FOMC Communication Events and Monetary Transmission

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ASSA Annual Meeting, January 3, 2024

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Common method for estimating effects of monetary policy

- "***Monetary policy surprises***" — high-frequency changes in interest rates around central bank policy announcements
- Widely used in macro-finance to estimate *causal effects* of monetary policy
  - Impact on *financial markets*: Kuttner (2001), Gürkaynak et al. (2005), Bernanke and Kuttner (2005), Bauer and Rudebusch (2014)
  - Impact on *economic beliefs and forecasts*: Campbell et al. (2012), Nakamura and Steinsson (2018), Bauer and Swanson (2023a)
  - Impact on *macroeconomy*: Stock and Watson (2012), Gertler and Karadi (2015), Ramey (2016), Jarocinski and Karadi (2020), Miranda-Agrippino and Ricco (2021), Bauer and Swanson (2023b)

FOMC announcements and communication: data issues

- No established public data source for high-frequency FOMC policy surprises
  - `tightalldata.xls` from Gürkaynak, Sack, Swanson (2005) not updated anymore
  - Some authors share (updated) data for published papers: Jarocinski-Karadi, Acosta-Brennan-Jacobson, Bauer-Swanson
  - Bank of England and European Central Bank have public databases …
  - But the Federal Reserve does not *yet*
- Important FOMC communication events have hardly been studied (except by Cieslak, McMahon, Pang 2024; Swanson and Jayawickrema 2024)
  - Chair's press conference
  - Release of minutes of FOMC meetings

FOMC announcements and communication: some open questions

- Response of inflation expectations to monetary policy
  - What are the *expected lags* of the transmission of monetary policy?
  - Why *no response* of market-based inflation expectations (Hanson & Stein 2015, Nakamura & Steinsson 2018) in contrast to empirical monetary VARs (Gertler & Karadi 2015, Bauer & Swanson 2023b)?
  - What can *survey-based evidence* tell us about response of inflation expectations?
- Response of risk assets to monetary policy
  - To what extent do stock/FX/dividend strip prices respond positively to rate surprises? Fed information effects? (Jarocinski & Karadi 2020, Gürkaynak et al. 2021, Golez & Matthies 2024)
- Effects of large FOMC surprises since March 2022
  - How did the large hawkish policy surprises affect interest rates, risk assets, and survey forecasts? How did they contribute to disinflation 2022-2024?

This paper

- Establish reference database for FOMC high-frequency policy surprises
- Revisit and update existing evidence on monetary transmission to financial markets and survey-based beliefs
- Provide new evidence on the role of communication in Chair's press conference and publication of FOMC meeting minutes
- Document new results about monetary transmission since the pandemic

A New Database for FOMC Surprises

Sample of financial market data

- Sample period: January 1995 to November 2024
- FOMC announcements: 254 events
  - 238 scheduled and 16 unscheduled meetings
- Chair press conferences: 79 events
- Publication of minutes of FOMC meetings: 192 events

High-frequency database: instruments

- Money market futures and derived rates
  - Federal funds futures: FF1–FF4
  - Surprise around current and next meeting: MP1, MP2 (based on FF)
  - Eurodollar / SOFR futures: ED1–ED4, SFR2–SFR5
    - Acosta et al. (2024) show when/how to splice different contracts
- Other asset prices
  - Treasury yields
  - Stock market indices
  - Dollar exchange rates

Monetary policy surprises around FOMC statements

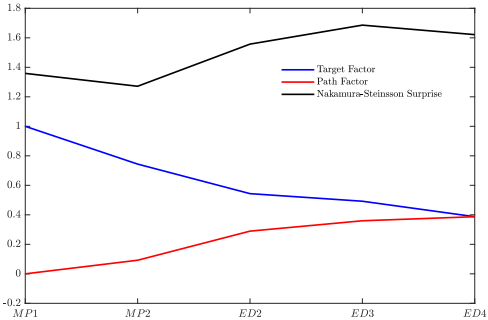
- All measures based on $X = (MP1, MP2, ED2, ED3, ED4)$
  - Same as Gürkaynak et al. (2005, GSS) and Nakamura & Steinsson (2018)
  - Covers roughly one-year horizon
- *Tight 30-minute window*: X contains rate changes from 10min before to 20min after release time (percentage points)
- GSS target and path surprises
  - Based on first two principal components of X
  - Rotated so that only *target surprise* loads on $MP1$ (unit impact), and both load equally on $ED4$, so that *path surprise* measures changes in expectations *orthogonal* to surprise changes in target
- Nakamura-Steinsson (NS) surprise
  - First principal component of X, scaled so that unit impact on 1y yield

