

1 Introduction

The proceedings of the Federal Reserve’s Federal Open Market Committee (FOMC) are characterized by infrequent dissents. Under Chairman Greenspan, two factors arguably contributed to the rarity of dissents. First, Chairman Greenspan’s growing dominance likely reduced disagreement. Second, Laurence Meyer, in his account of his time as a Federal Reserve Board member describes a “musical chairs” phenomenon, as follows: there were two “dissent chairs” and, once two FOMC members had disagreed with the Chairman’s proposed policy decision, the remaining policymakers were expected not to dissent.¹ According to Meyer, because the votes are cast in alphabetical order, FOMC members whose surnames started with a letter late in the alphabet had fewer chances to dissent.²

In this paper, we study dissents in the FOMC under Chairman Greenspan and examine the role played by both of these factors. Section 2 reviews the literature on FOMC voting and Section 3 discusses the data. Section 4 demonstrates that dissents forecast future policy changes if one takes into account that disagreement became rarer over time. Thus, dissents are informative about future monetary policy and useful for financial markets. This result is robust to the inclusion of the slope of the yield curve, which reflects market participants’ expectations about future monetary policy. While this finding has been made before for other central banks, this has not previously been established in the case of the Federal Reserve.

Section 5 examines the determinants of dissents. We estimate the probability that a committee member dissents for a higher or lower rate than that proposed by the Chairman in a multinomial probit model. The probability that an FOMC member dissents appears to depend on three sets of factors. First, as already discussed, dissents became less frequent over the tenure of Chairman Greenspan. Second, institutional factors matter in that the voting order in the committee seems to discourage dissents from policymakers with surnames late in the alphabet. Moreover, Board members rarely dissent for tighter

¹There were only five occasions during Chairman Greenspan’s tenure with more than two dissents, all before the end of 1992.

²See Meyer [25], pp. 50-54 for additional information about internal meeting practices.

policy compared with Reserve Bank Presidents. Third, rising inflation seems to lead to more dissents for looser policy, which suggests that the Chairman's proposed policy in the face of rising inflation was tighter than some FOMC members thought appropriate.

In concluding, Section 6 argues that while little can be done in an institutional manner about the reputation effect of a prominent Fed Chairman, the musical chairs feature results in the withholding of important information from financial markets regarding future policy decisions. Financial market efficiency would be improved if the implicit constraint on the number of dissenting votes were removed, and we offer some suggestions for how this might be accomplished.

2 Review of the literature

There is a substantial literature on FOMC decisionmaking that is rooted in the political economy literature on the partisan theory of politics (see Hibbs [22], Alesina [1], and Alesina and Sachs [2]). Chappell, McGregor, and Vermilyea [10] provide a detailed discussion of the origins and evolution of this literature. Many of the early studies of Federal Reserve voting examined the monetary policy votes cast by Board members, Bank Presidents, or both, aiming to detect differences in voting patterns and to investigate whether background characteristics and/or political affiliations of the policymakers could be used to predict voting behavior (see, among others, Belden [3], Gildea [17], Havrilesky and Gildea [19] and [20], and Havrilesky and Schweitzer [21]). Several general findings emerge from this literature. First, Board members tend to prefer easier monetary policy than Bank Presidents. Second, Board members appointed by Republican Presidents tend to favor tighter monetary conditions than Board members appointed by Democratic Presidents. And, third, prior work experience in public service is associated with a preference for easier monetary policy.

A major problem with this early literature is that it did not control for macroeconomic conditions when estimating the determinants of voting behavior. The first to address this problem was Tootell [28], [29], and [30], who coded FOMC votes in terms of tighter, unchanged, or easier monetary policy and used them as the dependent variable in a mon-

etary policy reaction function. One problem with Tootell’s approach is that it ignores whether the vote was cast in agreement or dissent, thereby discarding potentially useful information. Addressing this problem, Chappell, Havrilesky, and McGregor [7] and Chappell and McGregor [8] estimate individual monetary policy reaction functions in order to assess the preferences of each policymaker for tightness or ease. The estimates presented in the latter study generally suggest that Board members prefer easier monetary policy than Bank Presidents, and that female policymakers seek looser monetary policy than their male counterparts.

