



EUROPEAN CENTRAL BANK

EUROSYSTEM

Strategic interactions in preparing for committee meetings

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- Monetary policy decisions generally taken by committees
 - Aggregation of diverse information, but also frictions, e.g. conformity bias
- Literature focused on meeting interactions (discussion and voting)
- Little on interactions in the uprun to meetings
 - Swank et al. (2008): transparency of discussion can trigger pre-meetings
 - Vissing-Jorgensen (2019): informal communication, to move market expectations
- Here: committee members influence the debate already in the inter-meeting period via public speeches, for the case of the FOMC

- Underlying hypothesis
 - Committee members (Visser and Swank QJE 2007)
 - Share a common objective, but consequences of the decision are uncertain
 - Have private, but uncertain, information about the state of the economy
 - Are subject to a reputational concern, generating a tendency to conformity
 - Trade-off between desire to influence decision and conformity bias depends on
 - The strength of the reputational concern
 - Distance between members' private information and the consensus view
 - The likelihood a member can affect the outcome
- Are speeches substitutes or complements to voting?

- The FOMC as a testing case
 - Releases votes, minutes and transcripts; large literature on meeting behaviour
 - Diverse views represented in public
 - Regional representation → private information
 - 7 Governors plus 12 Reserve Bank presidents
 - Regional information systematically collected in Beige Book
 - Rotating voting scheme → varying influence
 - 7 Governors plus New York Fed have permanent voting status
 - 4 of the 11 remaining Reserve Bank presidents serve one-year terms
 - One per group:
 - Boston, Philadelphia, Richmond
 - Cleveland, Chicago
 - Atlanta, St. Louis, Dallas
 - Minneapolis, Kansas City, San Francisco

- We study the extensive margin and the tone of inter-meeting speeches by Reserve Bank presidents, 1994-2013
- Key findings
 - Speeches (intensity and tone) are responsive to regional economic conditions
 - More so for voters
 - Even more after dissents and for voters with larger career concerns
 - I.e. speeches and voting are complements

Note: positive, not normative analysis

- Regional information matters
 - Unemployment (Meade and Sheets 2005), banking sector soundness (Eichler et al. 2018), leading indicator (Hayo and Neuenkirch 2013)
 - Little evidence for a regional bias in interest rate preferences (Jung and Latsos 2015)

- Evidence for conformity bias
 - Unemployment gap matters more for discussion than for voting (Meade 2005)
 - Awareness of transcript release led to less disagreement (Meade and Stasavage 2008, Swank et al. 2008, Hansen et al. 2017)
- Voting rotation matters
 - Non-voters overpredict (underpredict) inflation if they favour tighter (looser) policy (Tillmann 2011)

- Speeches represent individual views (Bernanke 2004)
- Closely followed by market participants (Blinder et al. 2008)
- Used strategically
 - More speeches prior to meetings with policy rate changes (Ehrmann and Fratzscher 2007)
 - Sentiment of speeches responds to market misperceptions about upcoming decisions (Tietz 2018)

- 1** Data and econometrics
- 2** The role of voting status
- 3** The role of career concerns
- 4** Relationship with deliberation and voting stage
- 5** Conclusions

- Based on Tietz (2018)
- Webpages of Reserve Banks and Board of Governors, BIS archive, FedInPrint
- 2887 speeches between 1994 and 2013 (3846 until 2018)
 - 2013 in order to test against statements at the meeting (from transcripts)
- Construct measure of tone for each speech as

$$\tau_i = 100 \times \left(1 - \frac{N_i}{T_i}\right)$$

- Count total and negative words, based on Loughran and MacDonald (2011)
- Don't use positive words, as these are more frequently negated (Schmeling and Wagner 2017)
- Sentence by sentence, adjusted for unemployment

- Some negative words based on Loughran and MacDonald (2011)

