Regional Banking Instability and FOMC Voting

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Abstract:

This study analyzes if regionally affiliated Federal Open Market Committee (FOMC) members take their districts' regional banking sector instability into account when they vote. Considering the period 1978–2010, we find that a deterioration in a district's bank health increases the probability that this district's representative in the FOMC votes to ease interest rates. According to member-specific characteristics, the effect of regional banking sector instability on FOMC voting behavior is most pronounced for Bank presidents (as opposed to Governors) and FOMC members who have career backgrounds in the financial industry or who represent a district with a large banking sector.

Keywords: FOMC voting; Regional banking sector instability; Lobbying

JEL classification: E43; E52; E58; G21

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Introduction

Members of the Federal Open Market Committee (FOMC) may have incentives to respond to the level of financial stress in the Federal Reserve district they represent. In the past three decades, major episodes of bank distress have been associated with significant increases in the dispersion of regional banking sector instability among Federal Reserve districts. Therefore, we analyze whether regionally affiliated FOMC members account for their districts' regional banking sector instability when they cast their votes. Whereas previous studies address the central bank level, we analyze the impact of regional banking sector instability on the voting records of each individual central banker and use member-specific characteristics to identify channels through which banking sector instability affects monetary policy preferences.

Matching call report data on U.S. banks and FOMC voting records taken from the FOMC minutes over the years 1978–2010, we find that when a district's bank health suffers, the probability that this district's representative casts votes in the FOMC to ease interest rates increases. The effect of regional banking sector instability on FOMC voting behavior is most pronounced for Reserve Bank presidents (as opposed to Governors), FOMC members whose career backgrounds involve the financial industry, and members who represent a district marked by a large banking sector. Thus, it appears that regional banks lobby for their interests in the FOMC, using the district's representative as their voice.

The relevance of financial instability to monetary policy has been hotly debated. The traditional view suggests central banks should focus on inflation and the output gap, and they should consider asset prices or financial stability only to the extent that they feed into inflation or output (Bernanke and Gertler, 1999, 2001; Posen, 2006; Bean et al., 2010; Svensson, 2012). This view builds on the assumption that monetary policy and macroprudential regulation are distinct, so their separate goals can be best achieved by each policy actor using its policy tools separately. The

global financial crisis challenged this rather narrow view of monetary policy though, such that some authors began to propose that financial stability should be a distinct, stand-alone monetary policy goal in the central bank's objective function. This view has been justified by the poor performance of macroprudential policy tools during recent crises, as well as the recognition that financial cycles interact in complex, nonlinear ways with output and inflation (Borio and Lowe, 2002; White, 2009; Mishkin, 2011; Lagarde 2014). In addition, theoretical models posit that in the presence of financial frictions in financial intermediation process, a monetary policy rule can achieve greater efficiency by adding financial stability as a separate monetary policy objective (Goodfriend and McCallum, 2007; Cúrdia and Woodford, 2010; Woodford, 2010, 2012; Teranishi, 2012). In their "I Theory of Money" Brunnermeier and Sannikov (2013) propose that financial stability and price stability are inseparable, suggesting that central must monitor both policy objectives.

These two opposing views thus offer conflicting recommendations about whether central banks should target financial stability; another branch of empirical research analyzes whether central banks actually respond to financial instability. Following the disruptions to the U.S. money market in 2007, Taylor (2008) proposed adjusting the baseline Taylor Rule to account for widening money market interest rate spreads. Mishkin (2008) also points out that the FOMC's aggressive interest rate cuts in 2008–2009 were not based solely on incoming data about the inflation and output gap but also reflected deteriorating financial market conditions.[1] Official representatives of the Federal Reserve have stated recently that even though financial stability typically is not considered an official monetary policy goal, it has been discussed frequently as an important determinant of interest rate decisions (McCulley and Toloui, 2008; Yellen, 2014; Stein, 2014).

[1] Mishkin (2007, pp. 53-54) emphasizes that several interest rate cuts in the past have sought to address financial market turmoil, such as the interest rate cuts during the 1987 stock market crash and the LTCM crisis in 1998.