Other papers have examined FOMC decisions for evidence that, in addition to macroeconomic conditions, regional economic information influences voting patterns. While Gildea [18] finds limited support for regional influences on the votes of Bank Presidents, Tootell [28] does not. More recently, Meade and Sheets [24] find robust evidence that the votes of all FOMC policymakers – Board members as well as Bank Presidents – respond to the difference between regional and national unemployment, voting for easier policy when that difference is positive and tighter policy when it is negative.³ Chappell, McGregor, and Vermilyea [12] confirm that regional conditions affected the votes of Bank Presidents, but find a weaker effect for Board members.

Several studies have examined the authority exerted by the Chairman on FOMC decisions (see Chappell, McGregor, and Vermilyea [9] and [11], and Meade [23]). Alan Blinder, formerly the Vice Chairman of the Federal Reserve, classifies the FOMC as an autocratically collegial committee because of the Chairman’s strong influence on policy decisions (Blinder [4]). He sees the Governing Council of the European Central Bank as a genuinely collegial committee, since the ECB’s President exerts less influence and decisions are taken on the principle of group accountability, and the Monetary Policy Committee (MPC) of the Bank of England as an individualistic committee. For the latter, Blinder argues that consensus is not an objective in taking policy decisions, due to the individual accountability of the committee members. By contrast, “the [C]hairman more or less dictates the consensus” in the FOMC (Blinder [5], p. 176). Comparing the MPC and the

³The law requires that each Board member be affiliated with a Federal Reserve district (usually through current or prior residence). No more than one Board member may be appointed to represent a single region.

FOMC, the Economist [14] points out that in the former committee, the Governor can be on the losing side of a vote without having his reputation damaged, whereas in the FOMC, the Chairman would be expected to resign (see also Meyer [25]).

To date, however, the literature on FOMC decisionmaking has not examined the musical chairs feature of voting noted by Meyer [25].⁴ For musical chairs to be present, there must be a notional constraint on the total number of dissents which then implies that the order of voting matters. Ours is the first study to address this question, as existing studies of the FOMC (or of the voting behavior of other monetary policy committees) do not account for possible effects of the voting order.

3 Data

We consider the voting record of the FOMC under Chairman Greenspan. There were 152 policy decisions between August 1987 and January 2006 (taken in 149 regularly-scheduled meetings and 3 conference calls), and the results of the vote on the interest rate are available on the website of the Federal Reserve. Over the sample period, there were 47 voters other than the Chairman. We record for each policymaker whether he is a Reserve Bank President or a Federal Reserve Board member. For each policymaker, we construct a dissent series $d_{j,t}$ that takes the value of unity if that policymaker deviates from the Chairman's proposed interest rate level in favor of tighter policy, a value of minus one if he dissents for looser policy, and a value of zero if he votes with the Chairman.

During Chairman Greenspan's tenure, each FOMC meeting consisted of two "rounds" of discussion followed by a formal vote on the policy proposal. In the first round of discussion, the Federal Reserve staff presented its forecast, policymakers provided their views of the current economic situation, and Greenspan typically did not speak except to ask questions. In the second round of discussion, Chairman Greenspan spoke first after the staff provided a summary of policy alternatives, often giving an extensive analysis and concluding with a concrete policy recommendation.⁵ Then, each policymaker provided his

⁴Chappell, McGregor, and Vermilyea [11] do account for speaking order in assessing the influence of Arthur Burns on FOMC decisions. Unlike Chairman Greenspan, Chairman Burns did not always speak first when the FOMC debated the appropriate setting for monetary policy.

⁵The only exception to this was Greenspan's first FOMC meeting in August 1987 when he spoke after

or her view. In both rounds of the discussion, Greenspan selected individuals to speak but there was no fixed speaking order. At the end of the second round of discussion, Greenspan made a formal policy proposal, typically in terms of the Federal funds rate.⁶ Next, the President of the Federal Reserve Bank of New York, who is also the Vice Chairman of the FOMC, indicated whether he supported this action (he always did); finally, the remaining FOMC members voted in alphabetical order. We compute for each policymaker j at each meeting t a variable $n_{j,t}$ that records his turn in the voting round and a variable $before_{j,t}$ that captures how many dissents had already been cast before him. Since the Chairman and the Vice Chairman never dissented, we do not include them in the analysis.