Monetary policy surprises around other events

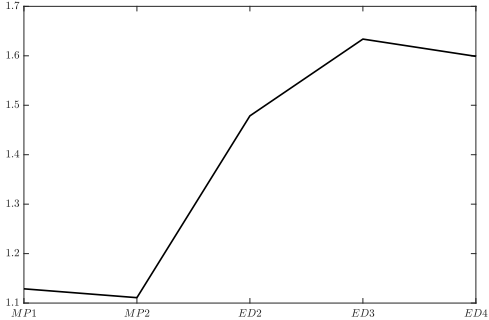
- Press Conference (PC) surprise
  - Rate changes from start to end of press conference
- Statement & Press Conference (SPC) surprise
  - For FOMC meetings without press conference: standard 30-minute window
  - For FOMC meetings with press conference: window starts 10 minutes before statement and ends with press conference
- Minutes surprise
  - Rate changes over 30-minute window around minutes publication
- In all cases, we use first PC, scaled for unit impact on 1y yield

Loadings of surprises on money market futures

(a) FOMC Statements



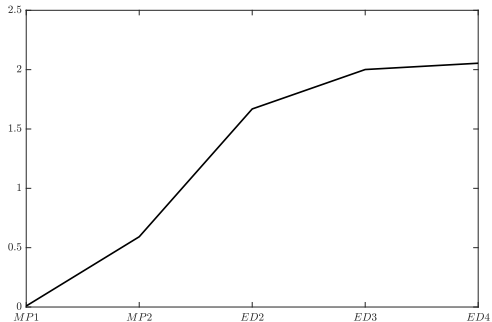
(b) Statements & Press Conferences



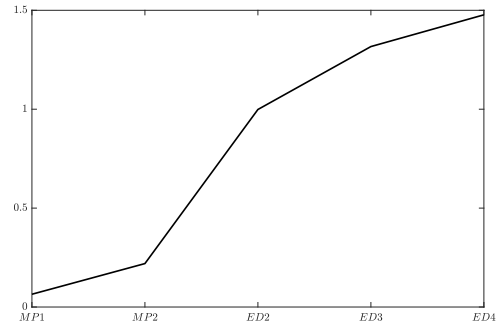
Loadings of monetary policy surprises on rate changes in $X = (MP1, MP2, ED2, ED3, ED4)$, after rescaling.

Loadings of surprises on money market futures

(c) Press Conferences

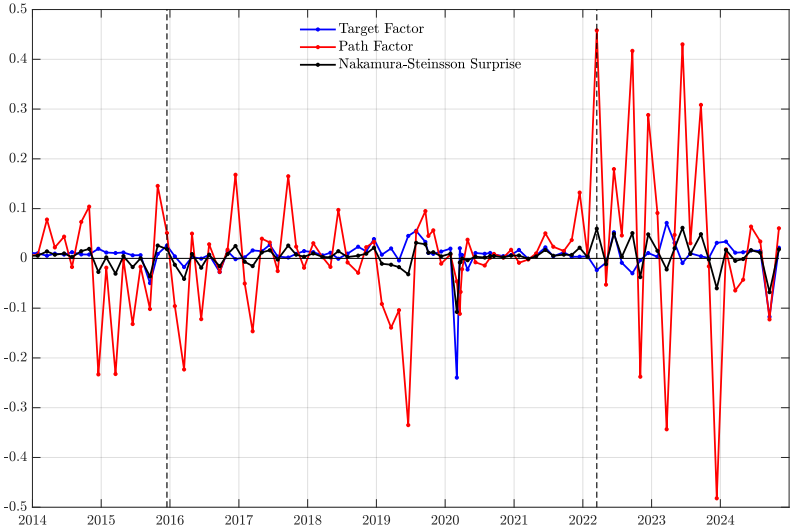


(d) Minutes



Loadings of monetary policy surprises on rate changes in $X = (MP1, MP2, ED2, ED3, ED4)$, after rescaling.

Observed surprises around FOMC statements since 2014



Vertical lines: liftoff December 16, 2015 and March 16, 2022.

Observed surprises with and without press conference changes

Vertical lines: liftoff December 16, 2015 and March 16, 2022.

