Speeches by the Fed Chair Are More Important Than FOMC Announcements: An Improved High-Frequency Measure of U.S. Monetary Policy Shocks

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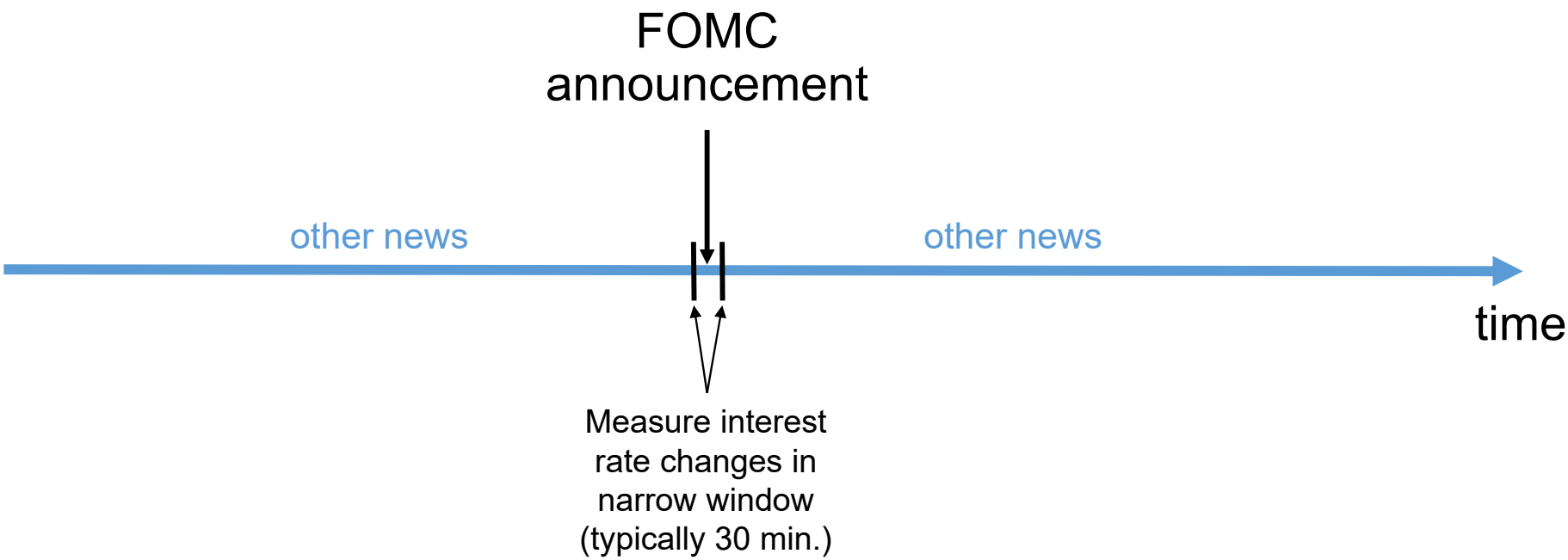
High-Frequency Monetary Policy Surprises



High-frequency monetary policy surprises are an important tool for estimating effects of monetary policy on asset prices and macroeconomic variables:

- asset prices: high-frequency OLS regressions
- macro variables: monetary policy surprises used as external instrument in structural VAR or LP

Problems with Monetary Policy Surprises

- Surprises around FOMC announcements have become much smaller over time, are typically only 2–3bp
- Fed has become more transparent, tends to communicate decisions before FOMC meeting
- This trend accelerated after 2008, due to ZLB
- Many authors focus on changes in futures rates a few months or quarters ahead to better capture changes in overall stance of monetary policy around FOMC announcements

  Gürkaynak, Sack, Swanson (2005), Gertler-Karadi (2015), Ramey (2016), Nakamura- Steinsson (2018), Miranda-Agrippino-Ricco (2021, 2023), Swanson (2021), Bauer-Swanson (2023a,b)

Contributions of This Paper

- We show that speeches and testimony by the Fed Chair are more important than FOMC announcements for stocks, bonds, and all but the very shortest-maturity interest rate futures
- Post-FOMC press conferences have also become increasingly important over time
- Vice Chair speeches and FOMC minutes releases are less important, but still non-negligible
- Thus, previous studies' focus on FOMC announcements alone has ignored the most important source of changes in U.S. monetary policy
- Systematically compare these different types of announcements and how their importance has changed over time
- More comprehensive sample: 1988–2019 (soon extended to May 2023)
- Compute federal funds rate, forward guidance, and LSAP components for all of these announcements

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Dow Falls More Than 1,000 Points After Powell Speech

Markets decline in broad selloff led by tech as hawkish remarks by Fed chief disappoint investors