Figure 1 plots over time the total number of dissents per meeting and the balance of dissents (D_t), which counts two dissents that are in opposite directions as cancelling each other. Thus, $D_t = \sum_j^{N_t} d_{j,t}$ with N_t the number of participants in the FOMC meeting at time t , which varied between ten and twelve. It is clear from Figure 1 that the frequency of dissents declined over the sample and that dissents tended to be in favor of tighter policy.⁷ It is also striking that dissents in the FOMC were low in comparison to other monetary policy committees. For the Monetary Policy Committee (MPC) of the Bank of England, for example, roughly two out of three meetings end with at least one dissent; frequently two or three, and occasionally even four, out of the nine members dissent. Meade [23] shows that disagreements in internal FOMC discussions were about double the number of official dissents cast and are comparable to dissents on the MPC.

Table 1 shows total dissents cast over the Greenspan period along with the voting order of each dissenter. Voters 3, 6, 7, and 10 dissented most frequently. The last line in the table lists in how many meetings the n th vote was cast. It can be seen that in roughly a third of all meetings, there were only ten FOMC members voting, and in another third,

the other policymakers.

⁶When Greenspan arrived at the Fed in 1987, the FOMC debated policy in terms of both reserves and the Federal funds rate. Over time, policymakers began to focus exclusively on the funds rate even though the information released to the public was in terms of reserves. In 1994, the FOMC began to notify the public immediately when a change to policy was taken, but it was not until August 1997 that it began to make public its target for the Federal funds rate. See Thornton [27] for a discussion of reserves and funds rate targeting.

⁷While we attribute this to Chairman Greenspan's growing dominance, there are alternative explanations. For instance, policymakers may have become more homogenous, the economy less volatile or the models underlying the policy decisions better.

there were eleven. It should be noted that correcting for the frequency with which the eleventh and twelfth vote was cast leaves a less clear picture of a declining probability for dissents as a function of voting order.

Table 1: Pattern of dissents

Voting order	1	2	3	4	5	6	7	8	9	10	11	12
Number of dissents	0	0	12	6	7	12	11	6	7	10	8	3
Total votes cast (of 152 votes taken)	152	151	152	152	152	152	152	152	152	152	103	58

Note: The data sample runs from August 1987 through January 2006. Voters 1 and 2 are Chairman Greenspan and the President of the Federal Reserve Bank of New York, respectively.

To capture the musical chairs phenomenon described by former Fed official Laurence Meyer, we construct the interaction term $bn_{j,t} = before_{j,t} * n_{j,t}$. If there have been no dissents prior to policymaker j 's turn in the voting round, this variable is zero, reflecting that the musical chairs constraint is not binding. If, however, there already has been one dissent, policymaker j hesitates to dissent as well. In this situation, $bn_{j,t} = n_{j,t}$, and we expect to see a negative impact of $bn_{j,t}$ on policymaker j 's probability of dissenting. Note that since $bn_{j,t}$ increases in $n_{j,t}$, we capture the fact that the chances of getting the second musical chair decrease with a policymaker's turn in the voting round (assuming, however, that this matters only if there already have been dissents cast). If there have been no dissents as yet, policymaker j is thus likelier to disagree with the Chairman.

In those FOMC meetings with two dissents, of which there are fifteen in the sample, $bn_{j,t} = n_{j,t}$ for those policymakers after the first dissenter in the voting round and $bn_{j,t} = 2n_{j,t}$ for those after the second dissenter. This approach reflects our hypothesis that the probability of dissenting is smaller if there have already been two dissents rather than just one. On the five occasions when there were three or four dissents, $bn_{j,t}$ is constructed accordingly.

We assume that dissents depend on macroeconomic variables and the institutional setting, and therefore consider as additional explanatory variables inflation, unemployment,

and the ten-year government bond yield in the month of each FOMC meeting.⁸ These data are taken from the FRED database maintained by the Federal Reserve Bank of St. Louis.

