

Rules versus Discretion: Decoding the FOMC policy deliberations

Michael Bordo **Klodiana Istrefi** **Humberto Martínez**
Rutgers University Banque de France Universidad de Chile

Stanford University - The Hoover Institution
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Motivation

- This paper comes from a suggestion to us 5 years ago by John Taylor after I gave my paper with Klodiana on Hawks and Doves at the Fed and incorporates helpful suggestions by Steve Davis
- The Rules vs discretion debate goes back to the early 19th century with the Bullionist debate in England and carries forward to the 20th century with Henry Simons (1935) and Milton Friedman (1960)
- The modern literature models monetary policy as rules-based, typically using a simple equation linking interest rates to economic conditions as in The Taylor Rule (1993)
- Some Taylor Rule variants align with FOMC actions in some periods...
but significant deviations occur in other periods.
- Some argue these deviations contributed to the 2000s housing bubble (Taylor, 2007) and post-pandemic inflation (Bordo & Levy, 2022).

Motivation

- There has been efforts to legislate rules-based decision making into the Fed's framework
 - Money growth based rules in the 1970s, more recently interest rate rules
 - 2014 Fed Accountability and Transparency Act, 2015 Fed Oversight Reform and Modernization Act
- While some academics and former members supported these initiatives, others opposed them
 - ▷ *“Conducting monetary policy by strictly adhering to the **prescriptions of a simple rule** would lead to poor economic outcomes. (...) The bill would severely impair the Federal Reserve’s ability to carry out its congressional mandate and would be a **grave mistake**” **Yellen (2015)***
 - ▷ *“**The Fed has a rule**. The Fed’s rule is that we will go for a two percent inflation rate. We will go for the natural rate of unemployment. We will put equal weight on those two things. We will give you information about our projection, our interest rates. **That is a rule.**” **Bernanke (2015)***
- There is a tension between theoretical descriptions of policy rules, external demands for rules (e.g. SOMC), and the Fed’s practical decision making
- There is limited quantitative evidence on Fed policymakers’ preferences regarding the balance about commitment, rules, and discretion.

This Paper

■ **Quantitative evidence of Rules and Discretion debate in the FOMC**

- We use textual analysis on FOMC transcripts (1976-2015)
- We provide novel dictionaries on Rules and Discretion terminology
- We provide novel measures of the use of language of Rules and Discretion in FOMC

■ **New evidence on the role of Rules and Discretion Language in Fed's policy**

- We present evidence on who speaks the language vs who uses the language to advocate for Rules vs Discretion, and viceversa
- We make a comparison with rules-based and discretionary periods from the literature based on Taylor Rule deviations (e.g. Taylor, Papell, Cochrane, etc.)
- We incorporate our measure of Rules and Discretion terminology into estimated forward-looking Taylor Rules

Three main takeaways

1. **Discretion is a consistent feature in FOMC discussions, Rules surged in mid-90s, and after GFC**

- This reflects the impact of optimal monetary policy literature in rules terminology

2. **The evidence from estimated forward-looking Taylor Rule: ↑ Rules over Discretion is linked to tighter policy, ↑ Discretion over Rules is linked to easier policy**

- Our measure of the use of Rules and Discretion terminology is consistent with the literature on which eras are rules-based and those which are not.
- Higher use of Rules vs Discretion language associated with a higher (lower) weight of inflation (output) in a TR

3. **Important to distinguish between Terminology Users and those who use it to advocate a policy position**

- Terminology Users: FOMC members with a Ph.D. in Economics use the Rules language, others use the Discretionary language
- Advocates: Hawkish FOMC members use Rules language more extensively than others
- **Discretion language** used in economic downturns and periods with greater uncertainty
- **Rules:** With more mentions of “credibility” and “commitment” (periods of perceived upsurges in inflation?)

Relation to literature

- There is an extensive theoretical & empirical literature on commitment, rules, and discretion in monetary policy.
- Many contributions to mention! e.g. Kydland/Prescott, Barro, Giavazzi
- **Our focus is on the debate among policymakers, rather than the academic discussion.**
 - Language used in FOMC deliberations rather than over specific numerical policy indicators (FFR or Money targets).
 - Captures the broader debate between rules and discretion, in terms of policy instruments and how they relate to policy objectives and targets
 - Captures the context, diverse perspectives, and evolving arguments over time.
 - Challenging to maintaining precision when studying language in tracing its evolution, and distinguishing actual preferences for rules or discretion from language choices.
 - We employ tools to address limitations and extract insights from the FOMC discussions.

"But to commit ourselves to a possible increase of 50 basis points on the [basis of mechanical rules](#) (...) I counsel against it."

Burns, FOMC transcript October 1977, pg 65

"Mr. Chairman, let me say at the outset that I think that our course for policy at the moment—of using [discretionary policy rather than a slavish adherence](#) to any of the aggregates or to any other intermediate target—is quite appropriate." **Forrestal, FOMC transcript February 1988, pg 34**

"(...) I would welcome having a discussion about loss functions and policy rules to see if we could reach some consensus. This could help us decide on a more [systematic approach to policy](#)."

Plosser, FOMC transcript January 2012, pg 198

"We have looked at various [nominal income rules](#) and they suggest that we fell behind the curve at the last meeting and that we now need a large increase to catch up" **Parry, FOMC transcript March 1994**

"At our bank we consult two [monetary policy rules](#) as a starting point for thinking about the appropriate stance of policy an estimated version of [Taylor's rule](#) and a [nominal income growth rate rule](#)" **Parry, FOMC transcript December 1996**

"Our version of the estimated [Taylor rule](#) suggests that tightening policy by roughly basis points by next quarter would be appropriate" **Parry, FOMC transcript December 1997**

“A couple of years ago, John Taylor, a Stanford professor who was a member of the Council of Economic Advisers, devised a very [simple monetary policy rule](#) that I look at to provide a rough sense of whether or not the funds rate is at a reasonable level.”

Yellen, February 1995, p. 104

“(…) historical regression-based models of central bank behavior, like the [Taylor rule](#), are now systematically underpredicting the appropriate level of accommodation. In contrast, the forecast-based approach articulated in our principles statement does provide exactly the kind of [flexibility](#) that we do need (…).”

