

Trading Volume and Monetary Policy Surprises

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A monetary policy surprise with time-varying, volume-based event windows and loadings substantially increases the estimated effects of monetary policy on financial markets and the macroeconomy.

Motivation: Measuring Monetary Policy Surprises

High-frequency surprises from interest rate futures around FOMC meetings identify **causal** effects of monetary policy.

$$s_{m,30} = \Lambda_m \cdot (f_{m,t+20} - f_{m,t-10})$$

Standard approach (GSS 2005; NS 2018):

- Event window $x = 30$ min
- Λ = PCA weights on contracts within 12 months

But FOMC communication has evolved: statements + press conferences + dot plots → **forward guidance** takes longer to process and shifts attention to longer horizons.

This paper: Volume determines event windows and loadings for each meeting m

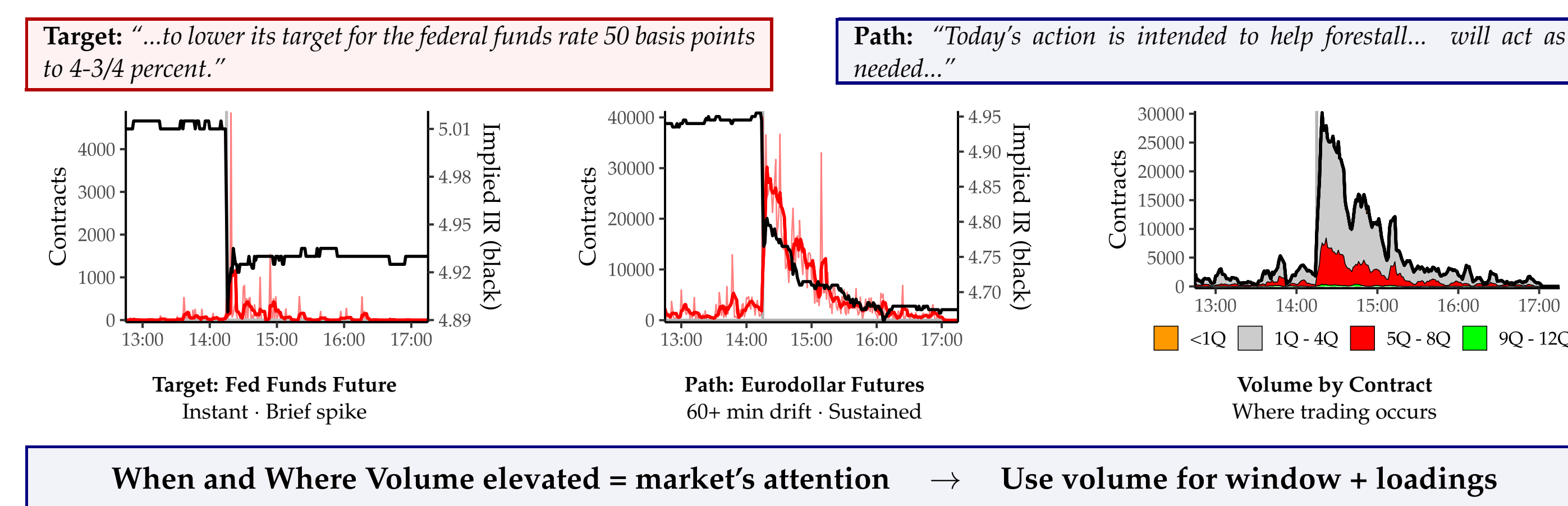
$$s_{m,x=\bar{x}_m+10} = \Lambda_m \cdot (f_{m,t+\bar{x}_m} - f_{m,t-10})$$

- \bar{x}_m = window closes when volume returns to baseline
- Λ_m = each contract's share of total window volume

Why volume?

FOMC communication contains **precise information about target rate** but **noisy information about path** of future policy rates ⇒ Investors learn and form their expectations over time ⇒ **Volume**

Example: FOMC Statement — September 18, 2007



Data

Eurodollar futures tick-level data from CME (1988–2022), 304 FOMC announcements.