ABANDON	COLLAPSE	DISTRESS	LOSE	STRESS
ADVERSE	DAMAGE	EXACERBATE	NONPERFORMING	VULNERABLE
AGGRAVATE	DANGER	FAIL	RISKY	WEAK
ALERT	DECLINE	HARM	SLOW	WORSEN
BAD	DESTABILIZE	ILLIQUID	SLUGGISH	WRONG
CAUTION	DISRUPT	INEFFICIENT	STAGNATE	

- Identify monetary policy speeches (Gentzkow and Shapiro 2010)
 - Supervised machine learning using 300 manually labelled speeches
 - For each phrase p , calculate Pearson's χ^2 statistic

$$\omega_{p,c} = \frac{(N_{p,c}N_{-p,-c} - N_{p,-c}N_{-p,c})^2}{(N_{p,c} + N_{p,-c})(N_{p,c} + N_{-p,c})(N_{p,-c} + N_{-p,-c})(N_{-p,c} + N_{-p,-c})}$$

- Identify the 200 phrases with the largest values of $\omega_{p,c}$
 - Speeches where these account for more than 7.5% of total words are classified as monetary policy speeches (robustness 5%, 10%)
- Aggregate to FOMC frequency for each speaker
 - Number of speeches and simple average of tone
 - Only for speakers in the rotation scheme
- 919 speeches, 1733 president-meeting observations

- Validity checks
 - Tone helps explaining upcoming interest rate decisions (1% significance level); number of speeches do not
 - Aggregate tone is explained by unemployment (but voting status matters)

$$\tau_t = \alpha + \beta_\pi \pi_t^{US} + \beta_u u_t^{US} + \beta_r r_t^{US} + \beta_\tau \tau_{t-1} + \varepsilon_t$$

	All members	Regional Fed Presidents in the rotation	Regional Fed Presidents with voting status (excl NY)	Non-voters
Inflation	0.021	0.060	0.078	0.069
Federal Funds rate	0.023	0.009	-0.029	0.024
Unemployment	-0.133**	-0.124*	-0.195**	-0.113
Lagged tone	0.301***	0.408***	0.353***	0.354***
Constant	68.031***	57.574***	63.371***	62.579***
Observations	153	153	153	153
R-squared	0.319	0.353	0.318	0.290

- Regional economic data
 - Unemployment rates (FRED)
 - Mapped to FOMC frequency based on days a certain figure is “in place”
 - Neither a real-time dataset (Orphanides 2001), nor forward-looking...

- Voting status is exogenous
 - Probit model explaining voting status with regional economic conditions

	Voting status
Regional inflation	0.005
Regional unemployment	0.012
Regional return on assets	0.017
Observations	1,733

- Number of speeches
 - Ordered probit model
 - Standard errors clustered at Reserve Bank president level

$$\Pr(N_{i,t} = o) = \Pr \left(\begin{array}{l} \kappa_{o-1} < \mu_i + \mu_t + \beta_u^N |u_{d,t} - u_t^{US}| \\ +\beta_v^N v_{d,t} + \gamma_u^N |u_{d,t} - u_t^{US}| v_{d,t} + \varepsilon_{i,t} \leq \kappa_o \end{array} \right),$$

- Hypotheses:
 - Regional conditions matter: $\beta_u^N > 0$
 - Voters more responsive to regional conditions (complement): $\gamma_u^N > 0$
 - Voters less responsive to regional conditions (substitute): $\gamma_u^N < 0$

- The tone of speeches
 - Standard errors clustered at Reserve Bank president level
 - Level of regional conditions (US conditions captured via the meeting fixed effects)

$$\tau_{i,t} = \mu_i + \mu_t + \beta_u^\tau u_{d,t} + \beta_u^\tau v_{d,t} + \gamma_u^\tau u_{d,t} v_{d,t} + \varepsilon_{i,t}$$

- Hypotheses:
 - Regional conditions matter: $\beta_u^\tau < 0$
 - Voters more responsive to regional conditions (complement): $\gamma_u^\tau < 0$
 - Voters less responsive to regional conditions (substitute): $\gamma_u^\tau > 0$

Outline

- 1 Data and econometrics
- 2 The role of voting status**
- 3 The role of career concerns
- 4 Relationship with deliberation and voting stage
- 5 Conclusions