Kocherlakota, FOMC January 2013, p. 71

“Thank you, Mr. Chairman. I want to particularly thank you for noting yesterday that [I have learned to use the lingo of the FOMC](#), but I’m not yet able to plug my assumptions into a [Taylor rule](#) so I’m going to have to make up for that by expressing myself in terms of munitions metaphors”

Duke, September 2011, p. 240

Rules and Discretion: Dictionary and Indices

Quantify the Rules and Discretion Debate in the FOMC

- FOMC Transcripts - April, 1976 - December, 2015
 - Meetings - monetary policy deliberations
 - FOMC members
 - We break down transcripts to the [sentence level](#)
- Rules and Discretion dictionaries
 - Subsample of FOMC transcripts (7% of full sample)
 - Initial short list of 150 keywords—→ 47 keywords: *22 rules, 25 discretion*

Rules vs. Discretion Dictionary based on FOMC transcripts

Discretion		Rules	
Positive	Negative	Positive	Negative
constrained policy	<i>captive</i>	time-consistent	<i>ad hoc</i>
opportunistic approach	<i>corset</i>	consistency	<i>cave in to pressure</i>
opportunistic strategy	<i>fixed notions</i>	clear criterion	<i>lack of framework</i>
gradualism	<i>ironclad</i>	concrete path	
gradualist	<i>locked in</i>	discipline	
pragmatic	<i>not be able to adhere</i>	continuity of policy	
flexible/flexibility	<i>precommit</i>	stick with	
maneuver	<i>preset course</i>	systematic	
powder dry	<i>too programmed</i>	rule	
open mind	<i>trapped</i>	operating strategy	
optionality	<i>tie our hands</i>	policy guide	
fine tuning	<i>formulaic</i>	simplicity	
	<i>mechanistic</i>	transparency	
		accountability	
		predictability	
		long-run goals	
		long-term objective	
		objective function	
		policy strategy	

Note: The dictionary is based on the core keywords identified by the *Expert Reading Phase* of FOMC transcripts.

Text to numerical representation

- For each sentence i of our sample, we construct numerical vector $c_i = \{c_i^r, c_i^d, \omega_i\}$
 - Count of Rules keywords (c_i^r) and Discretion keywords (c_i^d)
 - Total number of (post-processed) words (ω_i)
 - Corrects for negations, common expressions, phrasal verbs, etc.
- As an example: 3 sentences from the same FOMC member that contain the keyword “rule”
 - “I personally favor commitment to simple **rules**(...)”
 - “Some of you will argue (...) that we don’t and maybe shouldn’t follow **rules**”
 - “so I kind of **rule** out option 2.”

Text to numerical representation

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 - “I personally favor commitment to simple rules(…)” $\rightarrow c_i = \{1, 0, 9\}$
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 - “I personally favor commitment to simple rules(…)” $\rightarrow c_i = \{1, 0, 9\}$
 - “Some of you will argue (...) that we don’t and maybe shouldn’t follow rules” $\rightarrow c_i = \{0, 1, 8\}$
 - “so I kind of rule out option 2.”

Text to numerical representation

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 - “Some of you will argue (...) that we don’t and maybe shouldn’t follow rules” $\rightarrow c_i = \{0, 1, 8\}$
 - “so I kind of rule out option 2.” $\rightarrow c_i = \{0, 0, 4\}$

Text to numerical representation

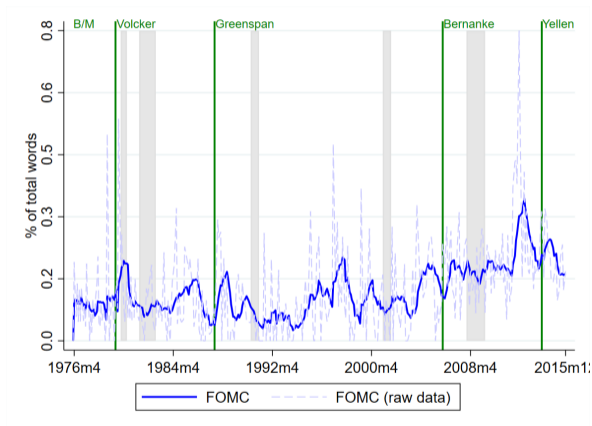
- Audit: two subsamples, compare expert classification with numerical representation
- Indices at meeting and speaker-meeting level
 - Counts of keywords as percentage of total words
 - Rules (R_t), Discretion (D_t)

$$R_t = \frac{\sum_i c_{i,t}^r}{\sum_i \omega_{i,t}} \quad D_t = \frac{\sum_i c_{i,t}^d}{\sum_i \omega_{i,t}}$$

- Rules & Discretion (RD_t), Rules versus Discretion (RvD_t)

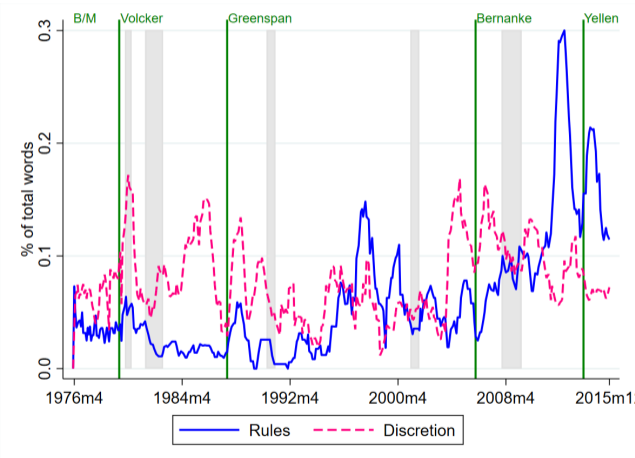
$$RD_t = R_t + D_t \quad RvD_t = R_t - D_t$$

RD_t language exhibits an upward trend from the 2000s



Vertical lines indicate the change in Fed Chair. B/M stands for the period of Burns and Miller as Fed Chairs. Shaded periods indicate NBER recession dates. Solid lines represent 8 meeting moving average of the corresponding index winsorized at 0% and 99% of raw data.

Discretion terminology a consistent feature, Rules terminology leads RD_t surge in mid-90s

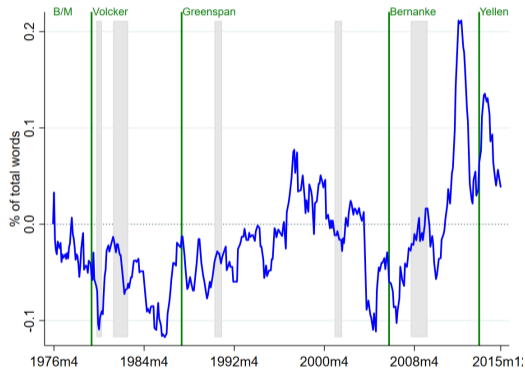


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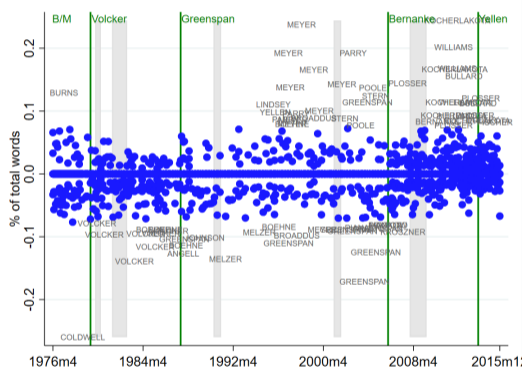
Rules *versus* Discretion