- A Eurodollar future pays $P_{t+h} = 100 - i_{t+h}$ at maturity. Implied interest rate today under risk-neutrality

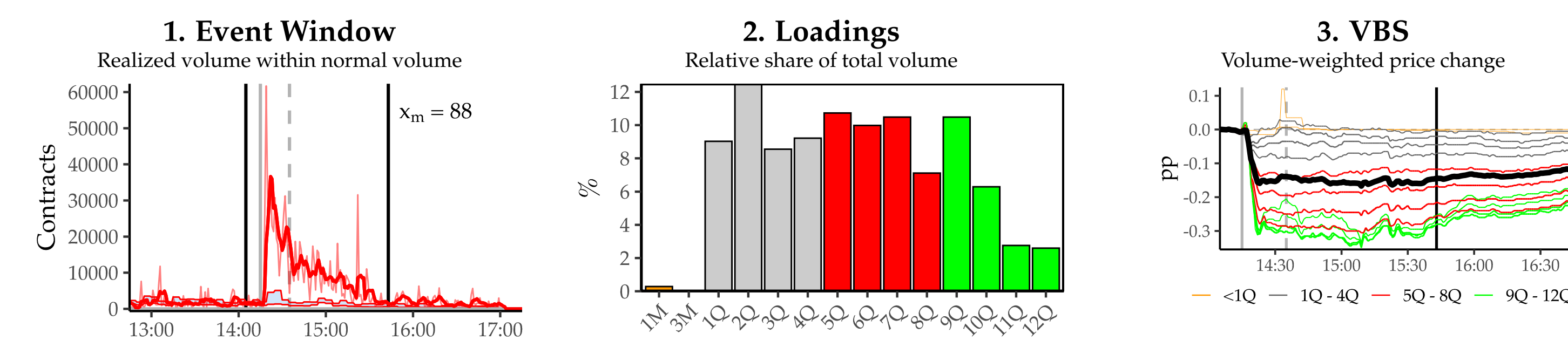
$$f_t = 100 - \mathbb{E}_t(i_{t+h})$$

- I include all contracts up to 3 years maturity.

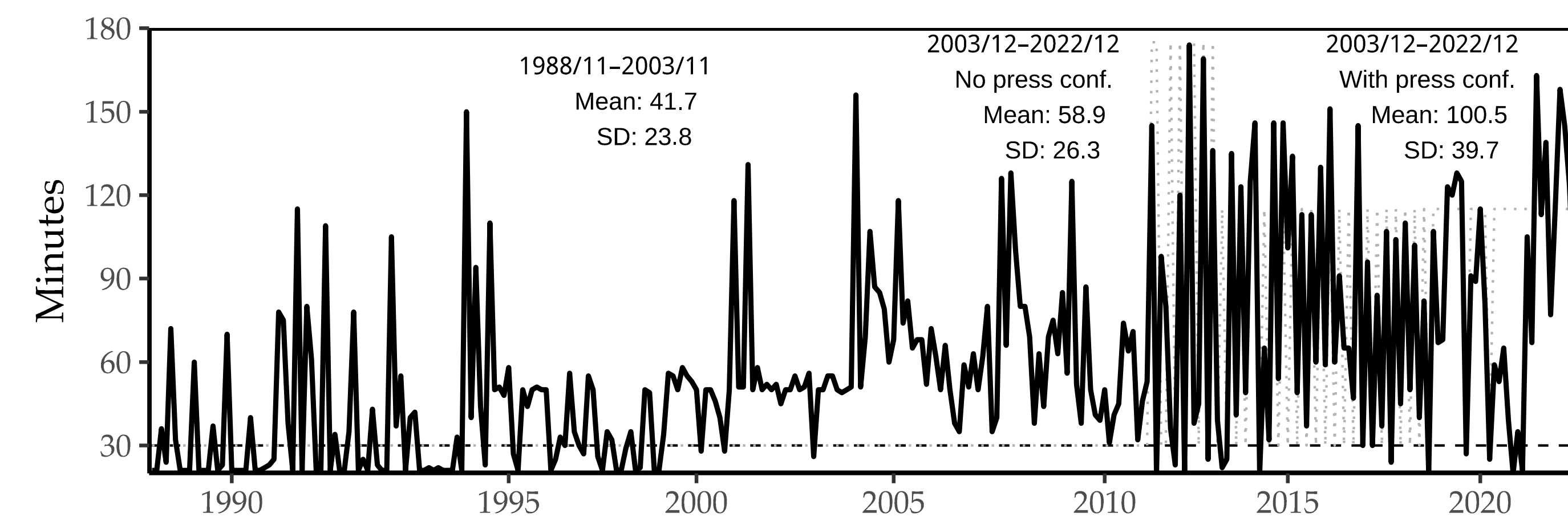
How: Volume-Based Monetary Policy Surprise (VBS)