4 The information content of FOMC dissents

We begin our analysis by assessing whether dissents in the FOMC are informative for future interest rate changes. This finding has been made in data on the Bank of England’s MPC (Gerlach-Kristen [16]), but has to our knowledge not been documented for the FOMC. In the context of central bank transparency, the finding that dissents help to forecast future policy implies that their publication is desirable (on transparency, see Geraats [15]).⁹

We regress the change in the Federal funds rate target set from one FOMC meeting to the next on its first own two lags (further lags were insignificant) and on the balance of dissents D_t ,

$$\Delta i_{t+1} = a_0 + a_1 \Delta i_t + a_2 \Delta i_{t-1} + a_3 D_t + e_{t+1}, \quad (1)$$

for the 152 meetings under Chairman Greenspan.¹⁰ Table 2 shows that in an OLS regression, the current and past policy rate changes help to predict future changes, but that the dissents appear to contain no information.¹¹ However, since Figure 1 indicates that dissents became less frequent over the tenure of Chairman Greenspan, it seems advisable to take this feature into account. To do this, we re-estimate equation (1), but replace D_t with $D_t * meeting_t$, where $meeting_t$ runs from 1 to 152.¹² Thus, we attach more weight to

⁸In preliminary regressions, we also considered GDP growth, the Federal funds rate, and regional unemployment, but the estimation results were not improved by the inclusion of these variables.

⁹Morris and Shin [26], however, argue that the central bank may provide too much information and thereby increase market volatility. For the UK, Chadha and Nolan [6] find no evidence of raised interest rate volatility in response to the initial publication of the Bank of England voting records.

¹⁰Until December 2004, the voting record was published only after the next meeting had already taken place (see Danker and Luecke [13]). Since we are interested in whether the balance of dissents forecasts the policy decision at the next meeting (and not whether markets responded to the publication of the voting record), we do not take the publication date into account in the estimation.

¹¹If equation (1) is estimated using ordered probit instead of ordinary least squares, D_t remains insignificant. If the first 19 observations of the sample are excluded (on the grounds that until October 1989, the Federal funds rate target was not changed in increments of 25 basis points), the p-value of D_t in equation (1) falls to 0.13.

¹²We first re-estimated equation (1) with both D_t and $D_t * meeting_t$, but the former variable is highly

dissents late in the sample, thereby correcting for their relative rarity. In this setup, the balance of dissents is significant at the five percent level with a positive sign, suggesting that a tendency in the committee to dissent from the Chairman in favor of higher or lower rates signals a likely future policy shift in that direction. The last column in Table 2 includes the variable $slope_t$, defined as the difference between the ten-year government bond yield and the Federal funds rate, which captures market participants' expectations about future monetary policy. We find that $D_t * meeting_t$ remains significant, indicating that dissents contain information about future monetary policy beyond the expectations already embedded in the yield curve.

Table 2: The information content of dissents

<i>constant</i>	-0.008 (0.021)	-0.011 (0.020)	-0.063* (0.034)
Δi_t	0.322*** (0.090)	0.328*** (0.090)	0.304*** (0.090)
Δi_{t-1}	0.348*** (0.085)	0.354*** (0.085)	0.375*** (0.082)
D_t	0.031 (0.033)		
$D_t * meeting_t$		0.001** (0.000)	0.001* (0.000)
$slope_t$			0.036** (0.016)
adjusted R^2	0.311	0.336	0.364

Note: 152 observations. Least squares estimates with White standard errors in parentheses. */**/** denotes probability at the 10/5/1 percent level.

Thus, it appears that in the United States, as in the United Kingdom, dissents in the monetary policy committee are informative about future policy changes. However, for the FOMC, it is more difficult to extract this information from the data due to the increasingly dominant role of the Chairman. We next assess the determinants of individual dissents.

insignificant.