Rules favored over Discretion terminology only after mid-90s

(a) Meeting Level



(b) Meeting-FOMC member level

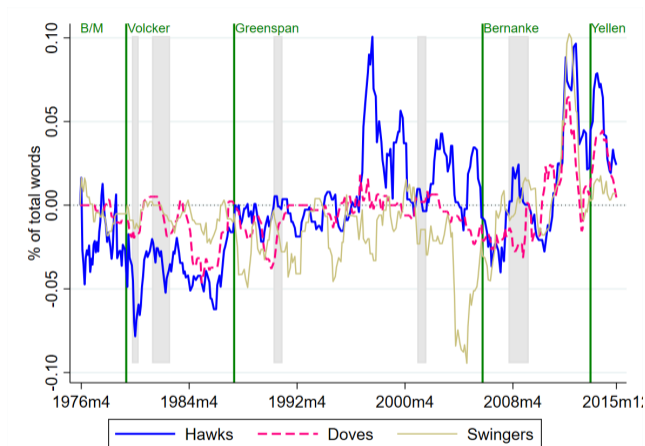


Note: Panel a) shows the 8 meeting moving average of the RvD_t . Vertical lines indicate the change in Fed Chair. B/M stands for Burns and Miller as Chairs of the Federal Reserve. Gray bars indicate NBER recession periods. Panel b) presents the RvD_{jt} , weighted by the share of total words of each speaker in the respective meeting, for each FOMC member present at meeting t . We highlight by name those FOMC members with an RvD_{jt} index four standard deviations away from the historical mean. Hawks, doves and swingers as in Istrefi (2019).

Speaker Level - Determinants of Rules over Discretion language

1. After controlling by meeting fixed effects (i.e. Macroeconomic outlook, FOMC chair)
 - + **Discretion over rules** is used more extensively by lawyers and/or non-PhD economists
 - + **Rules over discretion** is used more extensively by PhD economists, and hawkish FOMC members
2. After controlling by individual fixed effects (i.e. Policy Preferences, Background)
 - + **Discretion over Rules** during economic downturns and episodes with heightened uncertainty
 - + **Rules over discretion** correlates with meetings with greater “credibility” and “commitment” mentions

RvD_t reflects better policy preference during Greenspan's tenure



Note: Panel shows the Rules versus Discretion index (8 meeting moving average) in FOMC transcripts for Hawks, Doves, and Swingers as defined in Istrefi (2019). The vertical lines indicate the change in the Fed Chair. B/M stands for Burns and Miller as Chairs of the Federal Reserve. The gray bars indicate NBER recession periods.

Rules versus Discretion and Monetary Policy

Relevance of RvD language on policy through 3 exercises

▷ “Detrend” Rules and Discretion Indices

$$R\tilde{v}D_t = RvD_t - \underbrace{R\bar{v}D_{t-1}}_{RvD_{t-1} \text{ 8 meeting m.a.}}$$

1. *Known* periods of deviations from established Taylor Rule
2. Forward-Looking Policy Rule *augmented* with Rules versus Discretion indices
3. Policy Rule with dominant use of Rules language vs dominant use of Discretion language

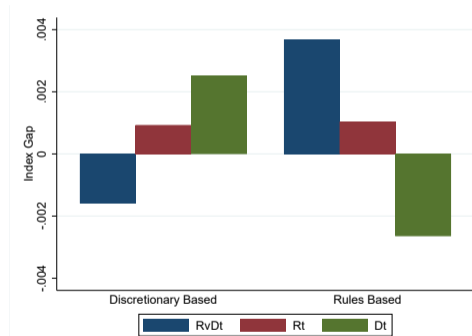
Relevance of RvD language on policy through 3 exercises

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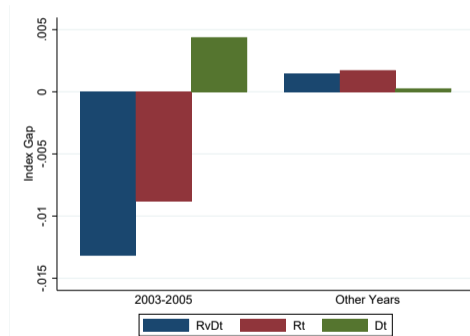
1. *Known* periods of deviations from established Taylor Rule
 - Rules-Based period between 1985 and 2000, Discretion other years
Nikolsko-Rzhevskyy, Papell, and Prodan (2014)
 - Discretion era between 2003 and 2005
Taylor (2007)
2. Forward-Looking Policy Rule *augmented* with Rules versus Discretion indices
3. Policy Rule with dominant use of Rules language vs dominant use of Discretion language

RvD_t is consistent with rules-based and discretionary-based eras

(c) Nikolsko-Rzhevskyy, Papell et al. (2014) eras



(d) Taylor (2007)'s discretion era



Note: Each bar represents the period average for each index. Nikolsko-Rzhevskyy et al. (2014) characterize discretion-based era between 1974 to 1985 and 2001 to 2013 and as rules-based era from 1985 to 2000. Taylor (2007) characterizes 2003-2005 as discretion era.

Relevance of RvD language on policy through 3 exercises

▷ “Detrend” Rules and Discretion Indices

1. *Known* periods of deviations from established Taylor Rule
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Coibion & Gorodnichenko (2011)

$$i_t = \rho_1 i_{t-1} + (1 - \rho_1) [\phi_\pi E_t \pi_{q+j|t} + \phi_y E_t y_{q|t} + \phi_x E_t x_{q|t}] + \beta_1 R \tilde{V} D_t + v_t \quad (1)$$

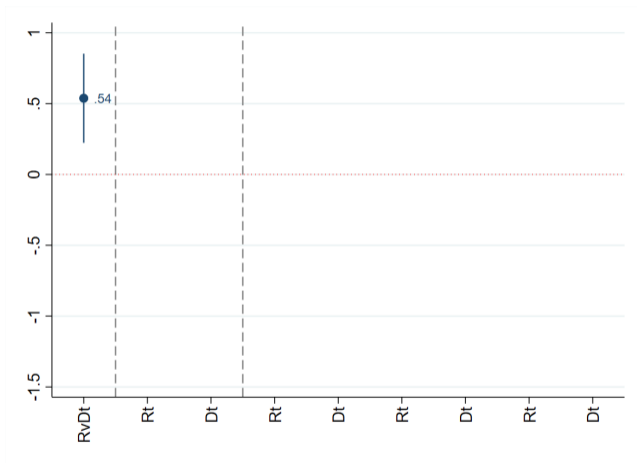
3. Policy Rule with dominant use of Rules language vs dominant use of Discretion language