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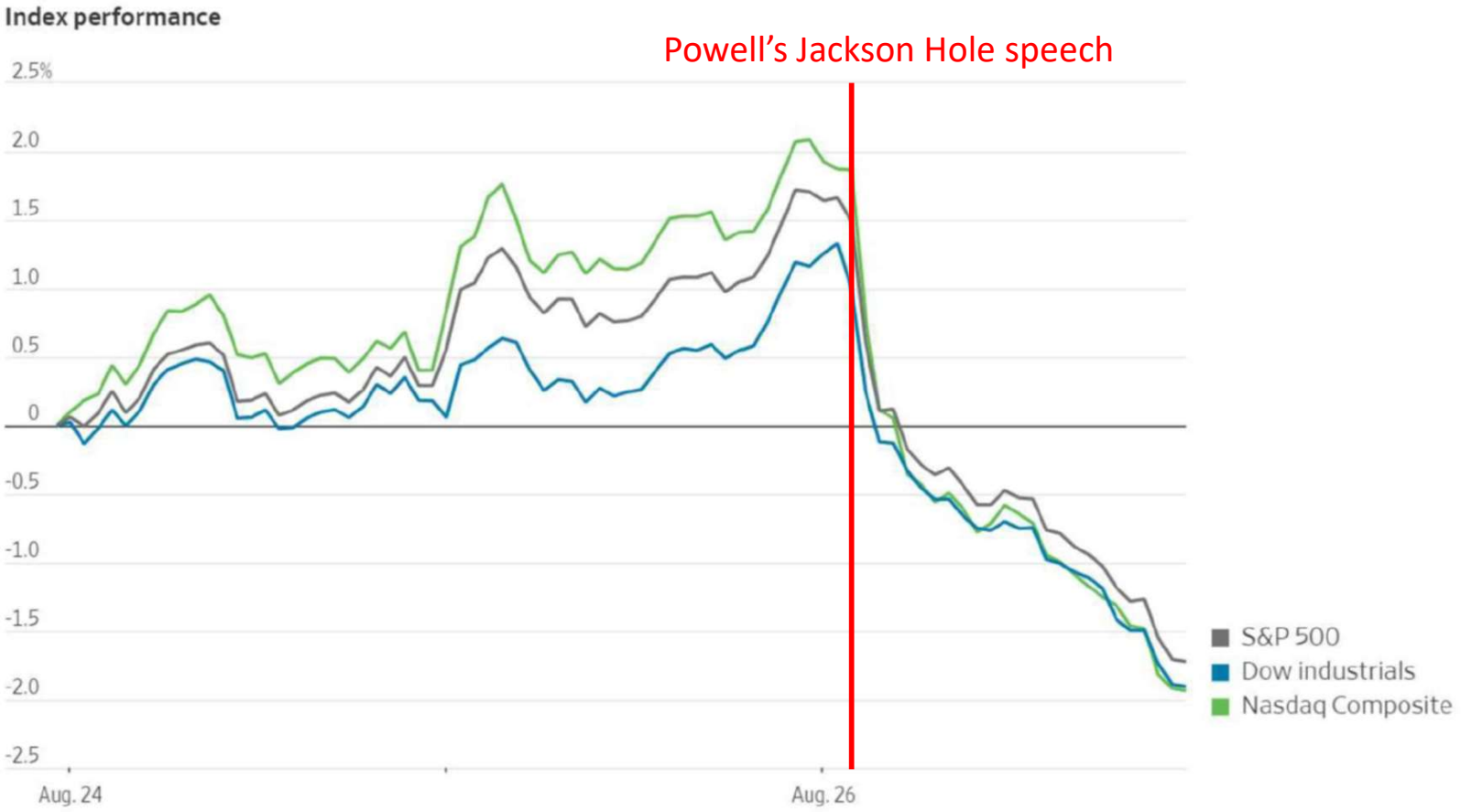

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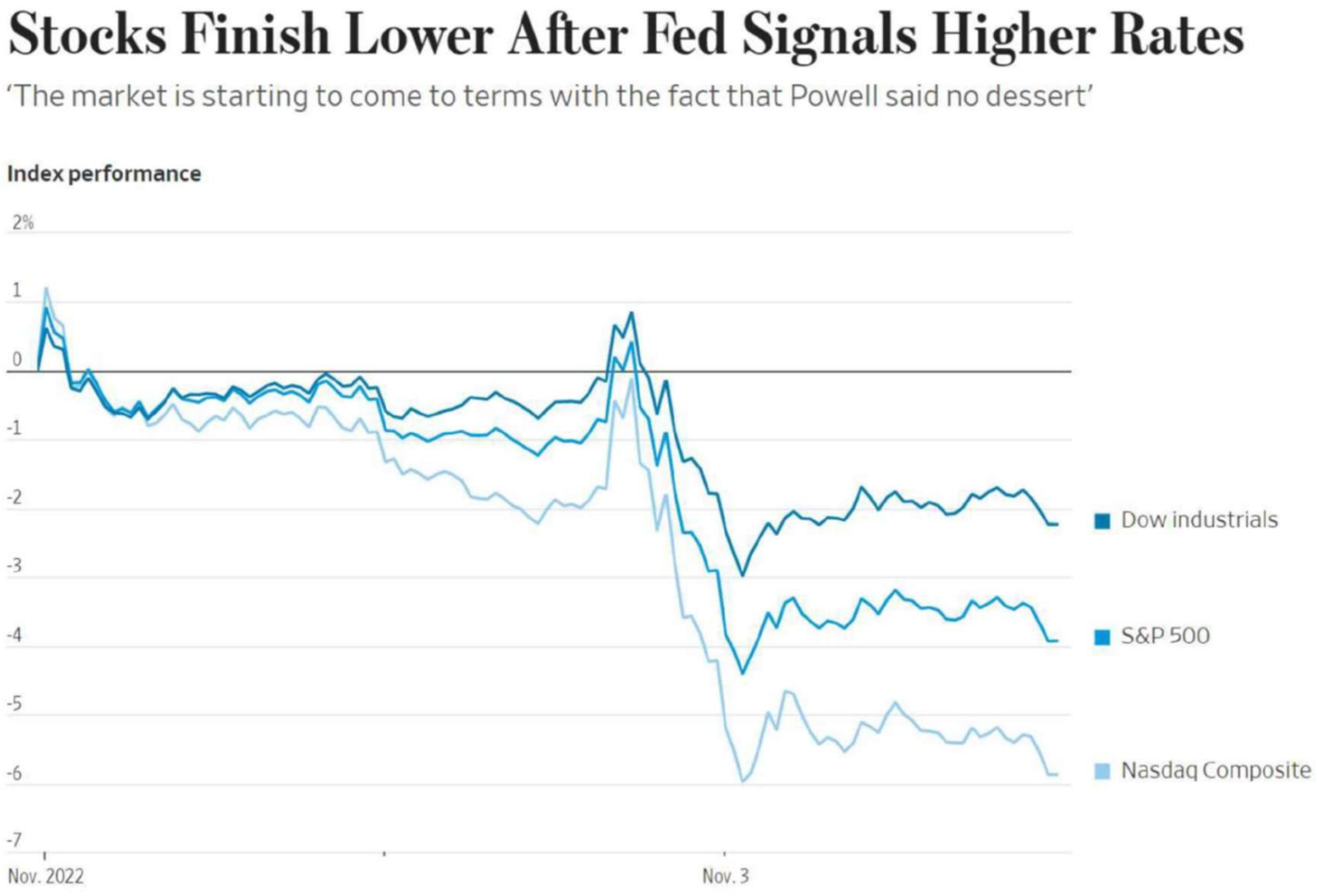