Communication Behaviour of Voting Vs Non-Voting Reserve Bank Presidents

- Extensive margin
 - Similar patterns for voters and non-voters

Number of speeches	Total		Non-voters		Voters	
	Observations	Share (in %)	Observations	Share (in %)	Observations	Share (in %)
0	1,121	64.69	717	64.95	404	64.23
1	376	21.70	246	22.28	130	20.67
2	176	10.16	109	9.87	67	10.65
3	50	2.89	26	2.36	24	3.82
4	10	0.58	6	0.54	4	0.64
Sum	1,733	100.00	1,104	100.00	629	100.00

Communication Behaviour of Voting Vs Non-Voting Reserve Bank Presidents

- Extensive margin, estimated coefficients

	(1) Without voting status	(2) Benchmark	(3) 5% threshold	(4) 10% threshold
Absolute unemployment gap (β^N_u)	0.352**	0.267	0.261	0.351**
Absolute unemployment gap * voting status (γ^N)	--	0.283*	0.371***	0.277
Absolute inflation gap (non-voters)	--	--	--	--
Absolute inflation gap * voting status	--	--	--	--
Absolute RoA gap (non-voters)	--	--	--	--
Absolute RoA gap * voting status	--	--	--	--
Absolute unemployment gap for voters ($\beta^N_u + \gamma^N$)	--	0.550***	0.632***	0.628***
Meeting f.e.	Yes	Yes	Yes	Yes
Speaker f.e.	Yes	Yes	Yes	Yes
Observations	1,733	1,733	1,733	1,733

Notes: */**/***: significance at 10%/5%/1% level. Coefficients in bold are statistically significantly different from the top row coefficients at least at the 10% level.

Communication Behaviour of Voting Vs Non-Voting Reserve Bank Presidents

- Extensive margin, estimated coefficients

	(2) Benchmark	(5) Reuters coverage	(6) No Reuters coverage	(10) Adding inflation and RoA	(11) Until 2018
Absolute unemployment gap (β^N_u)	0.267	0.197	0.595	0.264*	0.262*
Absolute unemployment gap * voting status (γ^N)	0.283*	0.349**	0.105	0.259*	0.268**
Absolute inflation gap (non-voters)	--	--	--	0.150	--
Absolute inflation gap * voting status	--	--	--	0.065	--
Absolute RoA gap (non-voters)	--	--	--	-0.095	--
Absolute RoA gap * voting status	--	--	--	0.087	--
Absolute unemployment gap for voters ($\beta^N_u + \gamma^N$)	0.550***	0.546***	0.700	0.523***	0.531**
Meeting f.e.	Yes	Yes	Yes	Yes	Yes
Speaker f.e.	Yes	Yes	Yes	Yes	Yes
Observations	1,733	1,733	1,733	1,733	2,081

Notes: */**/***: significance at 10%/5%/1% level. Coefficients in bold are statistically significantly different from the top row coefficients at least at the 10% level.

Communication Behaviour of Voting Vs Non-Voting Reserve Bank Presidents

- Extensive margin, marginal effects (outcome = 0 speeches)

	(1) Without voting status	(2) Benchmark	(3) 5% threshold	(4) 10% threshold
Absolute unemployment gap (β^N_u)	-0.086** (0.039)	-0.065 (0.040)	-0.067 (0.041)	-0.074 (0.037)**
Absolute unemployment gap * voting status (γ^N)	--	-0.069 (0.036)*	-0.095 (0.032)***	-0.059 (0.038)
Meeting f.e.	Yes	Yes	Yes	Yes
Speaker f.e.	Yes	Yes	Yes	Yes
Observations	1,733	1,733	1,733	1,733

Notes: */**/***: significance at 10%/5%/1% level.