Considering these official statements and theoretical support, an empirical question remains about whether monetary policymakers actually consider financial stability in their monetary policy reaction function. To address this issue, we study whether individual voting members of the FOMC take the level of their own district's banking sector instability into account when voting on the policy rate in the FOMC. We are not aware of any prior study that tackles this issue at the individual *central banker* level, though several empirical papers analyze the *central bank* level. For example, Alcidi et al. (2011) and Gnabo and Moccero (2015) find, in a Taylor Rule setting, that the Federal Reserve responds more aggressively to inflation and output during times marked by higher financial and economic stress. Some studies include financial instability measures directly into a Taylor Rule and thus reveal significant influences on the policy interest rate setting of the Federal Reserve (Cecchetti and Li, 2008), the Bank of England (Martin and Milas, 2013), and the European Central Bank (Castro, 2011; Eichler and Hielscher, 2012). Baxa et al. (2013) also find significant effects of financial instability on interest rates set in Australia, Canada, Sweden, the United Kingdom, and the United States.

For our test of the relevance of financial stability as a monetary policy objective for the individual monetary policymaker, we study whether or not regionally affiliated FOMC members take the extent of banking sector instability in their own Federal Reserve district into account when voting on interest rates in the FOMC. Each voting member in the FOMC represents one of the 12 Federal Reserve districts. Prior literature on bank instability has been concerned primarily with determinants of bank risk (e.g., Wheelock and Wilson, 2000; Cole and White, 2012) or links with banking competition or the regional deregulation of banking markets (Keeley, 1990; Kroszner and Strahan, 1999; Goetz, 2012), yet discussions of regional differences or interactions with policy decisions are scarce. A large body of literature reveals persistent differences in the voting behavior of the representatives of different Federal Reserve districts in the FOMC (e.g., Gildea, 1992;

Havrilesky and Schweitzer, 1990; Havrilesky and Gildea, 1991; Chappell et al., 1993, 1995, 1997; Chappell and McGregor, 2000; Chappell et al., 2005, 2007; Banternghansa and McCracken, 2009; Riboni and Ruge-Murcia, 2014; Eichler and Lähner, 2014a; El-Shagi and Jung, 2015), citing factors such as regional disparities in unemployment rates and housing prices (e.g., Belden, 1989; Gildea, 1990; Meade and Sheets, 2005; Chappell et al., 2008; Meade, 2010; Hayo and Neuenkirch, 2013; Eichler and Lähner, 2014b). The relevance of regional banks to the performance of regional economies and regional disparities in bank stability levels in turn makes it seem reasonable to expect that regional banking sector instability affects the voting behavior of regionally affiliated FOMC members.

A traditional Taylor Rule would not include regional banking sector stability as a monetary policy objective, but for at least two reasons, regionally affiliated FOMC members may consider the level of regional banking instability when casting their votes to set the interest rate in the FOMC. First, the failures of regional banks likely have significant negative effects on a Federal Reserve district's economy. To stabilize the district's economy, FOMC representatives thus might augment their regional monetary policy rule with a regional banking sector instability measure. Second, FOMC members likely consider their reelection probability. Regional Bank presidents are elected and can be reelected by the Board of Directors of their regional Federal Reserve Bank. The three Class A directors (of a total of nine directors) of each district's Federal Reserve Bank board are recruited from that district's banking industry. These representatives of regional banks in turn may use their electoral power to lobby for the stability of the regional banking industry, which may influence the Bank president's voting behavior in the FOMC.

For this study, we use the Federal Reserve Bank of Chicago's call report data, which provide balance sheet and profit and loss data for U.S. banks, then merge them for each district with the voting records of FOMC members over the period 1978 to 2010. Using fixed-effect,

ordered probit models, we find robust evidence that FOMC members target their district's banking sector instability when they vote on the policy interest rate in the FOMC, such that higher levels of banking sector instability in the FOMC member's Federal Reserve district (indicated by lower z-scores) are associated with a higher probability of voting for lower interest rates and a lower probability of voting for higher interest rates. This result is robust to using alternative banking sector instability measures (e.g., non-performing loans, loan loss provisions, bank failures) and alternative model specifications. Our results suggest that a one standard deviation reduction in the regional banking sector z-score is associated with an increase of 1.5 percentage points in the probability of a vote for lower interest rates by the district's representative in the FOMC. Compared with traditional monetary policy goals, the standardized impact of regional banking sector instability on FOMC voting is approximately one-third the size of national inflation and one-fifth as substantial as the national output gap.

Interaction models reveal which channels transfer the impact of regional banking sector instability to FOMC members' voting preferences. In particular, FOMC voting behavior depends more on regional banking sector instability when the FOMC member has a career background in the financial industry or represents a Federal Reserve district with a larger banking sector. Thus, considerations of regional banking sector stability might result from lobbying or the relevance of the banking sector for the regional economy. Moreover, we find that Bank presidents respond significantly more strongly to regional banking sector instability than do Governors, in line with previous studies that confirm a larger regional bias of Bank presidents relative to Governors. Other interaction models suggest that members with more experience in the FOMC and Democratic appointees exhibit more pronounced awareness of regional banking sector instability.