5 The determinants of dissents

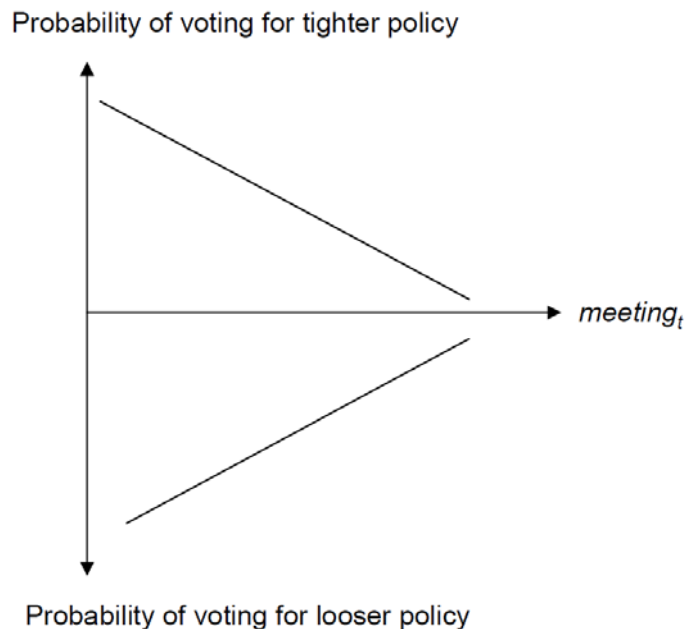
As documented above, the probability of dissenting appears to depend on a time trend reflecting the Chairman's time in office; we capture this trend with the variable $meeting_t$, which runs from 1 to 152. Because the literature on FOMC voting commonly finds that Reserve Bank Presidents tend to favor tighter policy than Federal Reserve Board members, we include a $board_{j,t}$ dummy variable for each policymaker j that takes the value of unity for Board members and zero for Bank Presidents. Next, we consider the variable $before_{j,t}$ discussed in Section 3. Due to missing variables that influence the voting behavior of all policymakers, we expect this variable to have a positive impact on policymaker j 's probability of dissenting, because at meetings when the economic situation has made other FOMC members dissent, a policymaker is more likely than normal to disagree with the Chairman as well. Once this effect has been isolated in the data, we expect to find an impact of the musical chairs phenomenon in that policymaker j is less likely to dissent if there already has been a dissent cast and if he is late in the voting round. We test this hypothesis by including the variable $bn_{j,t}$. Finally, we consider the changes in inflation, in unemployment, and in the ten-year government bond yield to capture the impact of macroeconomic variables on the voting pattern.¹³

We estimate the determinants of dissents in a multinomial probit. The reason for choosing a probit is that the decision facing an FOMC voter [vote for looser policy than the Chairman; agree with the Chairman; vote for tighter policy] is of a discrete nature. While at first glance, it may appear that these choices should be coded as an ordinal variable [-1; 0; 1] and to estimate an ordered probit, as is standard in the literature, this is in fact not appropriate. The reason for this is that the probability of dissenting for higher or lower interest rates seems to have fallen over time. Thus, $meeting_t$ is expected to have a negative impact on both the probability of policymaker j voting for tightening as well as of his voting for easing. Figure 2 illustrates this point. An ordered probit would fit one straight line to capture the impact of $meeting_t$ on the choices [-1; 0; 1] and thus would fail to capture the two separate relations in Figure 2.¹⁴

¹³We also included in preliminary regressions the levels and lagged changes of these variables, but they were insignificant.

¹⁴Note that an ordered probit would be appropriate if policymakers' response to other variables, such

Figure 2: Impact of meeting number on probability of dissents



Thus, we estimate the model as a multinomial probit, treating the choices

$$v_{j,t} = \begin{cases} loosen_{j,t} \\ agree_{j,t} \\ tighten_{j,t} \end{cases}$$

as three categorical (rather than ordinal) variables. We choose $agree_{j,t}$ as the baseline outcome and estimate two separate equations for the remaining choices, which are modelled as depending on the underlying unobserved latent variables, $loosen_{j,t}^*$ and $tighten_{j,t}^*$, as follows:

$$\begin{aligned} loosen_{j,t}^* = & b_0 + b_1 meeting_t + b_2 board_{j,t} + b_3 before_{j,t} + b_4 bn_{j,t} \\ & + b_5 \Delta \pi_t + b_6 \Delta u_t + b_7 \Delta i_t^{10y} + \varepsilon_{j,t} \end{aligned}$$

as the change in inflation, declined over time. In that case, we could divide that variable by the meeting number and should find a significant impact. However, preliminary regressions did not support this hypothesis.