RvD language relevant for policy only under Greenspan

	1976-2015		B&M&V		Greenspan		Ber&Yel	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ϕ_π	2.48*** (0.44)	2.47*** (0.45)	2.49** (1.23)	2.24* (1.27)	2.27*** (0.36)	2.34*** (0.38)	-2.36 (6.29)	-2.80 (7.06)
ϕ_y	0.93** (0.45)	0.92** (0.44)	0.70 (0.69)	0.56 (0.60)	1.24*** (0.34)	1.50*** (0.43)	1.02 (0.97)	1.13 (1.18)
ϕ_x	0.54*** (0.16)	0.54*** (0.16)	0.15 (0.39)	0.21 (0.38)	0.65*** (0.11)	0.65*** (0.12)	1.29 (1.38)	1.37 (1.52)
ρ_1	0.93*** (0.02)	0.93*** (0.02)	0.92*** (0.04)	0.91*** (0.04)	0.92*** (0.02)	0.93*** (0.02)	0.96*** (0.02)	0.97*** (0.02)
RvD_t		-0.28 (0.39)		-1.93 (1.90)		0.54*** (0.19)		-0.22 (0.30)
Observations	332	332	104	104	149	149	79	79
R-Squared	0.976	0.976	0.897	0.898	0.991	0.991	0.988	0.988

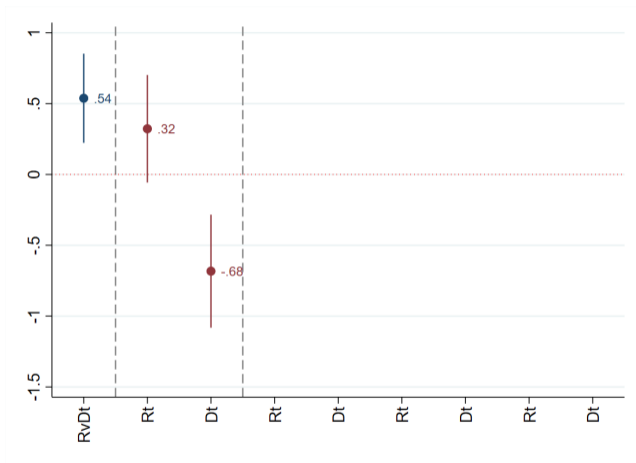
Note: This table presents estimates for ϕ_π , ϕ_y , and ϕ_x obtained through non-linear combinations of estimates from a Newey regression of Equation 1, standard errors with 5 lags. We divide the initial respective estimate for each variable with $(1 - \rho_1)$. Results of the initial Newey regression available in paper's Appendix. Standard errors of these combinations in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Greenspan Years: More rules (discretion) tighter (easier) policy



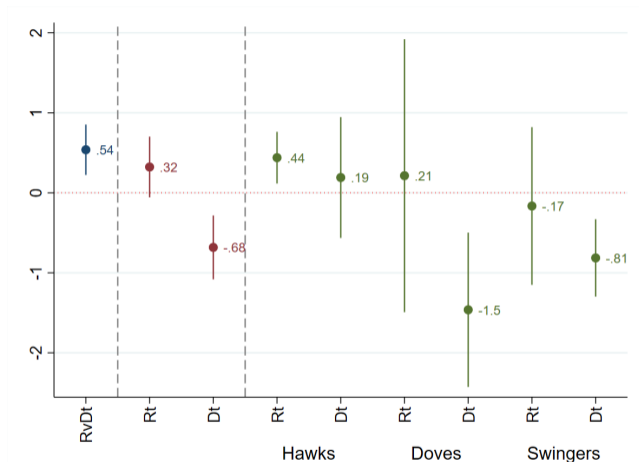
Note: This graph presents the estimated coefficients during the Greenspan regime for RvD_t , \tilde{R}_t , and \tilde{D}_t from three different exercises of Equation 1. All these exercises follow the same forward looking Taylor rule specification augmented with the respective indices: RvD_t index, \tilde{R}_t and \tilde{D}_t indices, and \tilde{R}_t and \tilde{D}_t indices for hawks, doves, and swingers. Vertical dashed gray lines separate estimates by regressions. Confidence intervals at 90%. Classification of hawks, doves, and swingers as in (Instrefi, 2017) Full regression results are available in paper's Appendix.

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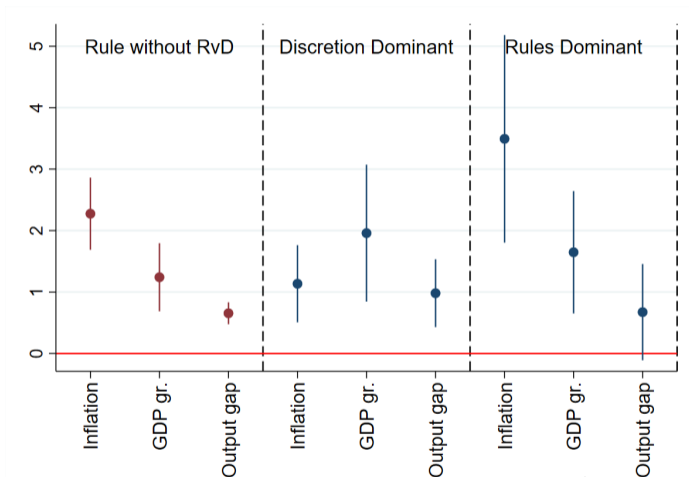
Relevance of RvD language on policy through 3 exercises

▷ “Detrend” Rules and Discretion Indices

1. *Known* periods of deviations from established Taylor Rule
2. Forward-Looking Policy Rule *augmented* with Rules versus Discretion indices
3. Policy Rule with dominant use of Rules language vs dominant use of Discretion language

$$i_t = \rho_1 i_{t-1} + (1 - \rho_1) \left[\phi_\pi E_t \pi_{q+j|t} + \phi_y E_t y_{q|t} + \phi_x E_t x_{q|t} \right] + (1 - \rho_1) \sum_{j=low,high} \left[D_t^j \left(\phi_\pi^j E_t \pi_{q+j|t} + \phi_y^j E_t y_{q|t} + \phi_x^j E_t x_{q|t} \right) \right] + \varepsilon_t \quad (2)$$

Under Greenspan: “rule” varies in meetings with extreme RvD_t values

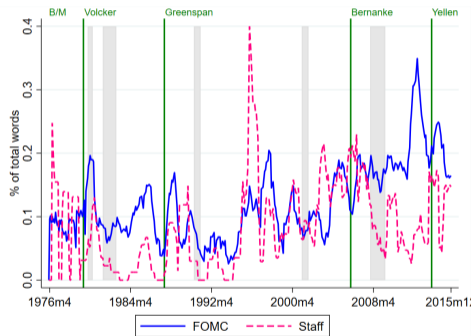


Note: Main result is Equation 1 without RvD_t . The other two groups present the estimated coefficients $\phi_z + \phi_z^j$ where $z = \pi, y, x$ and j can be low ($D_t^{low} = 1, D_t^{high} = 0$), and high ($D_t^{low} = 0, D_t^{high} = 1$), where thresholds are for low and high are at 10% and 90% of RvD_t distribution, respectively. Full regression results are available in paper's Appendix.

