

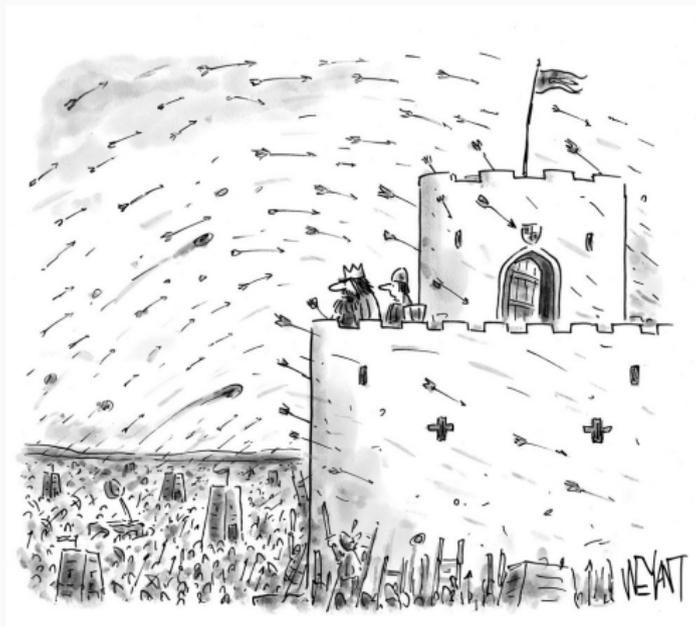
Hengjie Ai, Ravi Bansal, Hongye Guo, Amir Yaron: Identifying preference for early resolution from asset prices

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

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The views expressed herein are those of the authors and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System.

SUMMARY OF THE PAPER



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

©Christopher Weyant, New Yorker

<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 ϕ 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

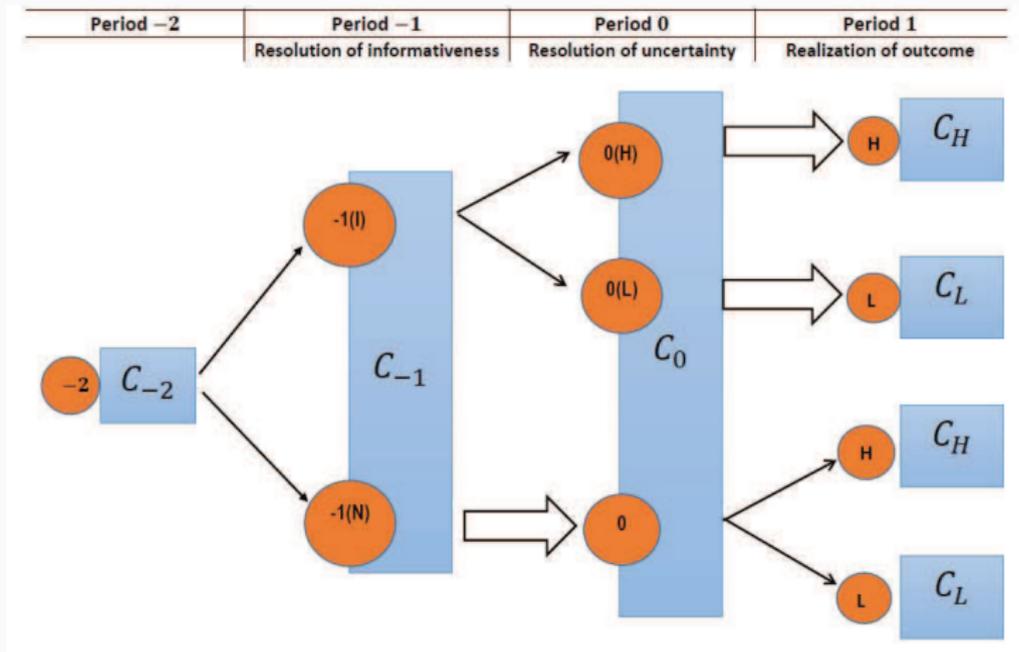
Want to consider a more general setup

- 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

WHAT DO WE NEED TO CONTROL FOR?