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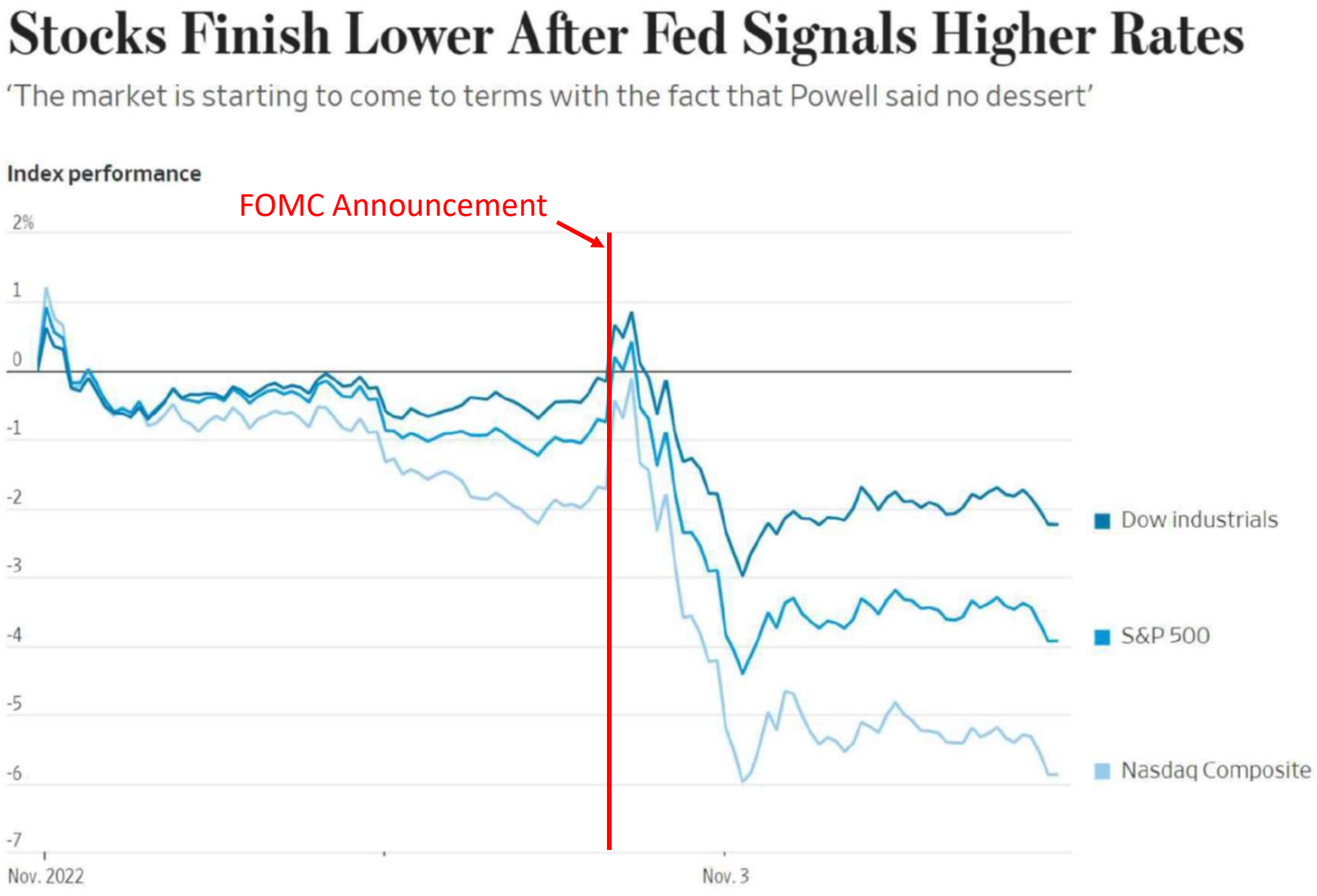