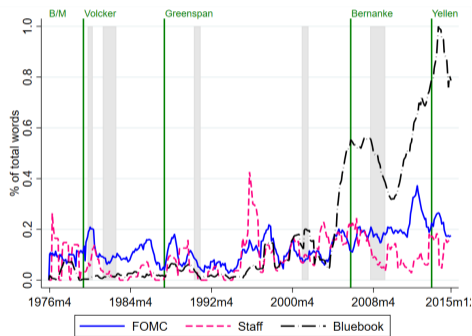
Who speaks the rules and discretion language?

FOMC members speak the language, at least, as intense as Staff

(e) FOMC Meetings

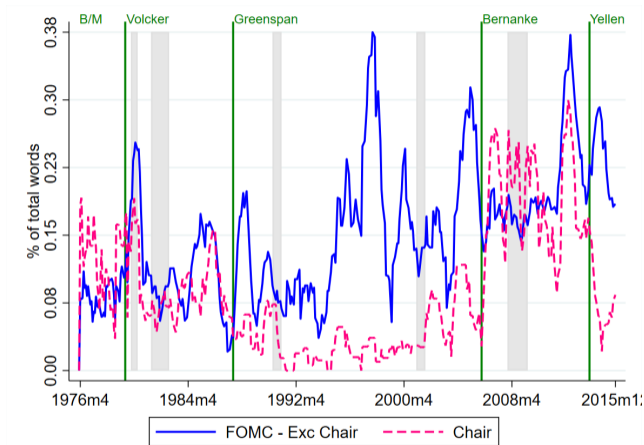


(f) with Bluebook



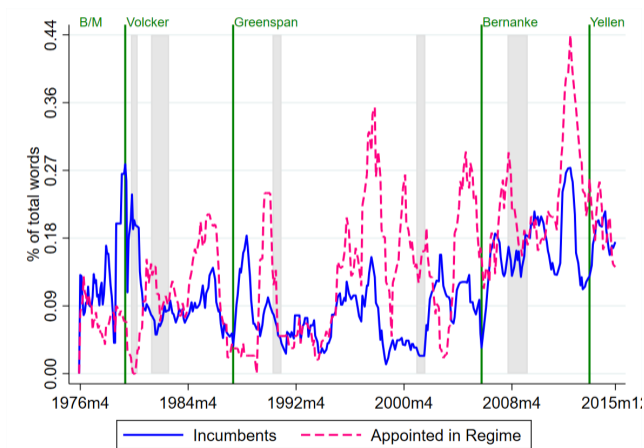
Note: Panel a) shows the Rules and Discretion measure in FOMC transcripts for both the staff and FOMC members. Panel b) adds the Rules and Discretion measure registered in Bluebooks. Vertical lines indicate the change in Fed Chair. B/M stands for Burns and Miller as Fed Chairs. Gray bars indicate NBER recession periods. Lines present the 8 meeting moving average of the counts for each measure.

Chairs used RD_t language as the rest of FOMC - Except Greenspan



Note: Panel shows the Rules and Discretion measure (8 meeting moving average) in FOMC transcripts for the Fed chair and the rest of FOMC, separately. Vertical lines indicate the change in Fed Chair. B/M stands for Burns and Miller as Fed chairs. Gray bars indicate NBER recession periods.

Over time, RD_t language became more prevalent first with newly appointed FOMC and then also existing members



Note: Panel shows the Rules and Discretion measure (8 meeting moving average) in FOMC transcripts for incumbents, and appointed in regime FOMC members, separately. Vertical lines indicate the change in Fed Chair. B/M stands for Burns and Miller as Fed chairs. Gray bars indicate NBER recession periods. Appointed in Regime are define as FOMC members who were appointed during the respective regime.

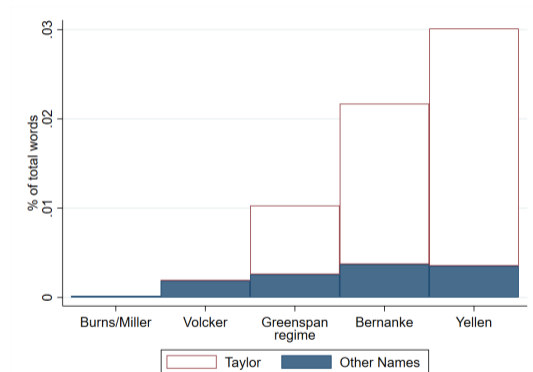
The role of optimal monetary policy literature in RD language

How do we measure the impact of the literature?

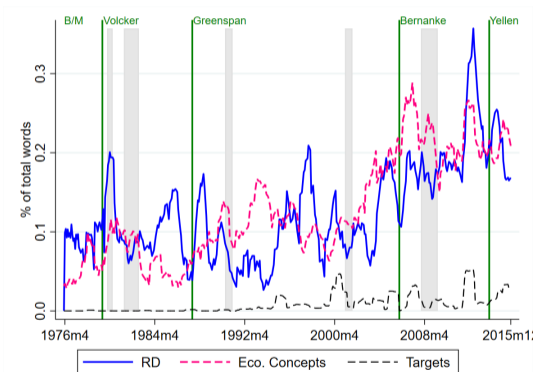
- Counts of authors (names), and keywords mentioned in FOMC transcripts
- **Names:** Barro, Calvo, Friedman, Gordon, Henderson, Kydland, McCallum, Mckibbin, Orphanides, Prescott, Rogoff and Taylor
- **Targets:** inflation target, price level target, nominal GDP target, money supply target
- **Economic Concepts:** optimal, inflationary bias, credibility, commitment, expectations, Phillips curve, reaction function
- **Important!** None of these words are in our original Rules and Discretion dictionaries

Mentions of the literature correlated positively **only** with R_t and **not** D_t

(g) Count of Names - Average by Fed Chair Regime



(h) Time Series - 8 meeting m.a.



Note: Panel a) shows the average share of counts of optimal monetary policy literature names per each Fed chair regime, distinguishing the counts for Taylor versus others. Panel b) shows the evolution of the Rules and Discretion measure (RD) and the Ideas measure. Vertical lines indicate the change in Fed Chair. B/M stands for Burns and Miller as Chairs of the Federal Reserve. Gray bars indicate NBER recession periods.