Baseline: I bootstrap the expected trading volume that would prevail absent the announcement from the past 21 trading days.

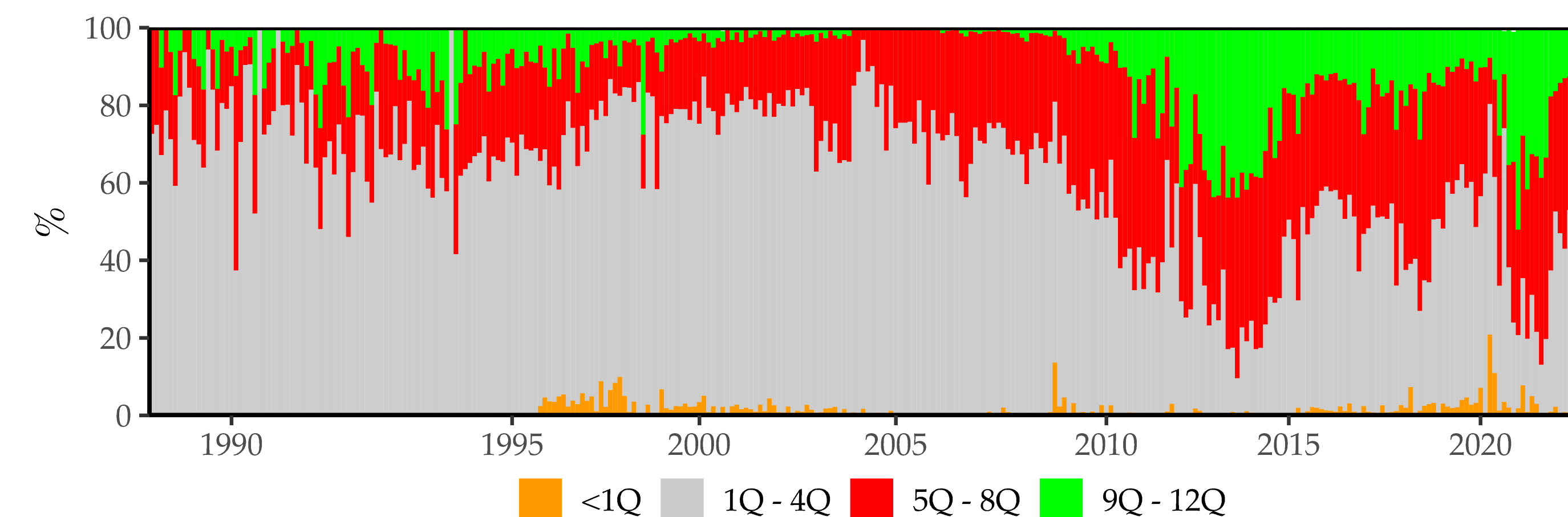
Example: FOMC announcement on August 9, 2011 (forward guidance).



