

# Monetary Policy in the News: Communication Pass-Through and Inflation Expectations

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*The views expressed in this presentation are those of the authors and do not necessarily represent those of the BIS.*

# Motivation

- Important role of central bank communication for monetary policy, especially when rising uncertainty weighs on economic decisions
  - Ample evidence on financial market impact
  - More limited analysis of central banks' ability to reach the broader public
- First step in transmission of monetary policy is media coverage
- Key questions:
  - Is the FOMC sentiment (hawkish/dovish) correctly portrayed by the media?
  - Does the pass-through differ across time and communication tools?
  - Does media coverage influence households' inflation expectations?

## ① Sentiment analysis of CB communication

[Hansen-McMahon-2016, Acosta-2022, Gnan-et-al-2022, Gorodnichenko-et-al-2023, Hansen-Kazinnik-2023]

⇒ We jointly analyse sentiment of CB and media

## ② Media responses to CB communication

[Berger-et-al-2011, Hayo-Neuenkirch-2012, Lamla-Sturm-2013, Ehrman-Wabitsch-2022, Ter-Ellen-et-al-2022]

⇒ We analyse transmission of MP sentiment

## ③ Household responses to CB communication or media

[Lamla-Maag-2012, Lamla-Lein-2014, Lamla-Vinogradov-2019, Coibion-et-al-2022, Macaulay-Song-2023]

⇒ We study consistency between CB and media

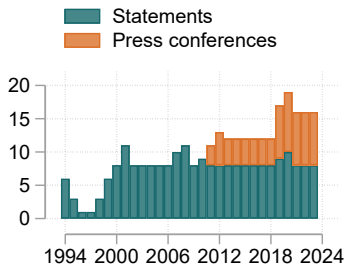
# Presentation outline

- 1 FOMC communication and media coverage
- 2 Sentiment extraction and choice of LLM
- 3 FOMC sentiment pass-through
- 4 Communication and inflation expectations

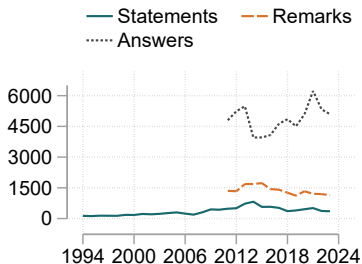
# FOMC communication

- 224 FOMC meetings between 1994 and 2023
- FOMC communication has become **more frequent** and **more lengthy**
  - **Press statements** since 1994
  - Press conference **introductory remarks** and **Q&A** since 2011
  - Average nr of words: **202** pre-GFC, **6808** post-2011

Frequency of FOMC communication



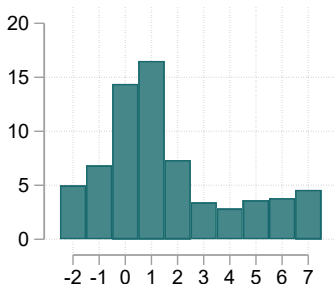
Length of FOMC communication



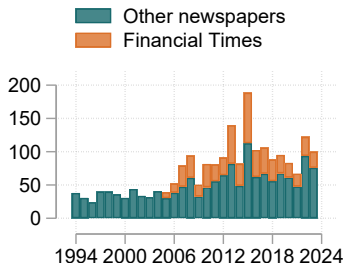
# Newspaper coverage of FOMC meetings

- 8 newspapers: FT, WSJ, Washington Post, Los Angeles Times, CNN, USA today, New York Post, Fox News
- Publication window:  $[-2, +7]$  days; **59%** published in  $[-1, +1]$
- Approx **41K** articles; **14K** after accounting for similarity and MP focus
- Average media coverage of FOMC increased post-GFC

Coverage around FOMC



Coverage over time



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# Sentiment extraction

- 5 categories: dovish, mostly dovish, neutral, mostly hawkish, hawkish
- Extract sentiment from individual FOMC communication tools and newspaper articles using LLMs
- Map sentiment to scores in  $[-1, +1]$  range
- Build aggregate FOMC sentiment as simple average of sentiment across statements, remarks and answers at Q&A

# Choice of LLM: GPT4 vs RoBERTa and BERT

- Extract sentiment from answers at press conferences using
  - GPT4 - Turbo version
  - RoBERTa - version in Shah et al. (2023) (SPC23)
  - BERT - version in Gorodnichenko et al. (AER, 2023) (G23)
- Compare against human classification of answers provided in G23
  - Higher overall accuracy of GPT4 and RoBERTa relative to BERT
  - GPT4 less prone to make severe mistakes (ie detecting dovish when hawkish) than RoBERTa despite no training on FOMC communication
  - GPT4 more suitable for long text (Gambacorta et al. 2024)