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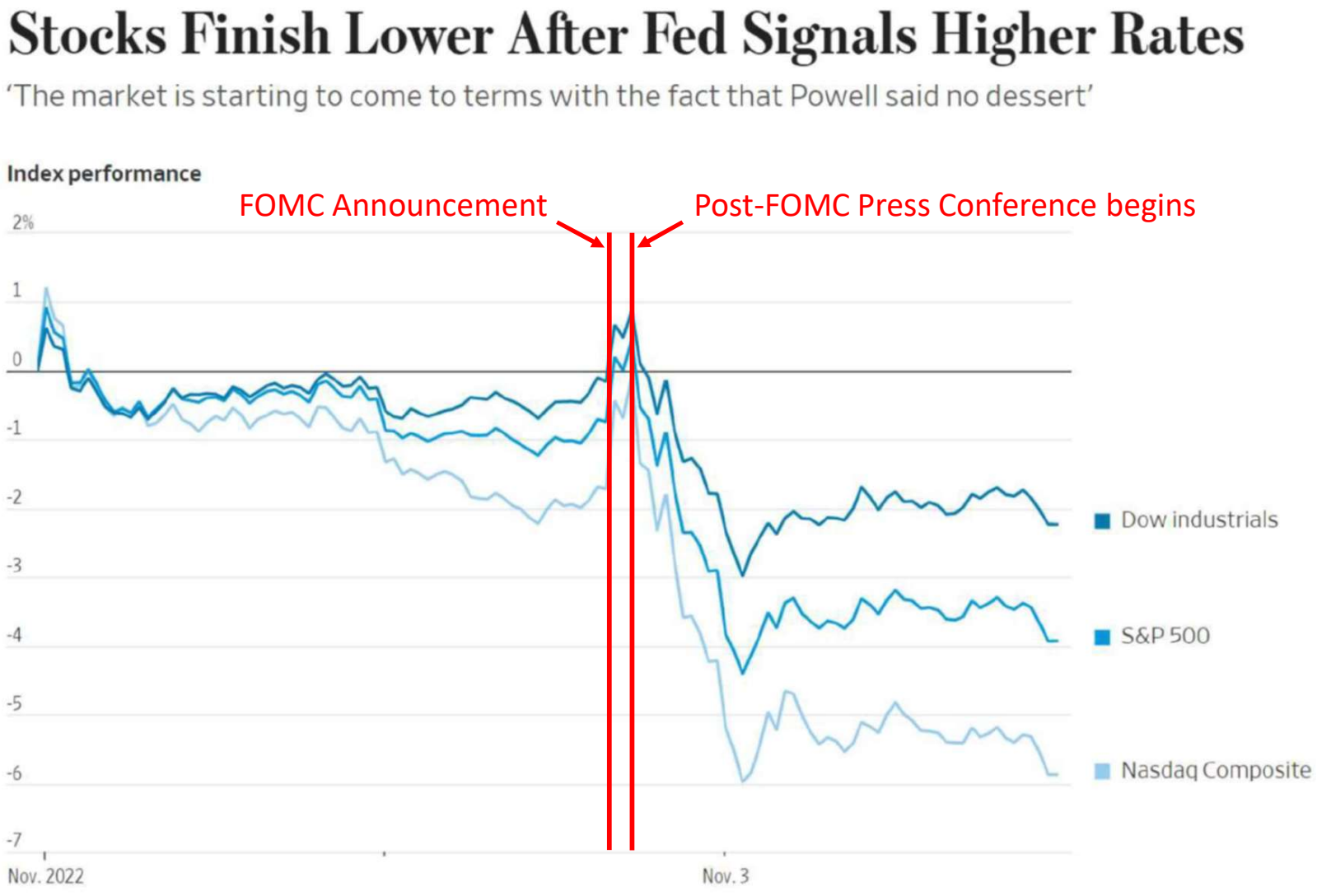

Five Types of Monetary Policy Announcements

From 1988 to 2019, We look at all:

- **FOMC Announcements** (323 total)
  8 scheduled meetings per year, plus unscheduled intermeeting changes
- **Post-FOMC Press Conferences** (40 total)
  4 per year from 2011–18, 8 per year beginning in 2019
- **FOMC Meeting Minutes Releases** (184 total)
  8 per year from 1997–2019
- **Speeches and Congressional Testimony by Fed Chair** (847 total, not including press conferences)
- **Speeches and Congressional Testimony by Fed Vice Chair** (310 total)

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However, many Fed Chair, Vice Chair speeches, testimony are on other topics (ceremonial, bank regulation, fiscal policy, stock market, etc.)

According to market commentary in *WSJ* & *NYT,* 364 speeches and tesitmony by Fed Chair and 102 by Vice Chair had possible implications for interest rates; restrict attention to these

Financial Market Response Windows

FOMC Announcements

- beginning in 1994, made via press release
- pre-1994, typically made via size and type of open market operation the following morning
- Use 30-minute window around each FOMC announcement, as in Gürkaynak, Sack, and Swanson (2005)

Post-FOMC Press Conferences

- Start times of press conferences from Board's website
- Use 90-minute window around each press conference

FOMC Meeting Minutes Releases

- Release times from Fed Board
- Use 60-minute window around each minutes release

Financial Market Response Windows (cont.)

