Fed Communication: Data News and Forward Guidance

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Bloomberg, CEPR The views expressed here are the author's alone and do not reflect those of Bloomberg LP.

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Monetary Policy Transmission: Financial Markets and the Economy

• Forward guidance has been a key element of the Fed monetary policy in the last 20 years. Yet, their transmission to the economy is not easy to measure - typically implemented by using high-frequency futures/yields reaction at the time of FOMC announcements (Gurkaynak, Sack, and Swanson (2005), Rogers, Scotti, and Wright (2018), Swanson (2021)).

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- The inclusion of high-frequency effects of Fed Chair speeches and orthogonalization to macro and financial news has strengthened the identification of monetary policy shocks - Bauer and Swanson (2022). Swanson (2024) reports the strength of his forward guidance instrument for the 1988-2019 period.

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Monetary Policy Transmission: Financial Markets and the Economy

- This paper contributes to the literature by measuring Forward Guidance from Fed officials' speeches.
- Forward guidance does not reflect economic data announcements, but it can predict Two-Year Treasury Yields.

• Fed officials' sentiment - Hawkish vs. Dovish - is measured using natural language processing of Bloomberg headlines.

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- A daily Structural VAR model is used to identify the Fed communication not related to data and financial news but has predictive content for yields a measure of effective Forward Guidance.
- The measure is used as an instrument to identify forward guidance policy shocks in a monthly monetary VAR. The shocks lead to a fast decline of CPI and the usual effects on activity and corporate credit risk.

Measuring Economic Data News: Calendar

United States	6) Browse	9	17:24:	03					05/14/24 🗖 -	05/22/24
Economic Releases 🔹 🔽 Pr	ices			•					View 💿 Agenda	Weekly + ^Q
Event	Pe	eriod	Surv(M)	Actual	Prior	# Ests.	Date	R	Ticker	Time
21) PPI Final Demand MoM		Apr	0.3%	0.5%	0.2%	51	05/14	al	FDIDFDM0 Index	13:30
22) PPI Ex Food and Energy	MoM	Apr	0.2%	0.5%	0.2%	43	05/14	al	FDIDSGMO Index	13:30
23) PPI Final Demand YoY		Apr	2.2%	2.2 %	2.1%	20	05/14	al	FDIUFDY0 Index	13:30
24) PPI Ex Food and Energy	YoY	Apr	2 . 3%	2.4%	2.4%	16	05/14	af	FDIUSGY0 Index	13:30
25) CPI MoM		Apr	0.4%	0.3%	0.4%	69	05/15	al	CPI CHNG Index	13:30
26) CPI Ex Food and Energy	MoM	Apr	0.3%	0.3%	0.4%	69	05/15	aÈ	CPUPXCHG Index	13:30
27) CPI YoY		Apr	3.4%	3.4%	3.5%	53	05/15	al	CPI YOY Index	13:30
28) CPI Ex Food and Energy	YoY	Apr	3.6%	3.6%	3.8%	53	05/15	aÈ	CPI XYOY Index	13:30
29) CPI Index NSA		Apr	313.752	313 . 548	312 . 332	18	05/15		CPURNSA Index	13:30
30) CPI Core Index SA		Apr	317.730	317 . 622	316 . 698	6	05/15	al	CPUPAXFE Index	13:30
31) Real Avg Hourly Earning	YoY	Apr		0.5%	0.6%	0	05/15		REALYRAW Index	13:30
32) Real Avg Weekly Earning	is YoY	Apr		0.5%	0.6%	0	05/15		REALYRAE Index	13:30
33) Export Price Index MoM		Apr	0.2%		0.3%	9	05/16		EXP1CMOM Index	13:30
34) Export Price Index YoY		Apr	-1.1%		-1.4%	3	05/16		EXP1CY0Y Index	13:30

• Economic data surprise – news – from the publication of the indicator *x_i* at day *t* is:

$$s_{i,t} = \frac{x_{i,t} - E(x_{it})}{sd(x_{i,t} - E(x_{it}))},$$

where $E(x_{it})$ is the Bloomberg ECOS survey consensus forecast.

- $E(x_{it})$ horizon is surveyed a few days before the release.
- *s*_{*i,t*} *measures what market participants learned about the state of the economy from the data release.*

Economic Data Surprise Indexes

- We consider surprises for weekly, monthly, and quarterly observed data. Some data releases are initial estimates and are treated separately from releases for revised data.
- There are 66 data events related to growth and 33 related to inflation (including prices and wages).
- For a given day, the growth and inflation surprises are:

$$g_t^s = 1/N_g \sum_{i=1}^{d_{g,t}} (s_{i,t}) \pi_t^s = 1/N_\pi \sum_{i=1}^{d_{\pi,t}} (s_{i,t})$$

where $d_{g,t}$ is the n. growth releases at t, and $d_{\pi,t}$ is the inflation. N_g is the overall number of growth releases, and N_{π} is for inflation releases.