# GPT4 prompt and keywords

- GPT4 prompt:

*You're a research assistant working at the Fed. You have a Master degree in Economics. Your task is to understand and classify the monetary policy stance described in the text given to you into one of the following five categories: dovish, mostly dovish, neutral, mostly hawkish, hawkish. Dovish means that the central bank is more lenient towards higher inflation to support economic activity and employment, and hence is more likely to lower interest rates or keep them low for a period of time. Hawkish means the opposite. Neutral is neither one nor the other.*

- Keywords for articles' search:

*{FOMC or Federal Open Market Committee or FED or Federal Reserve}  
and {interest rate(s) or monetary or federal funds rate or fed funds rate}*

## Choice of LLM: GPT4 vs RoBERTa and BERT

- Comparison of sentiment against human classification provided in G23
- Good performance of GPT4 despite no training on FOMC communication

Model	Human's classification			
	All	Hawkish	Neutral	Dovish
GPT-4	0.60	0.16	0.91	0.38
RoBERTa-SPC23	0.61	0.34	0.75	0.54
BERT-GoPhTa23	0.42	0.54	0.26	0.60
Number of answers	692	117	336	239

## Choice of LLM: GPT4 vs RoBERTa

- GPT4 less prone to make severe mistakes

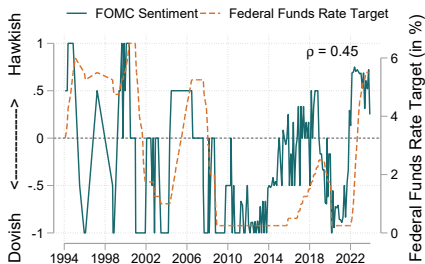
Actual	Predictions					
	GPT-4			RoBERTa-SPC23		
	Hawkish	Neutral	Dovish	Hawkish	Neutral	Dovish
Hawkish	16.2	70.9	12.8	34.2	41.9	23.9
Neutral	1.5	91.4	7.1	6.8	74.7	18.5
Dovish	0.8	61.1	38.1	7.1	38.9	54.0

- Good performance of GPT4 despite no training on FOMC communication
- GPT4 more suitable for long text (Gambacorta et al. 2024)

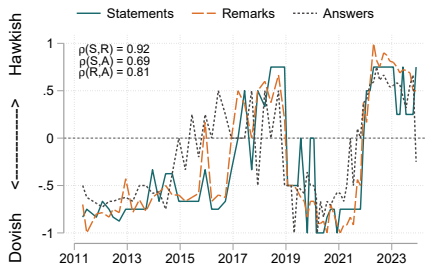
# FOMC sentiment

- Variation in FOMC sentiment over time, well aligned with FFR dynamics
- Sentiment generally anticipates FFR changes
- Strong co-movements of sentiments across written comm tools
- Weaker for answers during press conferences

### Aggregate FOMC sentiment

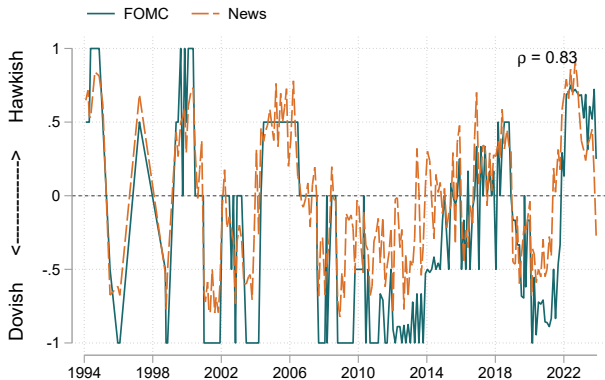


### FOMC sentiment by communication tool



# Media sentiment

- Media sentiment closely tracks FOMC sentiment but some exceptions



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# Pass-through of FOMC sentiment to media coverage

- We measure sentiment pass-through by estimating

$$S_{i,j,t}^{Media} = \alpha_j + \beta S_t^{FOMC} + u_{i,j,t}$$

where  $i$  denotes the article,  $j$  the journal, and  $t$  the FOMC date

# Sentiment pass-through

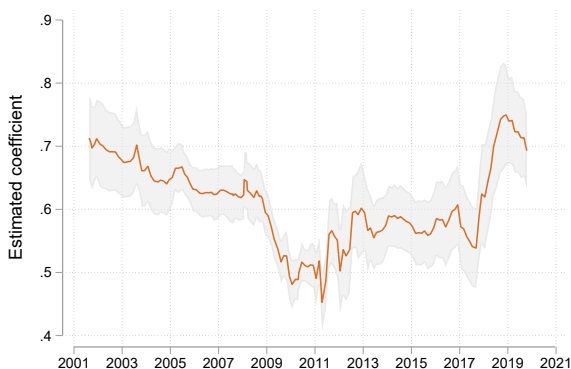
- Strong consistency between FOMC and media sentiment
- Media sentiment captures FOMC communication beyond FFR decisions
- Extreme FOMC sentiment correlates more strongly with media sentiment
- Weaker pass-through when the FOMC sentiment is dovish