Fed Chair and Vice Chair Speeches (non-testimony)

- Start times from several sources
- Use 2-hour window

Fed Chair and Vice Chair Congressional testimony

- Start times from several sources
- Use 3.5-hour window

Intradaily Data

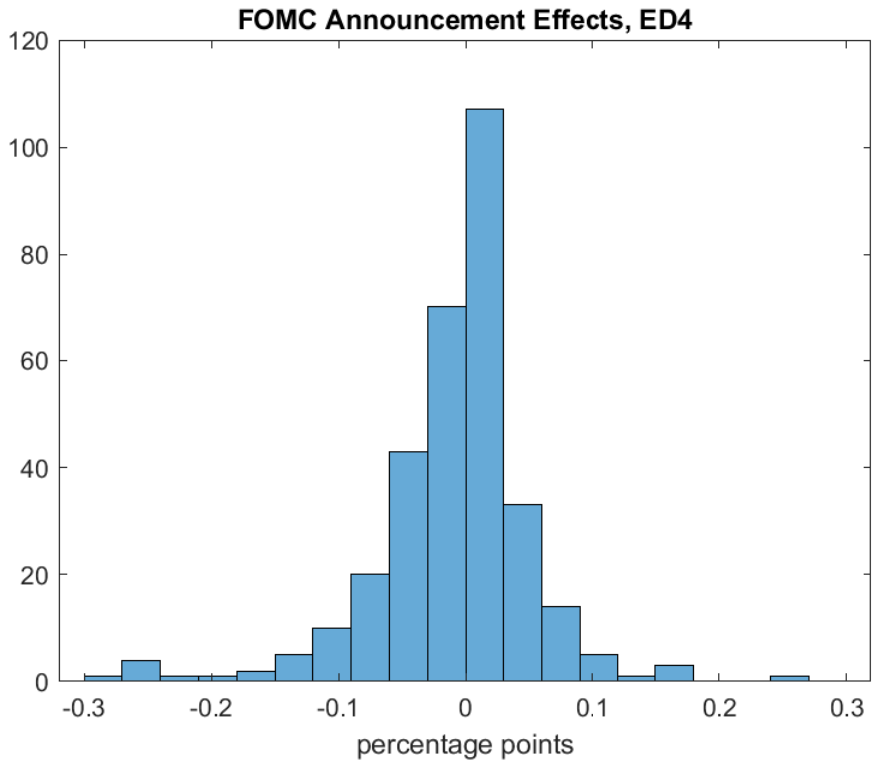
Intradaily financial market data from TickData

In some cases, need to adjust event windows to avoid major macroeconomic data releases or other news

Compute changes in:

- current-quarter and 1-, 2-, 3-quarter-ahead Eurodollar futures rates (ED1, ED2, ED3, ED4)
- 2-, 5-, 10-, and 30-year Treasury yields
- log of S&P 500 index

Data Check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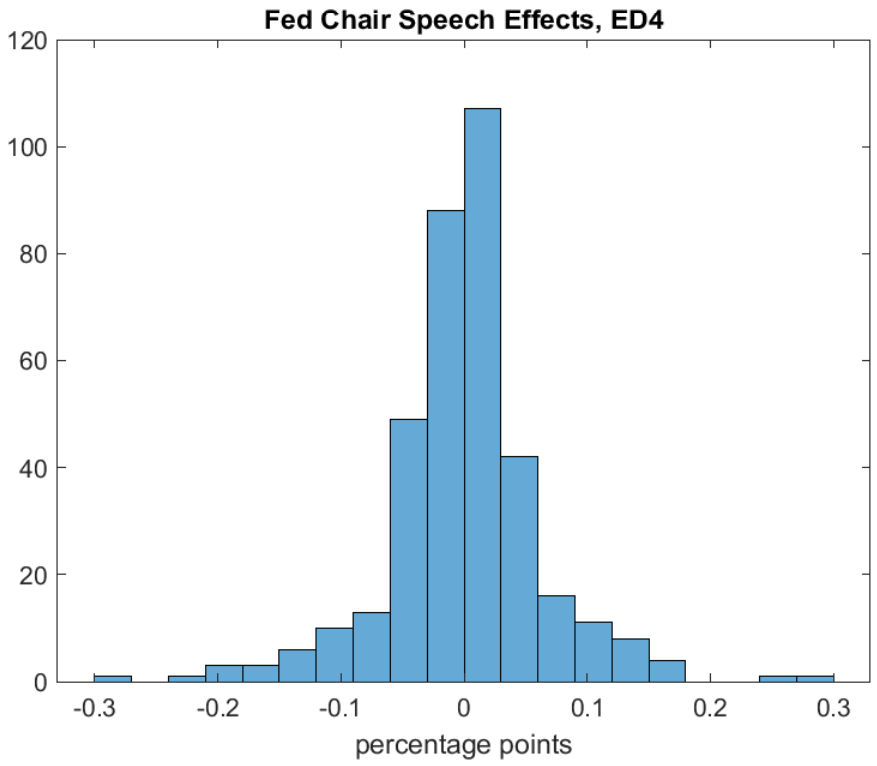
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Importance of Different Announcement Types

	ED1	ED2	ED3	ED4	2yr	5yr	10yr	30yr	S&P500
(A) Sum of Absolute Changes (in pp)									
FOMC Announce	9.60	11.19	12.07	12.80	8.91	9.63	7.37	6.20	113.7
Chair Speeches	6.42	10.46	13.43	15.05	10.65	12.17	9.87	9.48	162.6
Press Conf	0.33	0.55	0.75	0.91	0.91	1.14	0.91	0.76	17.2
Minutes	1.30	2.47	3.28	3.67	3.09	3.38	2.68	2.44	49.0
Vice Chair Sps.	0.78	1.31	1.43	1.56	1.26	1.38	1.17	1.23	25.6

- First measure: sum of absolute changes in financial market responses to all announcements of each type from 1988–2019

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- Fed Chair speeches and testimony are the most important for all assets except the very shortest-maturity interest rate futures
- Post-FOMC press conferences are the least important, because there are so few of them