Time-varying event windows x_m



Time-varying loadings Λ_m

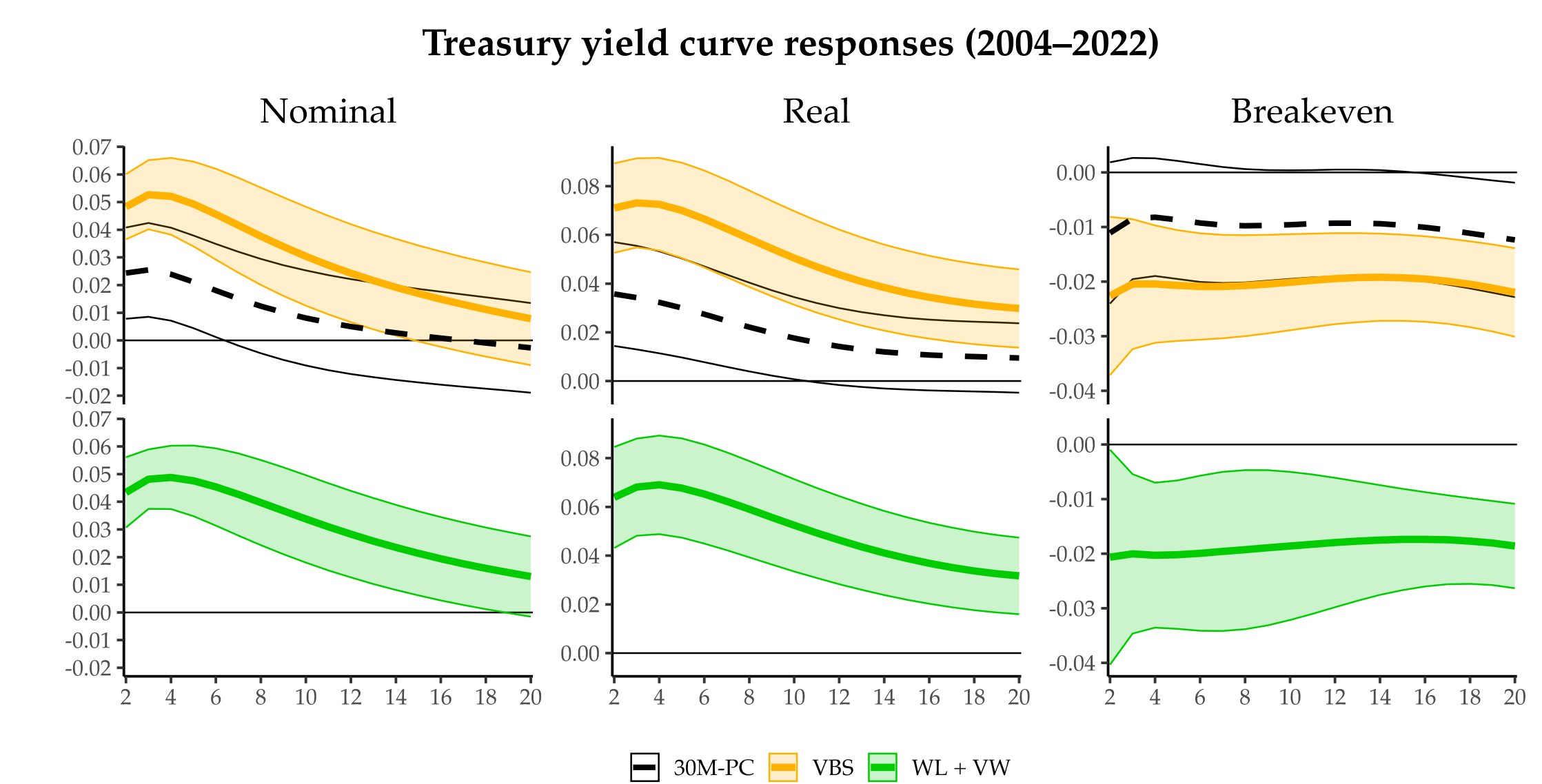


Validation

- **Statements:** Longer windows when FOMC statements change more from the previous meeting (greater dissimilarity).
- **Press Conferences:** Longer windows when press conferences follow the statement (since 2011).
- **Forward Guidance:** Shifts in contract weights line up with disagreement between market's rate expectations and the FOMC's own projections (dot plot).
- **UK Evidence:** Camargos Jensen, Henning & Kaminska (2025) show that investors trading around Bank of England announcements are related to their survey beliefs.