and

$$\begin{aligned} \text{tighten}_{j,t}^* = & c_0 + c_1 \text{meeting}_t + c_2 \text{board}_{j,t} + c_3 \text{before}_{j,t} + c_4 \text{bn}_{j,t} \\ & + c_5 \Delta \pi_t + c_6 \Delta u_t + c_7 \Delta i_t^{10y} + \epsilon_{j,t} \end{aligned}$$

Choosing the multinomial model allows variables such as *meeting*_{*t*} to affect the probabilities of dissenting for loosening and tightening with the same sign. At the same time, for instance, if policymaker *j* responds more to inflation than the Chairman, thus dissenting for looser policy if inflation falls below equilibrium and for tighter policy if it rises above equilibrium, this linear relationship also can be captured. Since the probability of dissenting for looser policy increases as inflation falls, thus yielding a negative coefficient estimate, and since the probability of dissenting for tighter policy increases as inflation rises, thus giving a positive coefficient estimate, restricting the coefficients on inflation in the two regressions for loosening and tightening dissents to be the same but of opposite signs implies a linear relationship between [loosen; agree; tighten] on the one hand and the change of inflation on the other. By imposing restrictions as these, we include in the multinomial model the linear aspects captured by an ordered probit.

Model (1) in Table 3 displays the output for our baseline multinomial probit. We find that policymakers dissented more often at the beginning of Chairman Greenspan's tenure since the *meeting* variable is systematically negative and significant. Board members tended to dissent less frequently for tighter policy than Bank Presidents, as evidenced by the significant negative coefficient estimate in the tightening regression. If there were earlier dissents in the voting round – reflecting uncertainty about the appropriate level of interest rates – an FOMC member's probability of dissenting in favor of tighter policy increases, as indicated by the positive and significant coefficient estimate on *before* in the tightening regression. By contrast, the coefficient on *bn* is negative and significant. Thus, if there already had been a dissent cast, an FOMC member was apparently likelier to be the second to vote for higher interest rates if his turn in the voting round was comparatively early. A member late in the alphabet seems to have been unlikely to be the second dissenter on the committee. This reflects the fact that the chances of getting the second musical chair decrease with the turn in the voting round. Finally, the probability of dissenting for looser policy tended to be high if inflation was increasing, while there is

no significant impact of unemployment or bond yield changes.

One striking feature of this estimation output is that the model seems to fit better for the tightening than the loosening alternative. However, this is not surprising considering that Figure 1 showed that most dissents were in favor of tightening. We thus face a small sample problem for the loosening alternative.

Table 3: Regression output

	Model (1)		Model (2)		Model (3)	
	loosen	tighten	loosen	tighten	loosen	tighten
<i>constant</i>	-2.339*** (0.242)	-1.459*** (0.161)	-2.319*** (0.235)	-1.456*** (0.162)	-2.549*** (0.190)	-1.601*** (0.170)
<i>meeting</i>	-0.010*** (0.003)	-0.011*** (0.002)	-0.010*** (0.003)	-0.011*** (0.002)	-0.010*** (0.002)	
<i>board</i>	0.106 (0.224)	-0.741*** (0.187)	0.116 (0.225)	-0.750*** (0.188)	0.499*** (0.140)	-0.499*** (0.140)
<i>before</i>	0.115 (0.498)	0.924*** (0.336)	0.079 (0.499)	0.941*** (0.335)	0.610** (0.309)	
<i>bn</i>	0.010 (0.060)	-0.121*** (0.042)	0.014 (0.061)	-0.122*** (0.042)	-0.065* (0.039)	
$\Delta\pi_t$	0.605* (0.317)	0.183 (0.226)	0.548* (0.298)	0.237 (0.224)	0.521* (0.298)	-
Δu_t	-0.582 (0.705)	-0.487 (0.666)				
Δl_t^{10y}	-0.315 (0.311)	0.271 (0.254)				
log likelihood	-329.367		-330.916		-334.749	

Note: 1381 observations. Robust standard errors in parentheses. */**/** denotes probability at the 10/5/1 percent level.