Communication Behaviour of Voting Vs Non-Voting Reserve Bank Presidents

- Tone
 - 1 pp increase in unemployment lowers voters' tone by 1/3 of its st. deviation

	(1) Without voting status	(2) Benchmark	(3) 5% threshold	(4) 10% threshold
Regional unemployment (β^{τ}_u)	-0.238*	-0.185	-0.149	-0.238
Regional unemployment * voting status (γ^{τ})	--	-0.192***	-0.133**	-0.135*
Regional inflation (non-voters)	--	--	--	--
Regional inflation * voting status	--	--	--	--
Regional RoA (non-voters)	--	--	--	--
Regional RoA * voting status	--	--	--	--
Regional unemployment for voters ($\beta^{\tau}_u + \gamma^{\tau}$)	--	-0.377***	-0.283**	-0.372**
Meeting f.e.	Yes	Yes	Yes	Yes
Speaker f.e.	Yes	Yes	Yes	Yes
Observations	612	612	730	509
R2	0.61	0.623	0.583	0.597

Notes: */**/***: significance at 10%/5%/1% level. Coefficients in bold are statistically significantly different from the top row coefficients at least at the 10% level.

Communication Behaviour of Voting Vs Non-Voting Reserve Bank Presidents

- Tone

- 1 pp increase in unemployment lowers voters' tone by 1/3 of its st. deviation

	(2) Benchmark	(5) Reuters coverage	(6) No Reuters coverage	(8) Adding inflation and RoA	(9) Until 2018
Regional unemployment (β^{τ}_u)	-0.185	-0.073	-1.406	-0.278**	-0.287**
Regional unemployment * voting status (γ^{τ})	-0.192***	-0.226***	-0.128	-0.268***	-0.134**
Regional inflation (non-voters)	--	--	--	-0.097	--
Regional inflation * voting status	--	--	--	0.037	--
Regional RoA (non-voters)	--	--	--	-0.144	--
Regional RoA * voting status	--	--	--	-0.399*	--
Regional unemployment for voters ($\beta^{\tau}_u + \gamma^{\tau}$)	-0.377***	-0.299*	-1.534	-0.545***	-0.422***
Meeting f.e.	Yes	Yes	Yes	Yes	Yes
Speaker f.e.	Yes	Yes	Yes	Yes	Yes
Observations	612	533	90	612	771
R2	0.623	0.629	0.809	0.632	0.599

Notes: */**/***: significance at 10%/5%/1% level. Coefficients in bold are statistically significantly different from the top row coefficients at least at the 10% level.

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The role of career concerns

- Career concerns matter for voters; more for number of speeches
 - Dissent at previous meeting, 40%
 - Large surprise previous meeting (Nakamura Steinsson QJE 2018), 50%
 - Age ≤ 50 years, 12%
 - First contract, 39%
 - Uprun to renewal years (ending in 0 or 5)

	Dissent at previous meeting	Large surprise at previous meeting	Young <50	First contract	Renewal years
Absolute unemployment gap					
Non-voters without characteristic	0.190	0.212	0.220	0.227	0.217
Voters without characteristic	0.199	0.389**	0.506**	0.664***	0.415*
Non-voters with characteristic	0.342*	0.343*	0.521*	0.310*	0.295
Voters with characteristic	0.854***	0.757***	0.987***	0.480**	0.838***
Observations	1733	1733	1733	1733	1733

Notes: */**/***: significance at 10%/5%/1% level. Coefficients in bold are statistically significantly different from the top row coefficients at least at the 10% level. Coefficients in italics are statistically significantly different from the voters without the characteristics at least at the 10% level.

The role of career concerns

- Career concerns matter for voters, somewhat less for tone

	Dissent at previous meeting	Large surprise at previous meeting	Young <50	First contract	Renewal years
Regional unemployment					
Non-voters without characteristic	-0.217*	-0.187*	-0.159	-0.183	-0.203
Voters without characteristic	-0.330**	-0.362***	-0.323**	-0.310**	-0.372***
Non-voters with characteristic	-0.157	-0.163	-0.240	-0.149	-0.259*
Voters with characteristic	-0.476***	-0.348*	-0.680***	-0.431***	-0.502***
Observations	612	612	612	612	612
R-squared	0.627	0.625	0.628	0.626	0.626

Notes: */**/***: significance at 10%/5%/1% level. Coefficients in bold are statistically significantly different from the top row coefficients at least at the 10% level. Coefficients in italics are statistically significantly different from the voters without the characteristics at least at the 10% level.