These results are relevant for several reasons. First, we find robust evidence that individual monetary policymakers target financial instability, in line with theoretical recommendations to

augment monetary policy rules with financial sector instability measures. Existing studies confirm the relevance of financial stability as a *de facto* monetary policy objective for central banks – we provide novel evidence that individual members in a monetary policy committee actually target financial instability when voting on interest rates. Second, we find that regionally affiliated FOMC members focus on the banking sector instability of their district, suggesting their regional bias. Interest rate cuts thus tend to be advocated by FOMC members who represent Federal Reserve districts with the most vulnerable banking sectors. Third, our results implicate banking sector lobbying in the FOMC. Voting is more responsive to regional banking sector instability when the FOMC members have career backgrounds in the financial industry or represent a district with a large banking sector. The institutional structure of the Federal Reserve System (regional representation, strong influence of regional banks in the appointment of Bank presidents) thus might establish a strong channel for regional banks to lobby for their interests with the FOMC, using the district's representative.

In the next section, we present descriptive evidence of the relationship between regional banking sector instability and voting behavior in the FOMC. Then Section II details the empirical baseline model and results. Section III contains the results of the interaction models, and Section IV concludes.

I. Descriptive Evidence

The Federal Funds Rate is determined by the Federal Open Market Committee eight times a year.[2] There are 12 voting members: Governors and 5 Federal Reserve Bank presidents. Each of the five voting Bank presidents represents one of the 12 Federal Reserve districts. The Federal Reserve

[2] Occasionally, FOMC members meet via conference call to implement unscheduled monetary policy decisions, as in the periods of financial turmoil after 2008.

Bank of New York has permanent voting rights; the voting rights of the remaining 11 districts rotate annually.

Each FOMC member is legally affiliated with his or her Federal Reserve district, though differences in the appointment process and their de facto presence in their district naturally lead to differences in the regional bias between Governors and Bank presidents. The regional Bank presidents reside and work in the district they represent, so they are typically assumed to have a greater regional bias than Governors, who work at the headquarters in Washington D.C., are appointed by the President of the United States, and typically represent their Federal Reserve district on a de jure basis.[3] Thus, it seems plausible to assume that the interest rate votes of Bank presidents depend more on regional banking sector instability than do the interest rate votes of Governors.[4]

Moreover, Bank presidents are elected by the Board of Directors of their district's Federal Reserve Bank. The three Class A directors (of a total of nine) are recruited from the regional banking industry. A Bank president can be reelected after a five-year term, so the appointment process likely prompts a strong relationship between the stability needs of the regional banking industry and the voting behavior of the Bank president in the FOMC.

Data on interest rate votes of individual FOMC members has been taken from the minutes of FOMC meetings, which detail whether each member voted in favor of a constant (= 0), higher (= +1), or lower (= –1) interest rate. To investigate banking sector instability, we use the z-score (e.g., Laeven and Levine, 2009):

[3] As Chappell et al. (2008, p. 285) note, "Institutional practice does not closely link Governors to the regions with which they are formally affiliated. Indeed, Governors' formal district affiliations often seem to be determined as a matter of convenience in meeting the legal requirement for regional diversity."

[4] Bank presidents have frequent contacts with businesspeople living and working in their districts. These businesspeople provide information about economic conditions that the Bank presidents should consider in the FOMC meetings.

(1) $$Z - score = \frac{RoA+EQ}{\sigma(RoA)},$$

such that the z-score sums a bank's profitability, or returns over assets (RoA), and its equity to assets ratio (EQ), both scaled by the standard deviation of the bank's profitability ($\sigma(RoA)$). It thus indicates if the bank's equity is sufficient to cover its losses. In essence, a higher z-score indicates a more stable bank, whereas a lower z-score implies that the bank is closer to default. To compute the z-score, we use call report data provided by the Federal Reserve Bank of Chicago for 1980–2010 on a quarterly basis. In general, data for U.S. banks are available on three levels: bank holding company, individual bank, and, for some information, the branch level. By investigating the individual bank level, we can link the banks to their Federal Reserve Districts[5] and also investigate the instability of the institutions that, were they to suffer insolvency, would be closed by the U.S. Federal Deposit Insurance Corporation. We calculate the z-score for these individual banks using banks' RoA, total capital ratio, and the 12-quarter rolling standard deviation of their RoA. The data set also provides information about which of the 12 Federal Reserve districts each bank belongs to, so we can calculate the per quarter, per district value of banks' z-score for 1980–2010. We subsequently aggregated the individual bank z-scores to the district level, using total assets as the weighting scheme.