An Historical Perspective

An Historical Perspective

- Through the lens of empirical rules, the FOMC appears to use the language of the Rules versus policy debate only in the Greenspan era (1987-2006).
- ▷ Estimating the Taylor Rule is most appropriate for the Greenspan era because the Federal Funds rate was clearly the primary policy tool of the Fed
- Before then the Volcker Fed used non-borrowed reserves from 1979 to 1983 and the post GFC period of the ZLB used QE and Forward Guidance
- ▷ The modern Rules /Discretion language only began to emerge in the late 1970s and 1980s, permeating FOMC discussions by the 1990s
- And we find that during the Greenspan era that Hawks using Rules terminology dominated the FOMC discussion

An Historical Perspective

- Our findings align with the extensive historical narratives by Meltzer (2010), Nelson (2020), Hetzel (2022) and Blinder(2023), and Hetzel (2023)
- Burns and Miller, before the emergence of modern Rules/Discretion language were less committed to low inflation and following explicit rules, despite being mandated to money growth targets
- Volcker, who became chair in 1978, had a clear mandate to lower inflation but he was not an advocate for rules but a pragmatist
- His FOMC was mainly supported by Inflation Hawks who generally supported his mission, some of whom used the new language

An Historical Perspective

- Greenspan, who started in 1987 was also a pragmatist , who aimed to solidify Volcker's achievements, restore credibility , and establish a new fiat money based nominal anchor based on credibility for low inflation
- Although not fond of theoretical models, he was a skilled economist.
- Most of his FOMC, consisted of hawks and swingers who shared his mission. Many used the R/D language , while he did not
- This R/D language usage may have influenced the policy outcome

An Historical Perspective

- Bernanke, was an academic economist well versed in the R/D language, as were many of his FOMC colleagues
- He was an advocate for *constrained discretion*
- But a number of members used the language to argue for flexibility
- Janet Yellen was an academic well versed in the modern R/D language and she introduced the publication of 5 variants of the Taylor rule in the Fed's semi-annual reports, as guidelines to policy.
But she herself as not a fan of rules
- ▷ Thus, our analysis shows that the Rules versus Discretion language influenced the FOMC's dialogue, and in certain periods, even shaped its policy decisions

Final Remarks

- This paper is a first approximation to quantify the rules and discretion policy deliberation at the FOMC
- Discretion has been a consistent feature, rules terminology emerged mid 90s, and after the GFC
- Discretion increases with uncertainty and during economic downturns
- The use of Rules language is associated with concepts like “credibility” and “commitment,” and more prevalent among Ph.D. economists and hawkish FOMC members.
- Greater Rules versus Discretion terminology coincides with tighter monetary policy, and prioritizes inflation
- Future work → Evaluating rules and discretion language in FOMC’s institutional changes

Rules versus Discretion: Decoding the FOMC policy deliberations

Michael Bordo

Rutgers University

Klodiana Istrefi

Banque de France

Humberto Martínez

Universidad de Chile

Stanford University - The Hoover Institution

2024

Rules and Discretion: Dictionary and Indices

FOMC Transcript Sample

- 333 FOMC transcripts (April, 1976- December, 2015)
- Only meetings (exclude conference calls)
- *Mainly* the [monetary policy deliberation](#) section
- Mainly FOMC members (We use Staff in one exercise)
- Sentence Level (over 660,000 sentences)
 - Date
 - Speaker
 - Section of FOMC

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 - Speaker
 - Section of FOMC
- ▷ But transcripts are text...

From text → to numerical representation

- Dictionary Approach → Set of keywords categorized as **rules** or **discretion**
- For each sentence i , we construct numerical vector $c_i = \{c_i^r, c_i^d, \omega_i\}$
 - Count of Rules keywords (c_i^r)
 - Count of Discretion keywords (c_i^d)
 - Total number of words (ω_i)


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- ▷ We build the first **rules and discretion dictionaries**

Expert Reading Phase - Dictionary Building

- 20 FOMC transcripts (over 7% of sample)
- Not a random sample
 - Every other year between 1982-2014
 - First meeting of each year
 - Annual organizational meeting, and long-run goals and policy strategy discussion
- Each transcript was read, at least, by two of the authors of this paper

Expert Reading Phase - Dictionary Building

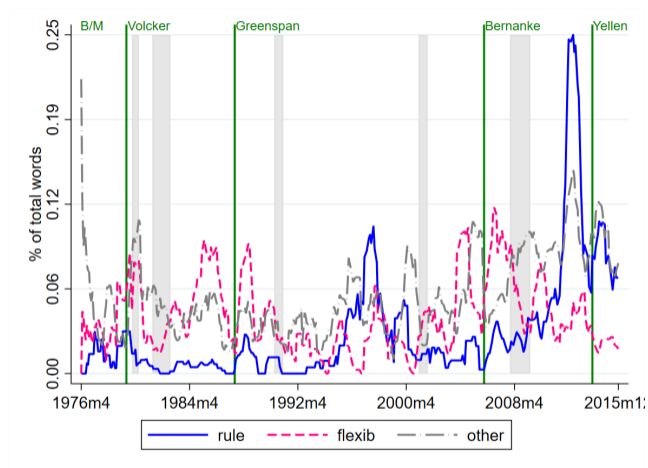
- ▶ Identify statements, and potential keywords within, that discussed rules or discretion-based policy
- **Rules:** Commitment to goals, and to clear and transparent forward-looking policies
- **Discretion:** Need for flexibility and/or adaptability
- ▶ 728 statements  [Wordcloud](#)
 - 394 statements as rules
 - 334 as discretion
 - Initial shortlist: 166 keywords

Dictionary, Algorithm and its Audit

- Algorithm: not only counts, considers negations, phrasal verbs, and economic expressions
- Small audits reduced the keyword short list to *47 terms*.
- 1st Audit *In sample*: against selected statements in Expert Reading Phase
 - Classified 33% of statements as rules or discretion
 - Of those classified by algorithm, 89% match with Expert classification
 - Prob(rules)=**0.54**, marginal effect of **0.43** with rules counts, and **-0.53** with discretionary counts
- 2nd Audit: out of sample
 - Correlations between experts and algorithm above 0.5
 - False positive rate at 14% and false negative rate at 6%
 - Of those sentences classified by the algorithm, 85% match with Expert classification
 - Prob(rules)=**0.2**, marginal effect of **0.24** with rules counts, and **-0.34** with discretionary counts
 - Prob(discretion)=**0.52**, marginal effect of **0.54** with discretionary counts, no effect of rules counts
 - Prob(neutral)=**0.16**, marginal effect of **-0.24** with rules or discretionary counts