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Relationship with deliberation and voting stage

- Speeches and statements at meeting related, little extra role for voting status
- Statements at meeting and dissents related

	(1) Length of statement	(2) Tone of statement	(3) Dissent
Speeches (# in (1), (3); tone in (2))	0.053**	0.112*	0.001
Speeches * voting status	0.005	0.142*	--
Voting status	0.027	-13.559*	--
Length of statement at FOMC meeting	--	--	0.880***
Observations	1,722	608	1,119
R-squared	0.622	0.149	

Notes: */**/***: significance at 10%/5%/1% level.

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Conclusions

- Strategic interactions already at play in the uprun to meetings
- Regional unemployment matters for number and tone of speeches
- More so for voting members, in particular for cases with stronger career concerns
 - FOMC members more likely to signal a deviating stance when they are more influential (speeches and voting status are complements)
- Positive, not normative analysis



Thank you for your attention!

Appendix

	Observations	Mean	Std. Dev.	Min	Max
Number of speeches	1,733	0.530	0.834	0.000	4.000
Tone of speeches	612	96.080	1.371	90.537	99.457
Regional unemployment	1,733	5.744	1.762	2.725	11.525
Absolute unemployment gap	1,733	0.650	0.542	0.001	2.746
Regional inflation	1,733	2.405	1.316	-3.826	6.275
Absolute inflation gap	1,733	0.685	0.643	0.000	4.490
Regional return on assets	1,733	1.185	0.556	-3.330	2.780
Absolute return on assets gap	1,733	0.258	0.299	0.000	3.230

Data - speeches

Year	Top word 1	Top word 2	Top word 3	Top word 4	Top word 5
1996	losses	problems	failures	question	problem
1997	problems	unemployment	late	challenge	question
1998	crisis	problems	problem	crises	unemployment
1999	problem	crisis	problems	unemployment	challenge
2000	unemployment	crisis	problems	challenge	question
2001	slowdown	question	late	problem	problems
2002	critical	unemployment	problems	recession	loss
2003	problems	late	losses	unemployment	problem
2004	late	volatility	concerns	problems	unemployment
2005	concerns	late	concern	problems	question
2006	concerns	late	losses	problems	stress
2007	problems	crises	crisis	losses	concerns
2008	problems	foreclosures	crisis	turmoil	losses
2009	crisis	losses	problems	failure	problem
2010	crisis	unemployment	losses	problems	recession
2011	crisis	unemployment	recession	stress	problems
2012	unemployment	crisis	recession	losses	problems
2013	crisis	unemployment	stress	recession	losses
2014	crisis	unemployment	stress	recession	question
2015	crisis	recession	stress	unemployment	force
2016	crisis	stress	unemployment	questions	recession
2017	crisis	stress	unemployment	force	tightening

- Words/bigrams with the largest values of $\omega_{p,c}$

word	ω		
inflation	0.1255	supervisors	0.0262
outlook	0.0675	inflation_expectations	0.0259
labor_market	0.0595	interest_rates	0.0258
funds_rate	0.0548	pace	0.0257
unemployment_rate	0.0465	prices	0.0245
recovery	0.0462	banking	0.0241
fomc	0.0448	aggregate_demand	0.0239
unemployment	0.0440	longer_term	0.0237
monetary_policy	0.0433	regulatory	0.0235
spending	0.0381	productivity_growth	0.0231
banks	0.0373	resource_utilization	0.0226
longer_run	0.0348	employment	0.0226
basel	0.0340	supervisory	0.0222
risk_management	0.0293	activities	0.0217
fiscal	0.0288	productivity	0.0216
energy_prices	0.0279	demand	0.0212
nairu	0.0276	labor_force	0.0209
price_stability	0.0267	accommodation	0.0207
slack	0.0263	growth	0.0206