Table 1 summarizes the interest rate voting behavior of representatives of the 12 Federal Reserve districts during the period 1980-2010. In the first column, we present the banking sector z-scores computed at 10% percentiles for each Federal Reserve district. We also note the number of votes (third column) for each voting category (second column). Again, higher z-score levels indicate higher stability. The z-score for the New York district shows the greatest range, with a

[5] Banks from different Fed districts might merge during the sample period. But this possibility is not a problem for our identification, because even if a merger occurs, with a different bank holding company or not, each individual bank's assets and business still would be allocated to its original district. Only if a bank closed after a merger would it potentially affect (depending on the size of the institution) the z-score for the district's banking sector.

difference between the upper 90% and lower 10% percentile of 18.41; the Boston district follows, with a value of 17.72.

<Please insert Table 1 - 2 around here>

We provide descriptive evidence about the relationship between FOMC voting and regional banking sector instability in Table 2. For this assessment, we compute the ratio of the number of votes in favor of monetary easing (-1) against the number of votes in favor of monetary tightening (+1) for each Federal Reserve district. This voting ratio reflects the monetary policy preference of the district's representative, such that values above 1 indicate relative "dovishness" and values below 1 indicate relative "hawkishness."[6] The data reveal considerable heterogeneity across districts in terms of voting behavior. In the entire data sample, the voting ratio ranges from 0.41 for Atlanta, which constitutes the most hawkish voting behavior in our sample, to 1.45 for representatives of the St. Louis district, the most dovish voting behavior. Representatives of the Boston, New York, Philadelphia, and Chicago districts are relatively balanced. To determine if voting behavior reflects regional banking sector instability, we also compute the voting ratio for the upper and lower 20th and 50th percentiles of the z-score for each district (rows 3–6, Table 2).

According to our hypothesis, FOMC members should be more (less) likely to vote in favor of monetary easing if the banking sector in his or her district is more fragile (stable). Therefore, we account for the general voting ratio in the entire sample of a district. Minneapolis has a notably low average voting ratio (0.53); St. Louis has a relatively high average voting ratio (1.45). These differences in the general voting preferences of the districts lead us to take the district average into account. In this case, we expect above-average district voting ratios (preference for monetary easing) at lower percentiles of the z-score (higher levels of banking fragility). Conversely, we

[6] Assents (coded as 0) have been dropped from the table, because they provide no information about whether the district is hawkish or dovish.

expect below-average district voting ratios (preference for monetary tightening) at upper percentiles of the z-score (lower levels of banking fragility). In Table 2, we distinguish evidence in support of our prediction (dark grey) from cases that contradict our anticipated outcomes (light grey) (cases of no distinction remain uncolored). For example, in the New York district, at the lower 20th and 50th percentiles of the regional z-score (i.e., relatively fragile banking system), voting behavior reveals a tendency toward monetary easing, with specific probability ratios of 1.33 and 1.14, respectively, that exceed New York's general probability ratio of 0.94. At the upper 20th and 50th percentiles (i.e., relatively stable banking system), voting behavior favors monetary tightening, with specific probability ratios of 0.85 and 0.80, respectively, lower than the general probability ratio of New York. This descriptive evidence further reveals that voting in the New York, Philadelphia, and Chicago, and to some extent Boston, Minneapolis, St. Louis, and San Francisco, districts support our hypothesis. In Cleveland, Atlanta, and Dallas, we instead find contradictory results. The remaining districts, Richmond and Kansas City, offer no clear evidence. Thus, for the majority of districts, our descriptive evidence suggests that monetary policymakers take regional bank instability measures into account when voting on the FOMC's target interest rate.

Such descriptive evidence is not sufficient to prove our prediction though. Several conditional or unconditional factors could be influencing FOMC members' voting behavior as well. In the regression approach in the following section, we therefore use ordered probit models to establish empirical evidence.