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

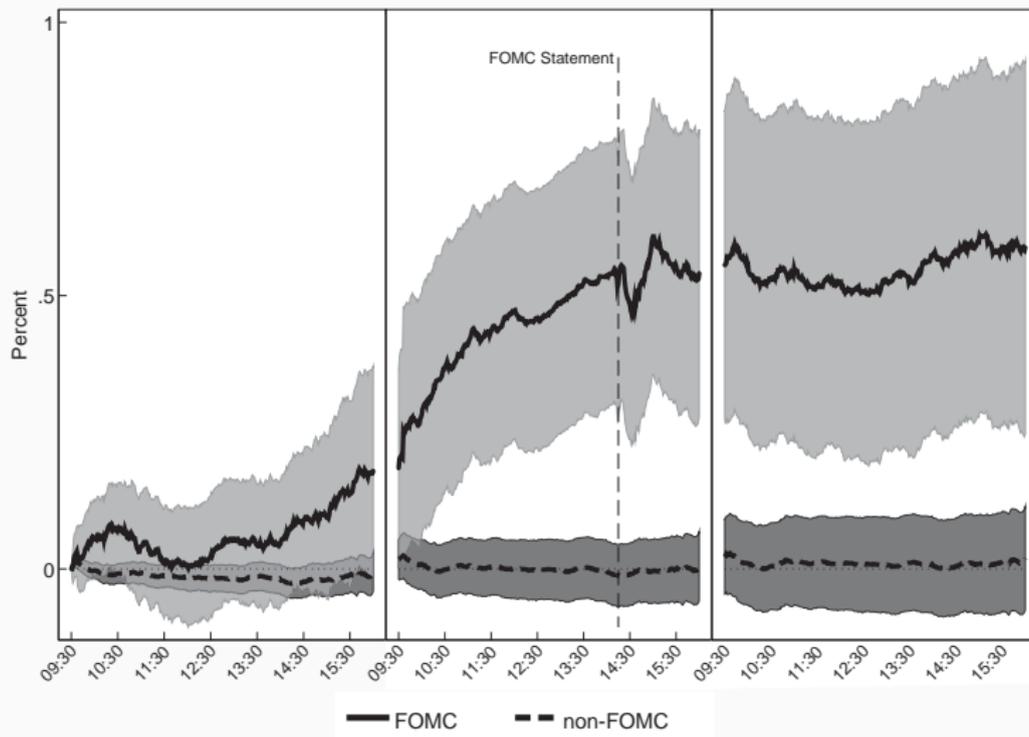
- GRS holds when $\gamma > 1/\psi$
- Same condition for PER \implies positive risk premium on variance swaps
- But when $\gamma < 1/\psi$, GRS fails, we have PLR and risk premium still positive
- **positive observed risk premium** on the variance swap alone is **uninformative** in the Epstein–Zin case

- 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?

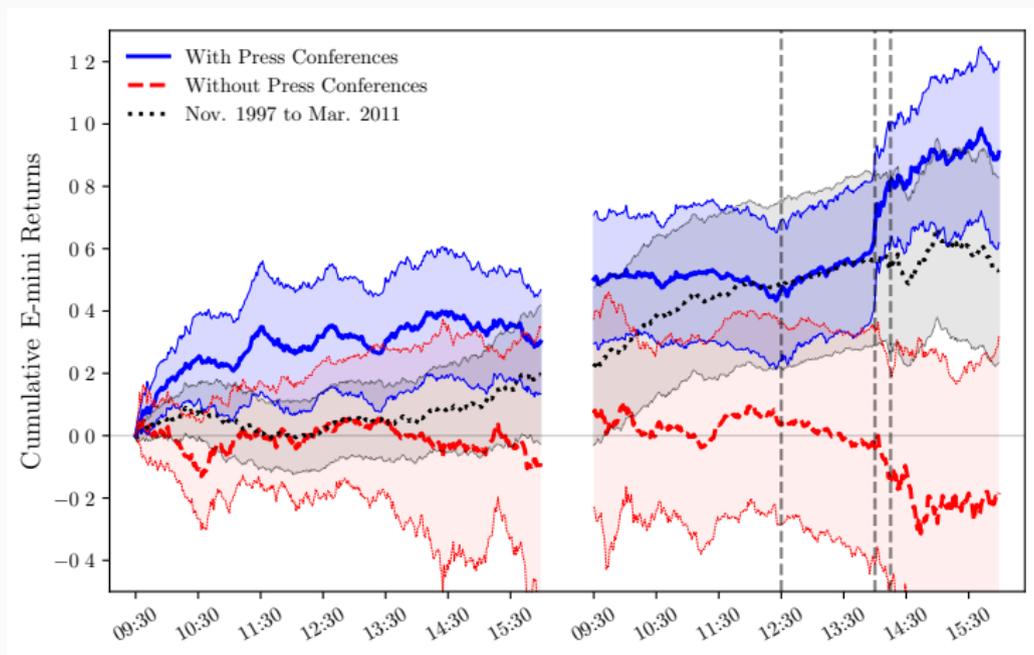
- **Period 1:** Some more distant future when macro uncertainty is realized
 - authors control for 90-day expected volatility (data availability)
 - the FOMC announcement would typically be about **more distant future**
- **Period 0:** macro announcement (**information** is realized)
 - authors use day 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



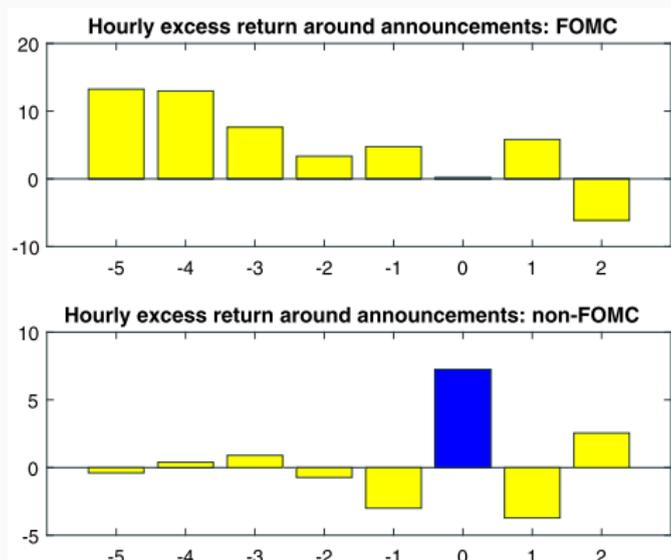
- Lucca and Moench (2015), figure 1

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?