Treasury Markets and Inflation Compensation

Event-study regressions

$$y_t - y_{t-1} = \alpha + \gamma\, mps_t + \varepsilon_t$$

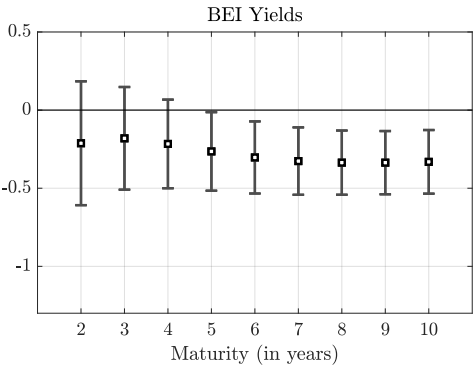
- Explain yield changes on day with FOMC communication
  - Two-day and three-day changes for robustness
- Sample includes days t with FOMC communication events
- Monetary policy surprise mps_t based on high-frequency changes in money market futures around announcement on day t
  - Baseline: Nakamura-Steinsson surprise
- Predictable surprises/omitted variables not an issue in event studies of asset price responses (Bauer and Swanson, 2023b)

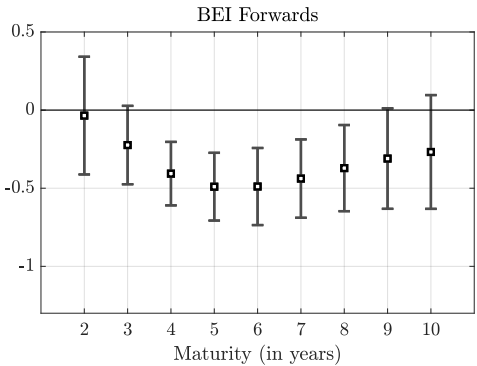
Response of nominal, real, and breakeven inflation rates

	Yields			Forward
	2y	5y	10y	5-10y
(A) Nominal yields				
Coefficient	1.17	0.85	0.26	-0.33
SE	(0.31)	(0.32)	(0.25)	(0.21)
R^2	0.17	0.07	0.01	0.01
(B) Real (TIPS) yields				
Coefficient	1.38	1.11	0.59	0.08
SE	(0.40)	(0.37)	(0.27)	(0.19)
R^2	0.14	0.10	0.05	0.00
(C) Inflation compensation (BEI)				
Coefficient	-0.21	-0.26	-0.33	-0.40
SE	(0.20)	(0.13)	(0.10)	(0.12)
R^2	0.01	0.03	0.07	0.06

Event-study regressions of daily rate changes on Nakamura-Steinsson surprise. White SEs. Sample: 158 scheduled FOMC meetings, January 2004 to November 2024, ex-crisis (07/2008–06/2009).

Term structure response of breakeven inflation rates





Response coefficient and 95% confidence intervals based on White SEs. Sample: 158 scheduled FOMC meetings, January 2004 to November 2024, ex-crisis (07/2008–06/2009).

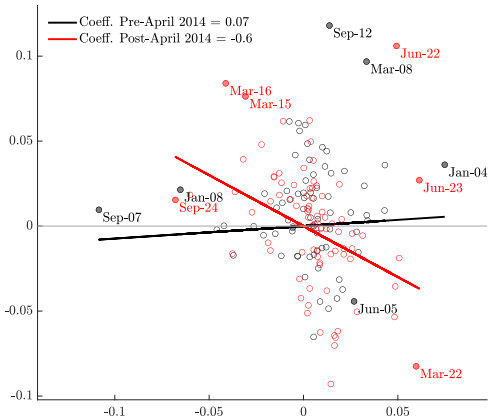
BEI rate response across subsamples

	Yields			Forward
	2y	5y	10y	5-10y
(A) Jan-2004 to Mar-2014 (ex. GFC), $N = 74$				
Coefficient	0.31	0.07	-0.12	-0.32
SE	(0.14)	(0.11)	(0.13)	(0.19)
R^2	0.03	0.00	0.01	0.04
(B) Apr-2014 to Nov-2024, $N = 84$				
Coefficient	-0.75	-0.60	-0.54	-0.50
SE	(0.30)	(0.22)	(0.15)	(0.15)
R^2	0.10	0.14	0.17	0.10
(C) Jan-2004 to Dec-2019 (ex. GFC), $N = 120$				
Coefficient	-0.11	-0.22	-0.33	-0.46
SE	(0.23)	(0.14)	(0.14)	(0.16)
R^2	0.00	0.02	0.06	0.08

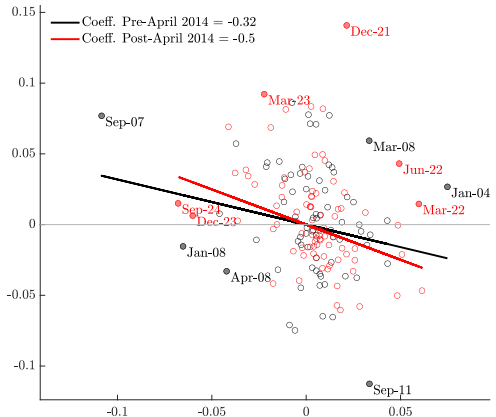
Event-study regressions of daily rate changes on Nakamura-Steinsson surprise. White SEs.