II. Regression analysis

A. *Hypotheses and data*

As we described previously, we use the banking sector z-score to measure the instability of banks in a district. To confirm the robustness of our results, we also employ three other measures of potential problems in the banking sector: the ratio of loan loss provisions to total loans and the ratio of non-performing assets over total assets, both of which indicate problems in banks' asset portfolios in a specific quarter, and the ratio of deposits of failed banks over the sum of banking assets, which can indicate spillovers of bank failures to households. We calculated all three of these alternative measures by Federal Reserve District too. The data set includes several control variables, including regional, national, institutional, and individual background variables (see Table A1 in the Appendix for variable definitions and sources; see Table A2 for summary statistics). Beyond the regional banking instability measures, our data set incorporates regional factors, such as banking size, the house price gap, and the unemployment rate for each district. Because we anticipate that lower banking stability (lower z-score and higher non-performing assets, provisions to loans, or failed deposits of regional banks) increases the probability of votes for monetary easing, we predict a positive coefficient for the z-score and a negative coefficient or non-performing assets, provisions to loans, or failed deposits of regional banks.

National macroeconomic variables also affect FOMC voting behavior, so we include the national inflation rate, national output gap, and their respective forecasts (provided by the Survey of Professional Forecasters) to test the forward-looking motives of monetary policy makers; we also use the previous federal funds rate to check for potential autoregressive voting patterns. For all national variables except previous federal funds rate, for which the expected sign is not clear a priori, we expect a positive coefficient. According to the Taylor Rule leaning against inflationary pressure and overheating of the national economy, the need for monetary tightening implemented through higher interest rates is justified.

The FOMC consists of de jure regionally affiliated Governors and de facto regionally affiliated Bank presidents, so interest rate voting could vary between these groups, particularly if we consider regional economic conditions. Therefore, we include a dummy variable to indicate if each voting member is a Board member or Bank president. Another dummy variable indicates if the FOMC meeting was conducted face-to-face or via a conference call, and we included time dummies for the various chairmanships of Volcker, Greenspan, and Bernanke. These institutional characteristics may affect monetary policy in the FOMC in general, so the systematic influence on FOMC members' individual voting behavior is not clear a priori.

A growing stream of literature details the individual characteristics of FOMC members, such as their professional background before becoming a Governor or Bank president, committee experience, and political affiliation, as gleaned from the appointment process. To test the effects of these characteristics, we incorporate the number of years a member worked in the financial industry before becoming Governor or Bank president, a dummy variable for the member's political party affiliation (Democratic = 1, Republican = 0),[7] and an experience count variable reflecting the years of FOMC membership.[8] For the political party variable, we follow prior literature and predict more hawkish FOMC members have Republican affiliations. However, we cannot formulate clear hypotheses about the influence of FOMC experience or finance background on voting behavior a priori.

We focus not only on the direct impact of regional banking instability on FOMC voting behavior but also on the potential conditional (or moderating) effects. The individual characteristics

[7] Governors are coded as Democratic (Republican) appointees if they were appointed by a Democratic (Republican) President. Bank presidents are coded as Democratic (Republican) appointees if they were appointed *during* a Democratic (Republican) presidency.

[8] As a robustness check, we included dummies for FOMC experience, finance background, and banking sector in the regressions, equal to 1 if a certain characteristic exceeded the median and 0 otherwise. The results of the regression were robust compared to our baseline regressions.

of the FOMC members and the size of the regional banking sector may determine their attention to regional banking instability conditions. Therefore, we allow the z-score to interact with the Board dummy, finance background, banking sector size, committee experience, and political affiliation. We assume that Bank presidents *a priori* have greater awareness of the regional banking system they represent in the FOMC and thus a stronger preference to stabilize this system. Bank presidents engage in frequent contacts with businesspeople and bankers in their region, so they should have a clear picture of the soundness and functioning of the regional banking system. Furthermore, potential lobbying of the Fed Bank's Class A directors may increase Bank presidents' attention to the regional banking system. Similarly, FOMC members who have worked in the finance industry may have stronger preferences to react to regional banking instabilities, as might members who represent districts with large banking sectors. Trouble in a large banking sector would have a stronger impact on the regional economy than would be the case in districts with relatively small banking sectors. Finally, committee experience or political considerations might shape these preferences, though such questions remain open.