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Chair Speeches	1.77	2.87	3.69	4.13	2.93	3.34	2.71	2.60	44.7
Press Conf	0.83	1.38	1.87	2.28	2.29	2.84	2.27	1.91	43.0
Minutes	0.71	1.34	1.78	1.99	1.68	1.84	1.46	1.32	26.6
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- Even per announcement, Fed Chair speeches are most important except for short-maturity interest rate futures

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Press Conf	.002	.001	.000	.000	.001	.005	.003	.001	.009
Minutes	.006	.007	.005	.005	.002	−.001	−.002	.001	−.011
Vice Chair Sps.	.013	.008	.007	.004	.002	.006	.007	.008	−.006

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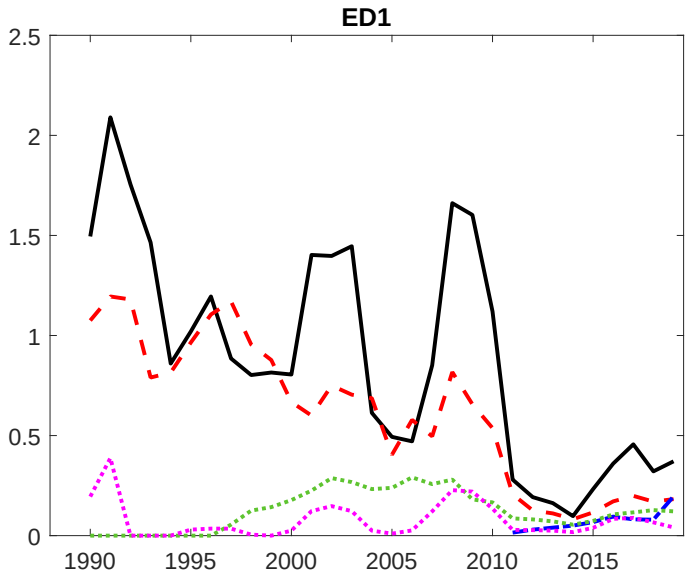

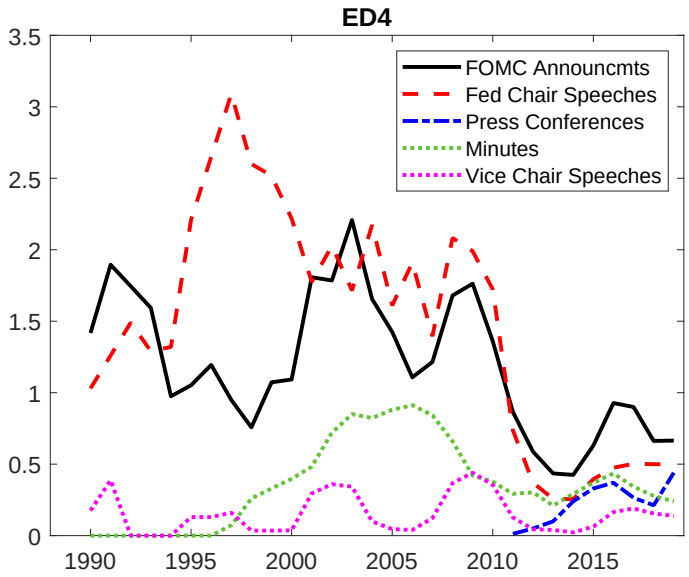

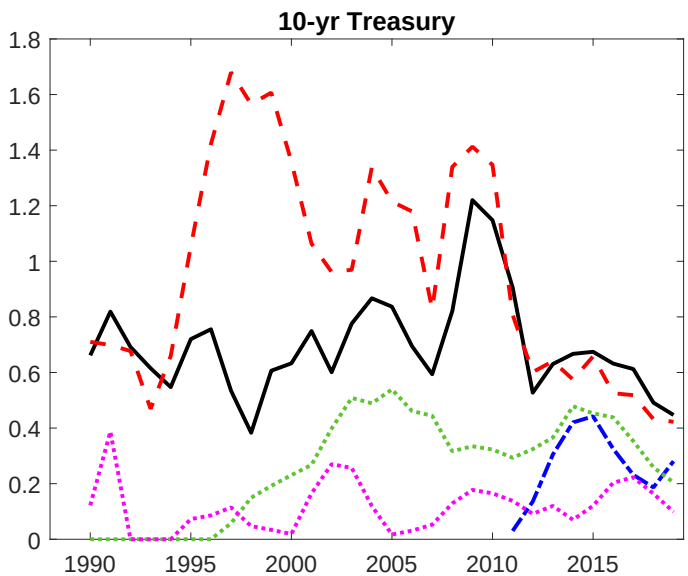

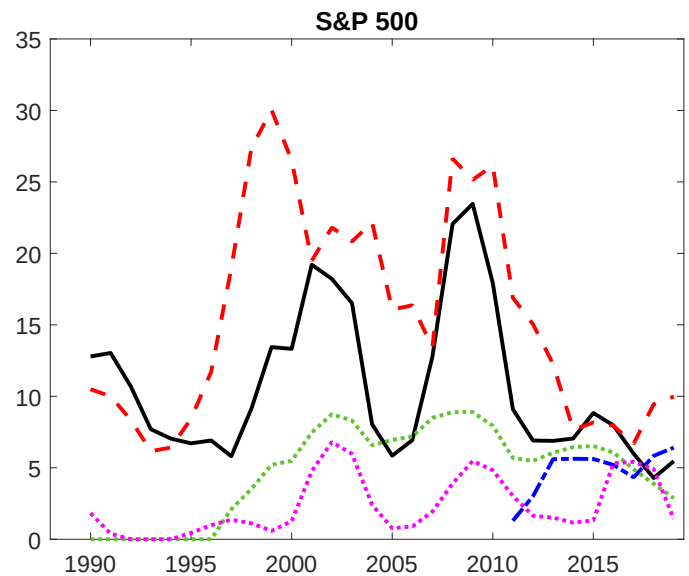

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- Fed Chair speeches have been as or more important than FOMC announcements throughout the whole sample
- Fed Chair speeches were particularly important in late 1990s