To improve the fit, we first drop the insignificant unemployment and bond yield variables and estimate Model (2). The p-value of a Wald test imposing these restrictions is 0.352, which suggests that no important information is lost compared with Model (1). Next, in Model (3), we impose equality for a number of coefficients in the loosening and

the tightening alternatives. In particular, we set $b_1 = c_1$, $b_3 = c_3$ and $b_4 = c_4$, thus assuming that the probabilities to dissent in favor of either looser or tighter policy decreased equally much over the tenure of Chairman Greenspan, that whether there had been an earlier dissent was equally important for the two alternatives, and that the musical chairs phenomenon mattered equally much. For *board*, we enforce $b_2 = -c_2$, thus capturing the finding in the literature that Board members tended to dissent more frequently for looser, but less frequently for tighter policy, than Bank Presidents. This linearity restriction makes Model (3) share an important aspect of the ordered probit models commonly used in the literature. Finally, we also drop the insignificant change in inflation in the tightening regression. In Model (3), all variables are significant, and the restrictions imposed are not rejected in Wald tests comparing this model with Models (1) and (2) (p-values of 0.292 and 0.176, respectively).

In sum, these regressions suggest that dissents both for looser and tighter policy have become rarer over the tenure of Chairman Greenspan. Board members tended to dissent for lower interest rates, and there also appear to have been more dissents for looser policy if inflation increased. This suggests that Chairman Greenspan’s proposed degree of policy tightening in face of rising inflation was judged excessive by some FOMC members. Dissents tended to cluster in the sense that if there had been one dissent cast in the voting round already, this increased the likelihood of further dissents. That being said, policymakers late in the voting round seem to have dissented less often if there already were one or several dissents. This finding supports Meyer’s anecdotal evidence of the musical chairs phenomenon.

6 Conclusions

In this paper, we have provided evidence that during the tenure of Chairman Greenspan, FOMC policymakers apparently took into account the total number of dissents already made when casting their votes. Thus, the higher the total number of dissents, the less likely was a policymaker to dissent, and the order of voting therefore is important. In addition, the particular period we examined was characterized by a declining number

of dissents, perhaps due to a growing unwillingness of FOMC members to publicly disagree with Chairman Greenspan. Finally, we demonstrate that FOMC dissents provide important information about future changes in the Federal funds rate.

The implicit limit on dissents and their reduced frequency over time hinders the communication of potentially useful information to financial markets and results in inefficiency. The effective constraint on dissenting votes is not an institutional or legal feature of the Federal Reserve, but rather a custom that emanates from the desire to appear consensual. Such cultural norms do not constrain the behavior of the Bank of England's MPC, where dissent voting is high and policymakers are held individually accountable for their policy choices. Were the FOMC to become a more individualistic rather than an autocratically-collegial committee, transparency of the policy process would be improved and market efficiency would be enhanced. How to effect this change is not entirely clear, as it would require support both within the FOMC itself as well as from political authorities. It has been noted in the press that Chairman Bernanke attempts to be less dominant than his predecessor. As the US Congress weighs changes to the Federal Reserve Act, it should consider means to formally facilitate individual accountability in the FOMC.

References

- [1] Alesina, Alberto F. (1987), Macroeconomic Policy in a Two-Party System as a Repeated Game, *Quarterly Journal of Economics* 102(3), 651-678.
- [2] Alesina, Alberto F. and Jeffrey D. Sachs (1988), Political Parties and the Business Cycle in the United States, 1948-1984, *Journal of Money, Credit, and Banking* 20(1), 63-82.
- [3] Belden, Susan (1989), Policy Preferences of FOMC Members as Revealed by Dissenting Votes, *Journal of Money, Credit, and Banking* 21(4), 432-441.
- [4] Blinder, Alan S. (2007), Monetary Policy by Committee: Why and How? *European Journal of Political Economy* 23, 106-123.
- [5] Blinder, Alan S. (2009), Making Monetary Policy by Committee, *International Finance* 12(2), 171-194.
- [6] Chadha, Jagjit and Charles Nolan (2001), Inflation targeting, transparency and interest rate volatility: Ditching "monetary mystique" in the UK, *Journal of Macroeconomics* 23 (3), 349-366.
- [7] Chappell, Henry W. Jr, Thomas M. Havrilesky, and Rob Roy McGregor (1997), Monetary Policy Preferences of Individual FOMC Members: A Content Analysis of the Memoranda of Discussion, *Review of Economics and Statistics* 79(3), 454-460.
- [8] Chappell, Henry W. and Rob R. McGregor (2000), A Long History of FOMC Voting Behavior, *Southern Economic Journal* 66(4), 906-922.
- [9] Chappell, Henry W. Jr, Rob Roy McGregor, and Todd A. Vermilyea (2004), Majority Rule, Consensus Building, and the Power of the Chairman: Arthur Burns and the FOMC, *Journal of Money, Credit, and Banking* 36(3), 407-422.
- [10] Chappell, Henry W. Jr, Rob Roy McGregor, and Todd A. Vermilyea (2005), *Committee Decisions on Monetary Policy*, Cambridge: MIT Press.