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- The indexes are then based on the assumption that the economic data surprises observed at *t* are empirical representations of macro shocks. So, we use the Wold representation to recover the 'data' implied by the 'shocks.'
- The 'surprise shocks' are assumed to have a half-life of 6 months ($\alpha = 0.995$):

$$g_{st} = \alpha g_{s,t-1} + g_t^s \text{ for } t = 1, ..., T$$

$$\pi_{st} = \alpha \pi_{s,t-1} + \pi_t^s \text{ for } t = 1, ..., T$$

• They summarize what the market has learned from recent growth and inflation data releases daily since 2000.

Visualization Data Surprises



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- The Bloomberg Economics' Fedspeak Daily Index (Wong, Hallmark, and Galvão, 2024).
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- Scores are smoothed, assuming the new information conveyed has a life of about two months (in line with the frequency of FOMC meetings).

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- Evidence that the daily index helps to predict the next meeting's FOMC decision.

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How our Fedspeak tool works



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Fedspeak/Policy

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Visualization Fedspeak



FOMC Participants: Hawks & Doves (May 14, 2024)



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Fed Communication Sentiment and Data News: Daily



Understanding Fedspeak Communication

- "Forward guidance allows the central bank to influence private-sector expectations about future interest rates" (Campbell, Ferroni, Fisher, and Melosi, 2019).
- The aim is to identify Fed Communication shocks that do not reflect data and Treasury market news.
- Instead of using event-based regressions, we use an extension of the Diebold-Li (2006) Dynamic Nelson and Siegel Model to compute dynamic effects for all maturities using daily data.
- The Model:
 - 1 Daily yield factors are computed from zero-coupon yields for 17 maturities between 3M and 10Y. Factors: level (long-maturity), slope (short-maturity), and curvature (two-year maturity) using known Diebold-Li loadings.
 - **2** A BVAR (using Giannone et al. (2015)) is estimated to the daily factors jointly with all three indexes.

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Understanding Fedspeak Communication

- The contribution of Fed Communication shocks is computed using a long-horizon forecasting error variance decomposition.
- Assumptions to identify Fed Communication shocks: Data announcements have contemporaneous effects on yield Factors, and Fed Speeches may reflect new data and market reactions.

• Recursive ordering:
$$\begin{bmatrix} g_{st} \\ \pi_{st} \\ L_t \\ S_t \\ C_t \\ fsp_t \end{bmatrix}$$

Variance Decomposition after one year

	L_t	S_t	C_t	fsp _t
\mathcal{E}_{gs}	1.0%	3.1%	5.1%	16.0%
$\varepsilon_{\pi s}$	1.8%	1.3%	1.0%	4.5%
ε_L	69.8%	64.3%	59.0%	1.0%
ES	9.9%	16.1%	8.7%	13.4%
ε_C	11.3%	3.2%	10.8%	9.2%
Fed Comm.	2.5%	7.1%	11.5%	51.6%

Sample Period: 2009-2024M4. These are the posterior median decompositions.

• Fed Communication shocks drive the curvature at the one-year horizon – compatible with forward guidance.

Fed Communication Shock Effects after 1 year across maturities



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Fed Communication Shock Effects on Two-Year Yield



• Fed communication shocks have a peak positive effect on two-year yields after six months.

Understanding Fedspeak Communication

• Based on the MA representation of the structural VAR with parameters at the posterior mean, we compute the history of the Fedspeak index, and the two-year yields explained ONLY by the Fed Communication shocks.

The index recovered from Fed Communication Shocks only



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Two-Year Yields from Fed Communication Shocks only

(end-of-month)



• Historical contribution of Forward Guidance to Two-Year Yields - (1) peaks during the zero lower bound period and (2) conveys information that affects the future path of Treasury yields.

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- The Forward-Guidance-implied Two-Year Yield is set as a external instrument to identify forward guidance policy shocks Stock and Watson (2018) SVAR external instruments.
- Monetary 4-variable Monthly VAR Model (Caldara and Herbst, 2019; Bauer and Swanson, 2022): IP, CPI, 2-year Yield, GZ EBP. 6 lags as in Swanson (2024).
- Estimated with data from 1985 to 2024M3. The pandemic priors method by Cascaldi-Garcia (2024) is applied, so post-pandemic data is used.
- Assuming the instrument is valid, the impact of forward guidance shocks is obtained by regressing each reduced-form innovation on the 2-year yield innovation by two-stage least squares using the forward-guidance-implied two-year yield as an instrument (Swanson, 2024; Stock and Watson, 2018).

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- 2 Exogeneity: the instrument is not correlated with other macroeconomic shocks. Surprises and yields were used to clean daily fedspeak, similar to the news orthogonalization in Bauer and Swanson (2022).
- The first-stage F-stat is 4.918 (median across parameters' draws; Sample period: 2009-2024M3). The instrument is not significantly correlated with IP, CPI, or EBP innovations but has a modest correlation with CPI innovations.

Responses to Fed Official's Communication - 25 bps 2Y



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- But we find a stronger negative effect on CPI. An inflation expectations channel could be the cause as these are the effects of past forward guidance fedspeak communication shocks.
- Fed officials' speeches move markets and have macroeconomic consequences if they convey forward guidance.