Findings: financial markets

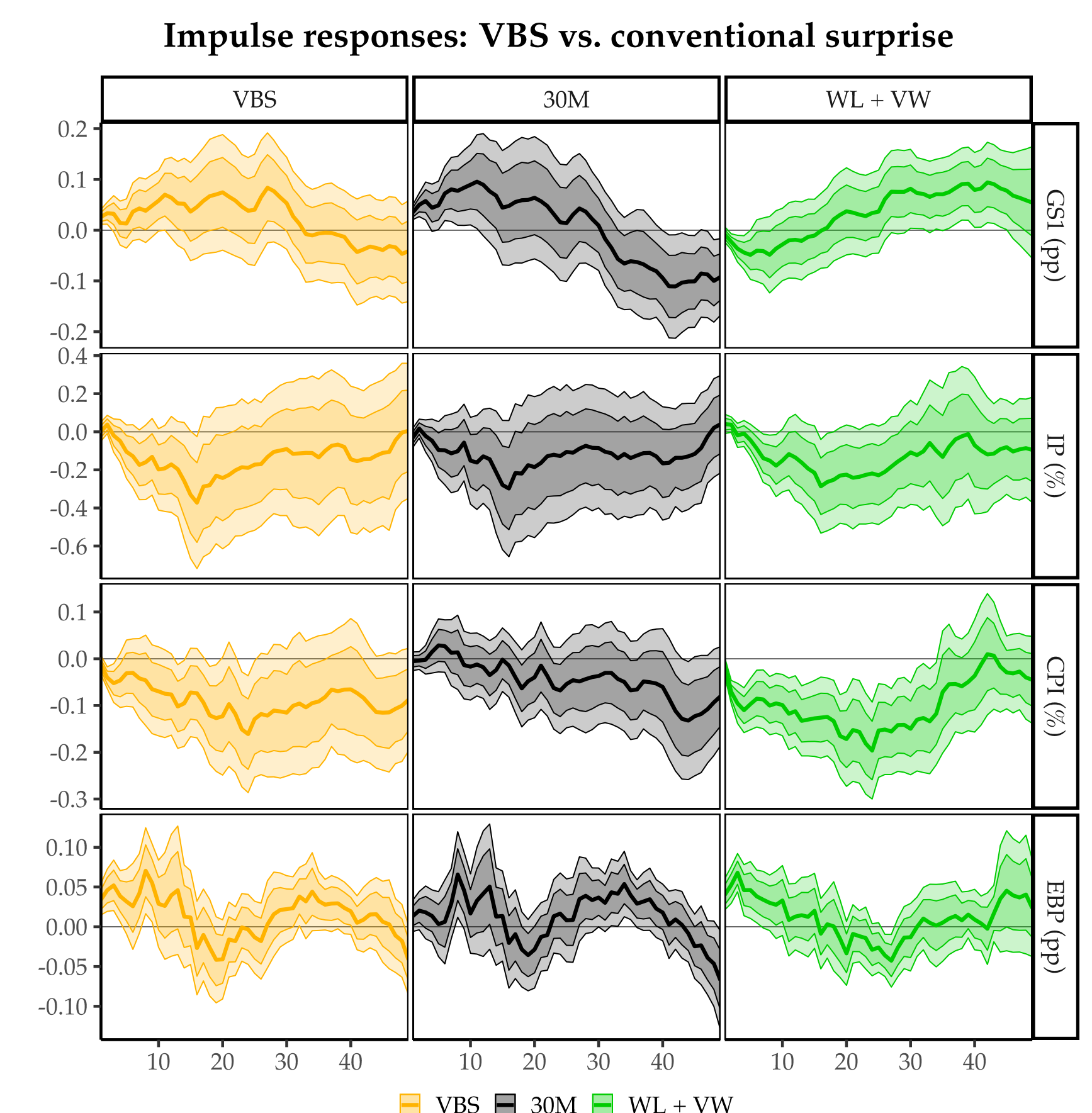
- For Treasuries, VBS moves yields by about **twice** as much as a fixed-assumption surprise.
- Larger effects on real yields and on breakeven inflation — a market-based measure of inflation expectations.



- For equities, also **doubles** the daily return response.

Findings: macroeconomy

- VBS generates **clear, negative** inflation responses and meaningful effects on activity.



- Effects are complementary to central bank information (Miranda-Agrippino & Ricco, 2021) and fed reaction to news (Bauer & Swanson 2023).