- [11] Chappell, Henry W. Jr, Rob Roy McGregor, and Todd A. Vermilyea (2007), The Persuasive Power of a Committee Chairman: Arthur Burns and the FOMC, *Public Choice* 132, 103-112.
- [12] Chappell, Henry W. Jr, Rob Roy McGregor, and Todd A. Vermilyea (2008), Regional Economic Conditions and Monetary Policy, *European Journal of Political Economy* 24, 283-293.
- [13] Danker, Deborah J. and Matthew M. Luecke (2005), Background on FOMC Meeting Minutes, *Federal Reserve Bulletin* Spring, 175-179.
- [14] *The Economist* (2007), Why the British Are Good Losers, June 25.
- [15] Geraats, Petra (2002), Central Bank Transparency, *Economic Journal* 112, F532-F565.
- [16] Gerlach-Kristen, Petra (2004), Is the MPC's Voting Record Informative about Future UK Monetary Policy? *Scandinavian Journal of Economics* 106(3), 299-313.
- [17] Gildea, John A. (1990), Explaining FOMC Members' Votes, in *The Political Economy of American Monetary Policy*, Thomas Mayer, ed., 211-228, New York: Cambridge University Press.
- [18] Gildea, John A. (1992), The Regional Representation of Federal Reserve Bank Presidents, *Journal of Money, Credit, and Banking* 24(2), 215-225.
- [19] Havrilesky, Thomas M. and John A. Gildea (1991), The Policy Preferences of FOMC Members as Revealed by Dissenting Votes: Comment, *Journal of Money, Credit, and Banking* 23(1), 130-138.
- [20] Havrilesky, Thomas M. and John A. Gildea (1995), The Biases of Federal Reserve Bank Presidents, *Economic Inquiry* XXXIII(2), 274-284.
- [21] Havrilesky, Thomas M. and Robert L. Schweitzer (1990), A Theory of FOMC Dissent Voting with Evidence from the Time Series, in *The Political Economy of American*

- Monetary Policy*, Thomas Mayer, ed., 197-210, New York: Cambridge University Press.
- [22] Hibbs, Douglas A. (1977), *The American Political Economy: Electoral Policy and Macroeconomics in Contemporary America*, Boston: Harvard University Press.
- [23] Meade, Ellen E. (2005), The FOMC: Preferences, Voting, and Consensus, *Federal Reserve Bank of St. Louis Review* 87(2), 93-101.
- [24] Meade, Ellen E. and D. Nathan Sheets (2005), Regional Influences on FOMC Voting Patterns, *Journal of Money, Credit, and Banking* 37(4), 661-677.
- [25] Meyer, Laurence H. (2004), *A Term at the Fed*, New York: Harper Business.
- [26] Shin, Hyun Song and Stephen Morris (2007), Optimal Communication, *Journal of the European Economic Association* 5, 594-602.
- [27] Thornton, Daniel L. (2006), When Did the FOMC Begin Targeting the Funds Rate? What the Verbatim Transcripts Tell Us, *Journal of Money, Credit, and Banking* 38(8), 2039-2071.
- [28] Tootell, Geoffrey M. B. (1991), Regional Economic Conditions and the FOMC Votes of District Presidents, *New England Economic Review*, 3-16.
- [29] Tootell, Geoffrey M. B. (1991), Are District Presidents More Conservative than Board Governors? *New England Economic Review*, 3-12.
- [30] Tootell, Geoffrey M.B. (1999), Whose Monetary Policy Is It Anyway? *Journal of Monetary Economics* 43(1), 217-235.