Evolution of Rules and Discretion Language

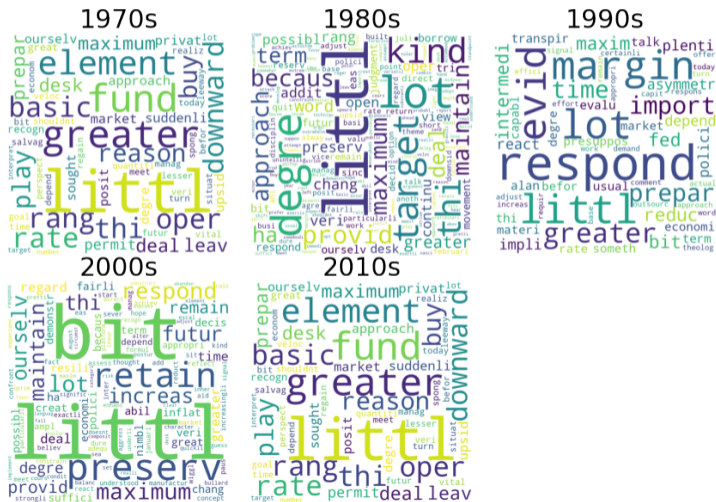
Keywords *rule* and *flexible* lead RD language



Note: Vertical lines indicate the change in Fed Chair. B/M stands for Burns and Miller as Chairs of the Federal Reserve. Gray bars indicate NBER recession periods. Time series are 8 meeting moving average of the relative counts for each keyword.

Unlike “rule”, the motives around flexibility are fairly constant over time

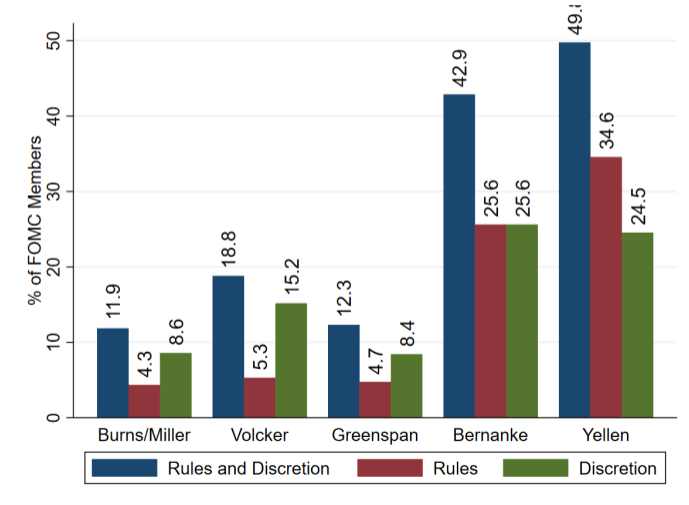
Figure: Closest Neighbor to keyword “flexible”



Who speaks the rules and discretion language?

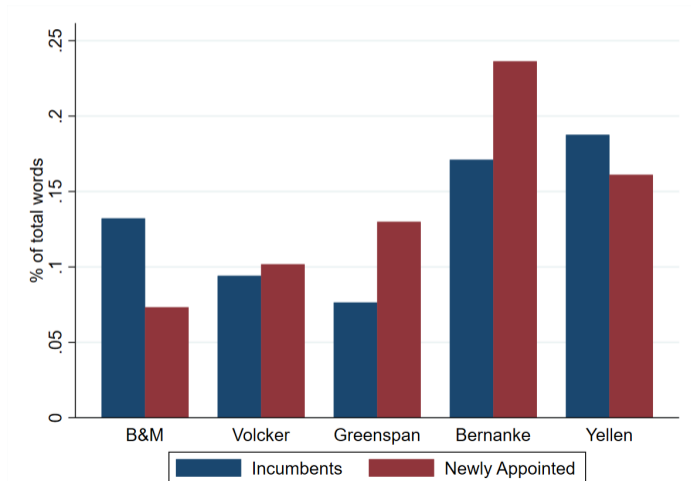
Extensive use of the language more than tripled under Bernanke

Percentage of FOMC that say at least one keyword per meeting - Average by Regime



Incumbent FOMC adopting language from newly appointed

RD_t by Incumbents and Newly Appointed - Average by Regime



Note: Newly appointed are define as FOMC members who are appointed during the respective regime.

The role of economic ideas

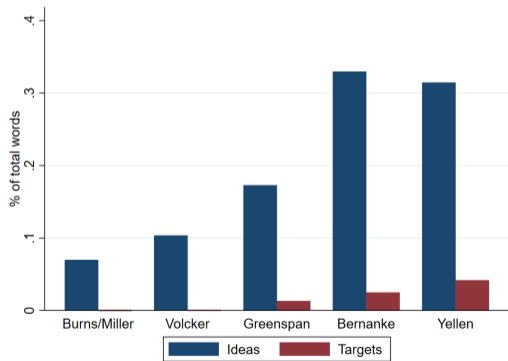
Measuring the role of the optimal monetary policy literature

- We have seen evidence of the impact that Taylor (1993) had on language
- Only two papers appear in the official timeline of the Federal Reserve History: Phillips (1958), Taylor (1993)
- The emergence of the optimal monetary policy literature occurs within our period of analysis.
- ▷ We find evidence that mentions of authors and economic concepts from this literature are positively correlated with RD_t and R_t

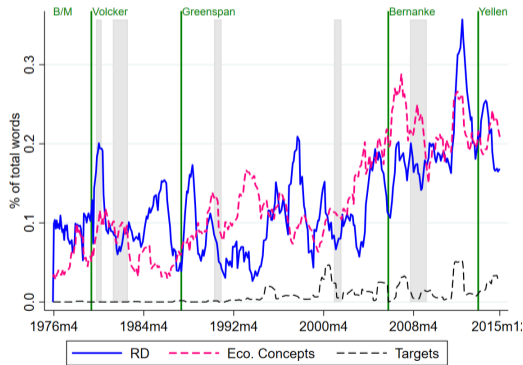
Rise of counts of Economic Concepts coincides with rise in RD_t

RD_t , $Targets_t$ and $Economic\ Concepts_t$ Indices

(a) By Groups and Chair regime - average



(b) Time Series - 8 meeting m.a.



Note: Panel a) shows the share of counts of the list of words under Ideas and under Targets as defined in main text, per each Fed chair regime. Panel b) shows the evolution of the Rules and Discretion measure (RD) and the Ideas measure. Vertical lines indicate the change in Fed Chair. B/M stands for Burns and Miller as Chairs of the Federal Reserve. Gray bars indicate NBER recession periods.