Forward Guidance

For FOMC announcements, follow Gürkaynak, Sack, Swanson (2005):

$$\underbrace{X^{FOMC}}_{T\times N} = \underbrace{F}_{T\times 2}\ \underbrace{\Lambda}_{2\times N} + \underbrace{\varepsilon}_{T\times N}$$

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- Rotate F so that only the first affects current federal funds rate
- First factor then corresponds to surprise change in fed funds rate, second factor to forward guidance

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$$\underbrace{X^{type}}_{T_{type}\times N} = \underbrace{F^{type}}_{T_{type}\times 1}\ \underbrace{\Lambda^{type}}_{1\times N} + \underbrace{\varepsilon^{type}}_{T_{type}\times N}$$

- Define federal funds rate changes to be 0
- Principal component corresponds to changes in forward guidance

Effects of Forward Guidance

	ED1	ED2	ED3	ED4	2yr	5yr	10yr	30yr	S&P500
(A) Effects of Federal Funds Rate Changes									
FOMC Anncmts.	5.47	5.04	4.50	3.89	2.65	1.93	1.02	0.36	−36.8
	(.18)	(.11)	(.12)	(.13)	(.27)	(.23)	(.19)	(.19)	(6.73)
(B) Effects of Forward Guidance Changes									
FOMC Anncmts.	2.18	3.66	4.50	5.05	3.77	3.59	2.51	1.70	−11.5
	(.14)	(.10)	(.06)	(.11)	(.16)	(.20)	(.15)	(.15)	(4.05)
Chair Speeches	2.77	4.52	5.66	6.08	4.37	3.87	2.89	2.34	−8.4
	(.16)	(.05)	(.12)	(.19)	(.17)	(.22)	(.21)	(.22)	(3.91)
Press Confs	1.38	2.24	2.89	3.26	2.76	2.63	1.71	0.88	−10.4
	(.21)	(.04)	(.14)	(.22)	(.25)	(.27)	(.10)	(.11)	(6.92)
Minutes	1.04	2.14	2.73	3.00	2.34	2.10	1.50	1.08	−2.5
	(.06)	(.04)	(.07)	(.11)	(.11)	(.12)	(.12)	(.12)	(3.53)
Vice Chair Sps.	1.31	2.16	2.24	2.37	1.99	1.62	1.24	0.97	−1.5
	(.18)	(.09)	(.11)	(.18)	(.22)	(.18)	(.15)	(.18)	(5.40)

Effects of Forward Guidance

	ED1	ED2	ED3	ED4	2yr	5yr	10yr	30yr	S&P500
(A) Effects of Federal Funds Rate Changes									
FOMC Anncmts.	5.47	5.04	4.50	3.89	2.65	1.93	1.02	0.36	−36.8
	(.18)	(.11)	(.12)	(.13)	(.27)	(.23)	(.19)	(.19)	(6.73)
(B) Effects of Forward Guidance Changes									
FOMC Anncmts.	2.18	3.66	4.50	5.05	3.77	3.59	2.51	1.70	−11.5
	(.14)	(.10)	(.06)	(.11)	(.16)	(.20)	(.15)	(.15)	(4.05)
Chair Speeches	2.77	4.52	5.66	6.08	4.37	3.87	2.89	2.34	−8.4
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	(.18)	(.09)	(.11)	(.18)	(.22)	(.18)	(.15)	(.18)	(5.40)

- Effects are highly statistically significant, hump-shaped, and consistent across announcement types

Effects of Forward Guidance

	ED1	ED2	ED3	ED4	2yr	5yr	10yr	30yr	S&P500
(C) Effects of Forward Guidance Changes, Estimated Jointly									
all announcemt types	2.12	3.69	4.62	5.03	3.80	3.51	2.59	1.96	−7.4
	(.11)	(.12)	(.16)	(.18)	(.15)	(.15)	(.13)	(.12)	(2.41)

H_0 p-value: 0.81

$$\gamma^{FOMC} = 1$$
$$\hat{\gamma}^{CS} = 1.22 \quad (.04)$$
$$\hat{\gamma}^{PC} = 0.63 \quad (.02)$$
$$\hat{\gamma}^{min} = 0.59 \quad (.02)$$
$$\hat{\gamma}^{VC} = 0.52 \quad (.02)$$

$$\Delta y_t^{i,type} = \alpha^{i,type} + \gamma^{type}\beta^i F_t^{type} + \varepsilon_t^{i,type}$$

LSAPs

Define LSAP component of each announcement to be

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This definition is essentially the same as Rogers, Scotti, Wright (2018) and Gilchrist, Yue, Zakrajsek (2019) but different from Swanson (2021) due to few observations for some announcement types before 2009