BEI rate changes and FOMC surprises in two subsamples

(a) 5y BEI yield



(b) 5-10y BEI forward rate



Daily changes in break-even inflation rates and Nakamura-Steinsson surprise. **Red**: Jan-2004 to Mar-2014 (ex-GFC, $N = 74$). **Black**: Apr-2014 to Nov-2024 ($N = 84$)

Response around press conferences

	5y yield			5-10y forward		
	NS	PC	SPC	NS	PC	SPC
(A) Nominal yields						
Coefficient	0.97	1.52	1.25	-0.15	0.37	0.03
SE	(0.25)	(0.23)	(0.18)	(0.16)	(0.17)	(0.13)
R^2	0.13	0.32	0.30	0.00	0.03	0.00
(B) Real (TIPS) yields						
Coefficient	1.09	1.92	1.46	0.25	0.52	0.37
SE	(0.27)	(0.31)	(0.21)	(0.17)	(0.18)	(0.13)
R^2	0.14	0.30	0.34	0.01	0.06	0.04
(C) Inflation compensation (BEI)						
Coefficient	-0.12	-0.39	-0.22	-0.4	-0.15	-0.34
SE	(0.12)	(0.17)	(0.10)	(0.10)	(0.17)	(0.09)
R^2	0.01	0.07	0.04	0.08	0.01	0.08

Event-study regressions of daily rate changes on Nakamura-Steinsson (NS), press conference (PC) and statement-and-press-conference (SPC) surprise. White SEs. Sample: 169 FOMC announcements with 74 press conferences, January 2004 to November 2024, ex-crisis (07/2008–06/2009)

Risk Assets

Stock market: S&P 500

	(1)	(2)	(3)	(4)
NS	-6.11		-6.54	
	(3.29)		(3.25)	
PC		-14.27	-15.33	
		(4.69)	(4.71)	
SPC				-7.64
				(2.68)
R^2	0.03	0.11	0.06	0.06
N	245	74	245	245

Event-study regressions of daily stock index return on Nakamura-Steinsson (NS), press conference (PC) and statement-and-press-conference (SPC) surprise. White SEs.
Sample period: 1995–2024 ex-crisis. First press conference: April 2011

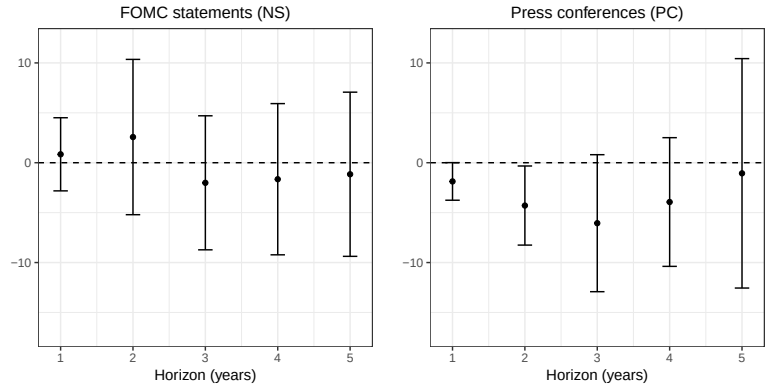
FX market: dollar index

	(1)	(2)	(3)	(4)
NS	3.27		3.5	
	(0.90)		(0.89)	
PC		7.61	8.17	
		(1.77)	(1.66)	
SPC				4.1
				(0.84)
R^2	0.05	0.13	0.10	0.10
N	243	73	243	243

Event-study regressions of two-day return on broad nominal dollar index on Nakamura-Steinsson (NS), press conference (PC) and statement-and-press-conference (SPC) surprise. White SEs.
Sample period: 1995–2024 ex-crisis. First press conference: April 2011

Dividend futures

$$\log P_{t+1}^{(j)} - \log P_{t-1}^{(j)} = \beta_0^{(j)} + \beta_1^{(j)} NS_t + \beta_2^{(j)} PC_t + \varepsilon_t^{(j)}$$



Sample: 71 FOMC meetings from December 2015 to November 2024.

Conclusion

- New high-frequency database of Fed communication *coming soon*
  - FOMC announcements, Chair press conferences, Minutes
  - Risk-free rates and risk assets (stock/bond/FX/commodity markets)
  - To be released with working paper and hosted by NY Fed (target: Spring 2025)
- Evidence on transmission of Fed policy to financial markets
  - Treasuries: hawkish surprise lowers inflation compensation (peak effect 3-5y)
  - Strong conventional response of stocks, dollar, 2-3y dividend futures
  - Press conferences help explain financial market response
- Work in progress: response of inflation expectations from Blue Chip and NY Fed household surveys