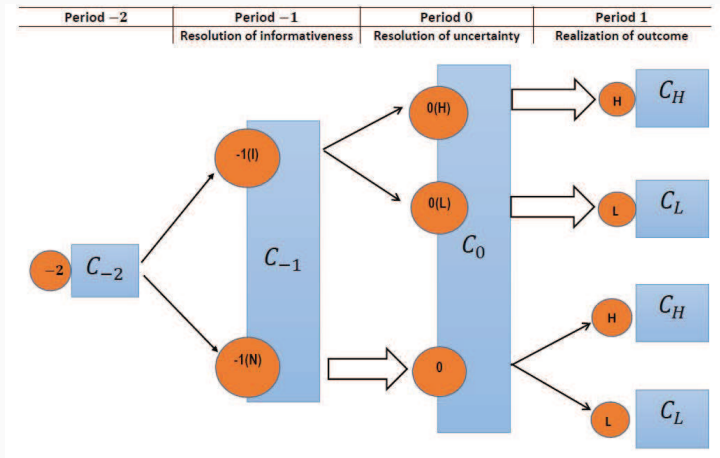
Want to consider a more general setup

- this is great but there are tradeoffs

1. Find experiments with early/late resolution of uncertainty.
  - more/less informative FOMC announcements at  $t + 1$
2. Problem: Experiments have implications for the **level of utility**  $V_t$ 
  - solution: assume **Generalize Risk Sensitivity** (Ai and Bansal, 2018)
  - $MC_t$  decreasing in  $V_t$ , now we can talk about asset pricing
3. Need to find assets that move systematically with  $V_t$  (and hence  $MC_t$ )
  - consider, e.g., preference for early resolution
  - high  $V_t$  when FOMC announcement expected to be **informative**
  - informative announcement  $\implies$  **high return volatility** at  $t + 1$
  - high expected volatility at  $t \implies$  high level of  $VIX_t$
4. Use options to construct synthesized variance swaps
  - $VIX_t$  increasing in expected volatility
  - negative covariance of  $VIX_t$  with  $MC_t \implies$  **positive risk premium** between  $t - 1$  and  $t$

1. What do we need to control for?
  - consumption, uncertainty, ...
2. Role of GRS assumption
  - joint hypothesis test
3.  $P$  versus  $Q$ 
  - would like to learn about the DGP from asset prices
4. Why FOMC announcements?
  - other announcements perhaps more suitable
5. How to determine timing?
  - risk of confounding effects

# WHAT DO WE NEED TO CONTROL FOR?



- extent of period 1 uncertainty across scenarios
- variation in consumption levels in periods -1, 0, 1

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Extent of period 1 uncertainty across scenarios

- high return volatility at announcement can mean a large share of time-1 uncertainty is realized, or there is a lot of uncertainty to be realized
- authors at least partly control for it using **inverse slope**  $IV^9 / IV^{90}$
- is  $IV^{90}$  enough of a **long run** 'macro' uncertainty?

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Variation in **consumption levels** in periods  $-1, 0, 1$

- consumption  $C_0$  does not depend on the realization of uncertainty
- consumption  $C_{-1}$  does not depend on the realization of informativeness
- how to justify: periods  $-1, 0, 1$  very short?



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Separation of realization of **uncertainty** (period 0) and **informativeness** (period  $-1$ )

- even when  $C_{-1}$  is fixed, shocks to future cash flows/discount rates may move  $V_0$  beyond just resolution of informativeness
- e.g., FOMC may want to time information revelation in specific ways  
(**Boguth, Gregorie and Martineau, 2019**)

Under GRS, preference for early (late) resolution implies a positive (negative) risk premium on variance swaps between periods  $-2$  and  $-1$  (during resolution of informativeness).