Effects of LSAPs

	ED1	ED2	ED3	ED4	2yr	5yr	10yr	30yr	S&P500
(A) Effects of LSAP Changes									
FOMC Announcemts	−0.04	0.07	−0.01	−0.03	−0.43	−2.55	−4.37	−5.10	19.7
	(.20)	(.24)	(.14)	(.11)	(.17)	(.45)	(.23)	(.17)	(5.98)
Chair Speeches	0.32	0.23	−0.19	−0.74	−0.94	−2.66	−2.58	−2.92	−14.9
	(.08)	(.06)	(.08)	(.21)	(.12)	(.15)	(.08)	(.08)	(6.54)
Press Conferences	0.34	0.18	−0.22	−0.77	−1.10	−2.86	−2.71	−2.43	−2.2
	(.13)	(.06)	(.12)	(.16)	(.25)	(.35)	(.18)	(.17)	(12.23)
Minutes	0.06	0.09	0.02	−0.27	−0.55	−1.86	−1.88	−2.01	−1.1
	(.06)	(.03)	(.05)	(.09)	(.11)	(.13)	(.07)	(.07)	(5.06)
Vice Chair Speeches	0.11	0.12	−0.05	−0.25	−0.40	−1.15	−1.08	−1.07	−14.1
	(.06)	(.04)	(.04)	(.06)	(.08)	(.11)	(.06)	(.06)	(6.65)

Effects of LSAPs

	ED1	ED2	ED3	ED4	2yr	5yr	10yr	30yr	S&P500
(A) Effects of LSAP Changes									
FOMC Announcemts	−0.04	0.07	−0.01	−0.03	−0.43	−2.55	−4.37	−5.10	19.7
	(.20)	(.24)	(.14)	(.11)	(.17)	(.45)	(.23)	(.17)	(5.98)
Chair Speeches	0.32	0.23	−0.19	−0.74	−0.94	−2.66	−2.58	−2.92	−14.9
	(.08)	(.06)	(.08)	(.21)	(.12)	(.15)	(.08)	(.08)	(6.54)
Press Conferences	0.34	0.18	−0.22	−0.77	−1.10	−2.86	−2.71	−2.43	−2.2
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Minutes	0.06	0.09	0.02	−0.27	−0.55	−1.86	−1.88	−2.01	−1.1
	(.06)	(.03)	(.05)	(.09)	(.11)	(.13)	(.07)	(.07)	(5.06)
Vice Chair Speeches	0.11	0.12	−0.05	−0.25	−0.40	−1.15	−1.08	−1.07	−14.1
	(.06)	(.04)	(.04)	(.06)	(.08)	(.11)	(.06)	(.06)	(6.65)

- LSAPs cause long rates to fall, have little effect on short rates
- Effects on long rates highly statistically significant and consistent across announcement types
- Effects on S&P 500 have puzzling sign for non-FOMC announcement types

Effects of Forward Guidance

	ED1	ED2	ED3	ED4	2yr	5yr	10yr	30yr	S&P500
(B) Effects of LSAP Changes, Estimated Jointly									
all announcemt types	0.32	0.27	−0.15	−0.49	−0.95	−3.50	−3.75	−4.04	−13.3
	(.14)	(.22)	(.28)	(.30)	(.22)	(.43)	(.47)	(.49)	(6.61)

H_0 p-value: 0.99

$$\gamma^{FOMC} = 1$$
$$\hat{\gamma}^{CS} = 0.72 \quad (.09)$$
$$\hat{\gamma}^{PC} = 0.67 \quad (.10)$$
$$\hat{\gamma}^{min} = 0.50 \quad (.06)$$
$$\hat{\gamma}^{VC} = 0.28 \quad (.04)$$

Effects of Forward Guidance

	ED1	ED2	ED3	ED4	2yr	5yr	10yr	30yr	S&P500
(B) Effects of LSAP Changes, Estimated Jointly									
all announcemt types	0.32	0.27	−0.15	−0.49	−0.95	−3.50	−3.75	−4.04	−13.3
	(.14)	(.22)	(.28)	(.30)	(.22)	(.43)	(.47)	(.49)	(6.61)

H_0 p-value: 0.99

$$\gamma^{FOMC} = 1$$
$$\hat{\gamma}^{CS} = 0.72 \quad (.09)$$
$$\hat{\gamma}^{PC} = 0.67 \quad (.10)$$
$$\hat{\gamma}^{min} = 0.50 \quad (.06)$$
$$\hat{\gamma}^{VC} = 0.28 \quad (.04)$$

- non-FOMC announcements are less important for LSAPs than for forward guidance (γ^{type}s are smaller)

Importance for Structural VARs

- High-frequency monetary policy surprises are often used as an "external instrument" to identify effects of monetary policy in SVARs, LPs

  Stock-Watson (2012, 2018), Gertler-Karadi (2015), Ramey (2016), Miranda-Agrippino-Ricco (2021, 2023), Bauer-Swanson (2023)

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- Swanson (2023) uses data from this paper:
  first-stage F-statistic: 42.9 (35.0 after orthogonalizing)
- FOMC announcements alone are a weak instrument
- Including Fed Chair speeches and other announcements strengthens the instrument greatly

Summary

- Speeches and testimony by the Fed Chair are more important than FOMC announcements for stocks, bonds, and all but the very shortest-maturity interest rate futures
- Post-FOMC press conferences have become increasingly important over time
- Vice Chair speeches and FOMC minutes releases are less important, but still non-negligible
- Previous studies' focus on FOMC announcements has ignored the most important source of changes in U.S. monetary policy
- Systematically compare these different types of announcements and how their importance has changed over time
- Compute federal funds rate, forward guidance, and LSAP components for all of these announcements and show their effects are consistent across announcement types