Mentions of the literature correlated **only** with rules terminology

Table: Rules and Discretion and Ideas - Correlations

Indices	RD_t	R_t	D_t
Names	0.3672	0.5357	-0.0147
	(0.00)	(0.00)	(0.79)
<i>Exc. Taylor</i>	0.1876	0.2371	0.0303
	(0.00)	(0.00)	(0.58)
Targets	0.2006	0.2870	-0.0023
	(0.00)	(0.00)	(0.96)
Eco. Concepts	0.2812	0.3451	0.0560
	(0.00)	(0.00)	(0.30)

Note: We calculate the indices for names, eco. concepts, and targets, equal the number of occurrences for each group as percentage of total words in each transcript for each FOMC meeting and estimate their pairwise correlation with RD_t , R_t , and D_t . P-values in parenthesis for the null hypothesis of a

Rules versus Discretion Index

Uncertainty and recessions favor discretion, core concepts favor rules

	Main Spec.			Core Economic Concepts		
	(1)	(2)	(3)	(4)	(5)	(6)
	RvD_{jt}	R_{jt}	D_{jt}	RvD_{jt}	R_{jt}	D_{jt}
$E\pi_{q+4 t}$	0.002 (0.007)	0.000 (0.003)	-0.002 (0.007)	-0.001 (0.007)	0.000 (0.003)	0.001 (0.006)
$y_{q t}$	-0.005 (0.003)	-0.001 (0.002)	0.004 (0.003)	-0.005 (0.003)	-0.001 (0.002)	0.003 (0.003)
$x_{q t}$	-0.002 (0.003)	-0.002 (0.001)	0.001 (0.003)	-0.002 (0.003)	-0.002 (0.001)	0.000 (0.003)
Uncertainty and Risk Index	-0.003** (0.001)	-0.000 (0.001)	0.003** (0.001)	-0.003* (0.001)	-0.000 (0.001)	0.002** (0.001)
NBER Recession (Dummy)	-0.049** (0.020)	-0.029*** (0.009)	0.020 (0.019)	-0.050** (0.020)	-0.029*** (0.009)	0.022 (0.019)
Economic Concepts Index	-0.000 (0.064)	0.045 (0.048)	0.046 (0.042)			
<i>Credibility+Commitment</i> Index				0.284** (0.128)	0.087 (0.105)	-0.197*** (0.075)
Observations	5528	5528	5528	5528	5528	5528
R-Squared	0.039	0.072	0.027	0.040	0.072	0.028

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors in parenthesis. **Regressions include fixed effects by speaker and regime.**

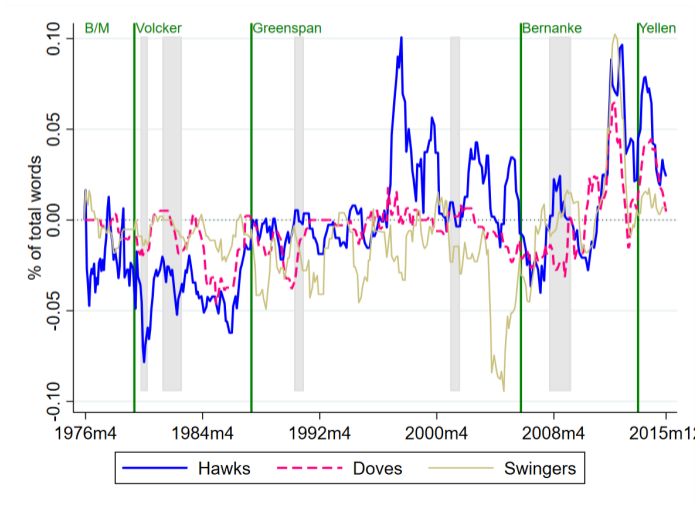
Hawks and Ph.D. lead preference for rules over discretion language

	Policy Preferences			Degree and Previous Job			Ideology by Education		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	RvD_{jt}	R_{jt}	D_{jt}	RvD_{jt}	R_{jt}	D_{jt}	RvD_{jt}	R_{jt}	D_{jt}
Hawk	0.04** (0.02)	0.03** (0.01)	-0.01 (0.01)						
Dove	-0.02 (0.03)	0.00 (0.02)	0.02 (0.03)						
Economics				-0.05 (0.03)	-0.00 (0.01)	0.05 (0.03)			
Law/Law & Econ				-0.06** (0.03)	-0.02 (0.02)	0.04* (0.02)			
Ph.D.				0.07** (0.03)	0.03** (0.02)	-0.04 (0.03)			
Academia				-0.00 (0.02)	-0.02 (0.02)	-0.02 (0.02)			
Federal Reserve				-0.01 (0.02)	-0.01 (0.01)	0.00 (0.02)			
Saltwater Ph.D.							0.07** (0.03)	0.01 (0.02)	-0.06** (0.02)
Freshwater Ph.D.							0.10*** (0.03)	0.02 (0.02)	-0.08*** (0.02)
Observations	5695	5695	5695	5704	5704	5704	3636	3636	3636
R-Squared	0.090	0.091	0.086	0.093	0.097	0.087	0.122	0.115	0.117

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Standard errors clustered by pair speaker meeting. **Regressions include fixed effects by meeting.**

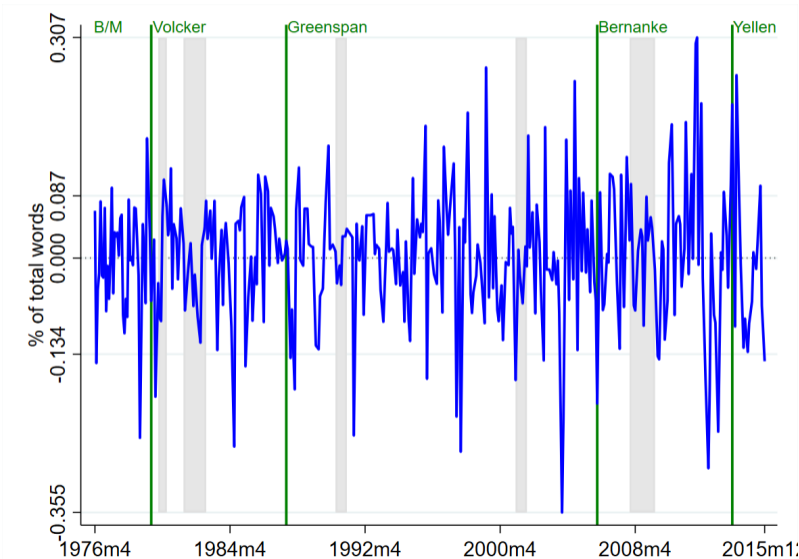
Language (technical) adopted first by hawks, later by the rest

RvD_t for hawks, Doves, and Swingers - 8 meeting m.a.



Monetary policy: Does Rules versus Discretion language matter?

Rules versus Discretion Index Detrended



Is the policy rule different in meetings with high (low) $R\tilde{v}D$ use?

$R\tilde{v}D_t$ Index