- **joint test**: positive risk premium consistent with GRS and PER

**Example**: Epstein–Zin preferences

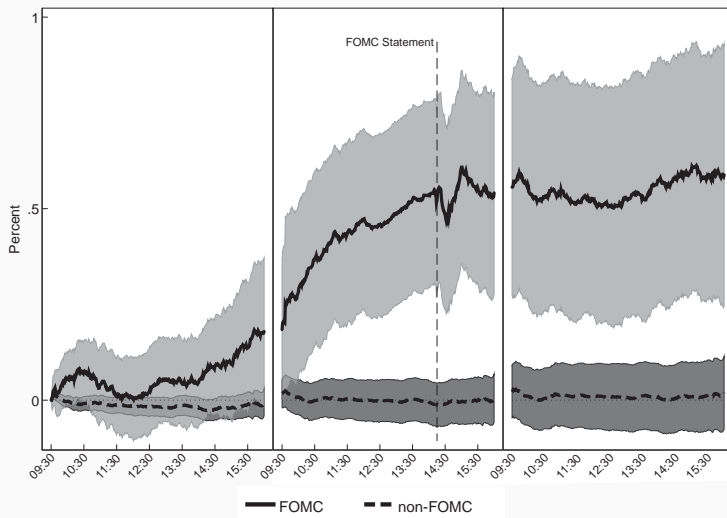
- GRS holds when  $\gamma > 1/\psi$
- Same condition for PER  $\implies$  positive risk premium on variance swaps
- But when  $\gamma < 1/\psi$ , GRS fails, we have PLR and risk premium still positive
- **positive observed risk premium** on the variance swap alone is **uninformative** in the Epstein–Zin case

- Informativeness is conceptually proxied by variation in returns at announcement
  - presumably *under P*
- But VIX and related option-implied measures represent expected volatility *under Q*
- Right now, the paper is silent on the distinction
- Model-based VIX measure depends on the scenario (early/late resolution)
- The framework should be made internally consistent

# HOW TO DETERMINE TIMING?

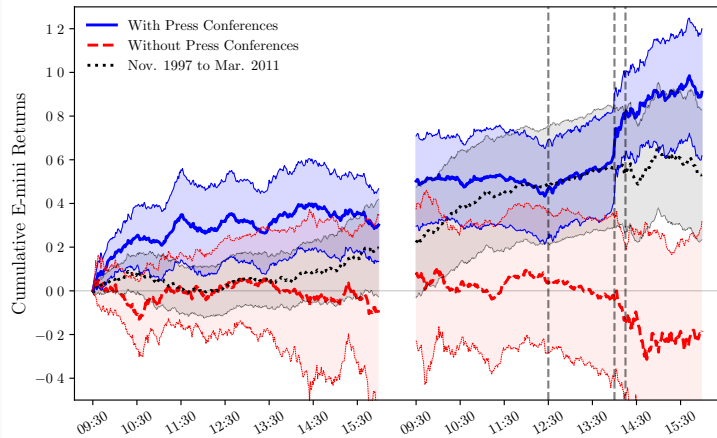
- **Period 1:** Some more distant future when macro uncertainty is realized
  - authors control for 90-day expected volatility (data availability)
  - the FOMC announcement would typically be about **more distant future**
- **Period 0:** macro announcement (**information** is realized)
  - authors use day of announcement
  - positive announcement premium on S&P 500 on FOMC days as a justification for GRS (**Ai and Bansal, 2018**)
  - but **Lucca and Moench (2015)** show that this FOMC announcement premium is purely due to pre-announcement drift
  - may be different for other macro announcements but is then FOMC special?
  - **Ai and Bansal (2018)** find a positive premium at **non-FOMC** announcements  
⇒ why not focus on those?
- **Period -1:** **informativeness** is realized
  - how wide should be the window? no theoretical guidance
  - look for pre-announcement increases in *VIX* that are at least partly undone at announcement (smart idea)
  - longer windows face higher risk of confounding effects

# FOMC PRE-ANNOUNCEMENT DRIFT



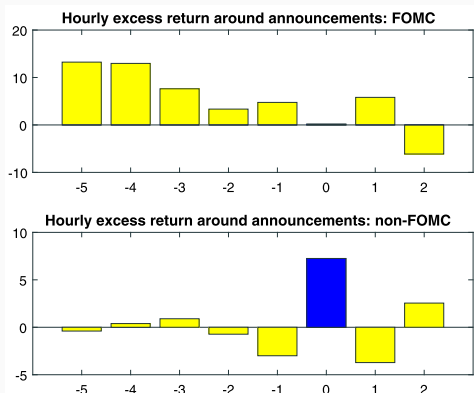
- Lucca and Moench (2015), figure 1

# FOMC PRE-ANNOUNCEMENT DRIFT



- Boguth, Gregorie and Martineau (2019), figure 3

# FOMC PRE-ANNOUNCEMENT DRIFT



- Ai and Bansal (2018), figure 1

- Conceptually very clever idea
- Empirical implementation may be challenging
- More clarity on the distinction between GRS and PER needed
  - which preference configurations does a positive risk premium really identify?
- Are FOMC announcements a good testing ground?
  - no announcement premium that would justify GRS
  - non-FOMC announcements may be better
- Quantitative implementation still preliminary
  - can we move from a sequence of regressions to a more coherent estimation technique?