	Base	Change FFR	Size	Sign
FOMC sentiment	0.651*** (0.031)	0.488*** (0.023)	0.422*** (0.040)	0.662*** (0.056)
Change FFR		0.457*** (0.016)		
Strong sentiment			0.101*** (0.014)	
FOMC X Strong sentiment			0.261*** (0.030)	
Dovish sentiment				-0.176** (0.056)
FOMC X Dovish sentiment				-0.203* (0.096)
No. of meetings	224	224	224	184
Observations	10472	10472	10472	9202
R2	0.38	0.40	0.39	0.41

# Pass-through over time

- Communication pass-through declined at the onset of the ZLB period...
- ... but recovered with the introduction of press conferences in 2011

Time-variation in sentiment pass-through



# Press conferences as key communication tool

- Sentiment pass-through is stronger for meetings with press conferences
- Media coverage is primarily driven by the press conference answers

	(1) Meetings between April 2011 and 2018	(2) Only meetings with press conference
FOMC sentiment	0.534*** (0.038)	
FOMC sentiment × PressConf=1	0.118** (0.036)	
Statements sentiment		0.187*** (0.025)
Remarks sentiment		0.140*** (0.024)
Answers sentiment		0.406*** (0.037)
No. of meetings	62	73
No. of articles	3982	5179
R2	0.22	0.35

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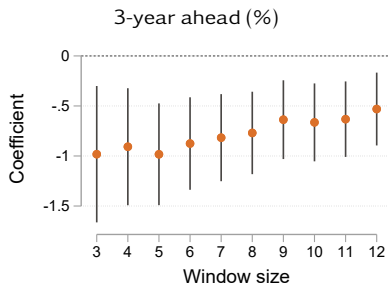
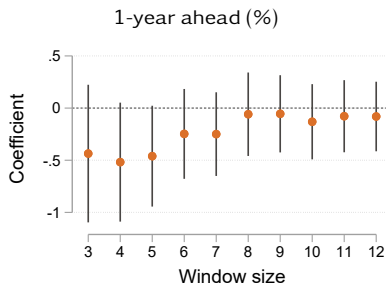
# Media coverage and inflation expectations

- Does media influence households' inflation expectations?
- Using NY Fed SCE, we estimate

$$\pi_{it}^e = \alpha_i + \gamma_m + (\beta_1 + \beta_2 \Delta S_m^{News}) Post_{im} + u_{it}$$

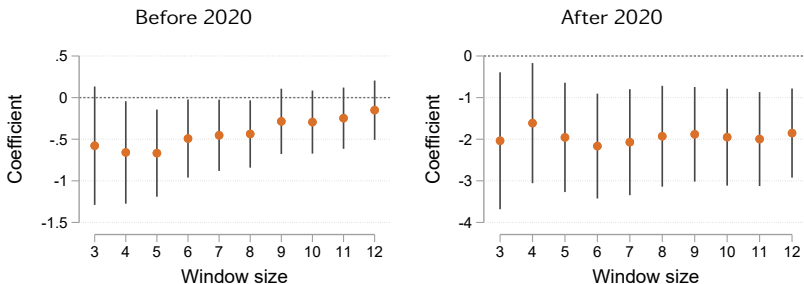
for different time windows surrounding FOMC meetings

- When media sentiment becomes more hawkish, households reduce medium-term inflation expectations



# Expectations reacted more during inflation surge

- Media had stronger impact on inflation expectations during infl. surge
  - Likely because of greater attention to monetary policy news



- Media influences expectations even controlling for FOMC sentiment
  - FOMC sentiment has no direct impact on expectations
  - Media is a key transmission channel for central bank communication

# Main takeaways

- FOMC sentiment is generally correctly portrayed by the media
- Variation arises over
  - **time**: pass-through deteriorated at ZLB but recovered since then
  - **tools**: press conferences are important in guiding media coverage but convey at times different sentiment than statements
- Media coverage influences households' inflation expectations
  - Stronger impact on **medium-term** inflation expectations...
  - ... during periods of **high inflation**
  - FOMC communication exerts **no direct impact**