B. *Baseline regressions*

To test the impact of regional banking sector instability on voting behavior by FOMC members, we used an ordered probit model. The dependent variable is the monetary preference of the FOMC member, as revealed by his or her interest rate vote in each FOMC meeting. The dependent variable takes a value of +1 if the member votes in favor of a higher interest rate, 0 if he or she votes to leave the interest rate unchanged, and -1 if the FOMC member votes for a lower interest rate. The ordered and categorical nature of this dependent variable led us to use an ordered probit model to analyze the determinants of interest rate votes. To account for unobserved heterogeneity among Federal Reserve districts, we also used a fixed effects model, in which robust standard errors

account for possible heteroskedasticity in the data. The panel models thus are estimated using standard ordered probit:

(2) $$Y_{it}^{*} = X_{it}'\beta + \varepsilon_{it}$$, with

(3a) $$Y_{it} = -1 \; if \; Y_{it}^{*} \leq \gamma_1,$$

(3b) $$Y_{it} = 0 \; if \; \gamma_1 < Y_{it}^{*} \leq \gamma_2,$$ and

(3c) $$Y_{it} = 1 \; if \; Y_{it}^{*} > \gamma_2.$$

In our model, the unobservable propensity of FOMC member *i* during the FOMC meeting in *t* to vote in favor of an unchanged interest rate (0), a lower interest rate (-1), or a higher interest rate (1) Y_{it}^{*}, depends on regional banking sector instability and the control variables included in the independent variable vector X_{it}. The true voting preference of each FOMC member Y_{it}^{*}, is not observable, so the actual voting records Y_{it}, serve as the dependent variable in this regression. We use γ_1 and γ_2 as cut-off points to be estimated.[9] The βs denote the regression coefficients to be estimated, and ε_{it} is the normally distributed disturbance term.

The probability that the FOMC member's vote falls in the respective category can be summarized as follows:

(4a) $$Prob(Y_{it} = -1) = 1 - \Phi(X_{it}'\beta - \gamma_1),$$

(4b) $$Prob(Y_{it} = 0) = \Phi(\gamma_2 - X_{it}'\beta) - \Phi(\gamma_1 - X_{it}'\beta),$$

(4c) $$Prob(Y_{it} = 1) = 1 - \Phi(\gamma_2 - X_{it}'\beta),$$

where Φ denotes the standard normal cumulative distribution function.

The marginal effects of a change in an independent variable on the probability of voting in the respective category then can be defined as follows:

[9] The cut-off points are fitted thresholds in the ordered probit model that help us assign certain observations to categories. For example, γ_1 defines the threshold below which the fitted linear combination of parameter-weighted independent variables must lie to be assigned to the -1 category (easier dissents).

(5a) $$\frac{\partial Prob(Y_{it}=-1)}{\partial X} = -\phi(X'_{it}\beta - \gamma_1)\beta,$$

(5b) $$\frac{\partial Prob(Y_{it}=0)}{\partial X} = [\phi(\gamma_1 - X'_{it}\beta) - \phi(\gamma_2 - X'_{it}\beta)]\beta,$$

(5c) $$\frac{\partial Prob(Y_{it}=1)}{\partial X} = \phi(\gamma_2 - X'_{it}\beta)\beta,$$

where ϕ denotes the standard normal density function.

For the dummy variables (e.g., Board, meeting, political affiliation), or Dum_{it}, the marginal effect equals the discrete change in the probabilities of being in each voting category:

(6a) $$\Delta Prob(Y_{it} = -1) = Prob(Y_{it} = -1|Dum_{it} = 1) - Prob(Y_{it} = -1|Dum_{it} = 0),$$

(6b) $$\Delta Prob(Y_{it} = 0) = Prob(Y_{it} = 0|Dum_{it} = 1) - Prob(Y_{it} = 0|Dum_{it} = 0),$$

(6c) $$\Delta Prob(Y_{it} = 1) = Prob(Y_{it} = 1|Dum_{it} = 1) - Prob(Y_{it} = 1|Dum_{it} = 0).$$

We estimate four specifications. Specification (I) considers only the isolated effect of the z-score on FOMC voting; the other three specifications include different combinations of regional, national, institutional, and member-specific control variables to check the robustness of the results. To assess the economic significance of regional banking sector instability on FOMC voting, we note the marginal effects, which reveal the change in the probability of voting for a lower (-1), higher (+1), or unchanged (0) interest rate after a one-unit change in the explanatory variable. Tables 3 and 4 contain the estimation results and the marginal effects.

<Please insert Table 3 - 4 around here>

Overall, the results provide robust evidence in support of our prediction that FOMC members take the level of regional banking sector instability into account when voting on interest rates in the FOMC. The coefficient of the regional banking sector z-score is significantly different from 0 at the 1% level of significance, with the expected positive sign in each specification. Lower

regional banking sector z-scores—indicating a higher degree of instability—are associated with a greater probability of votes to lower the interest rate and a smaller probability of votes to raise the interest rate. On average, the estimated marginal effects reveal that a one standard deviation decrease in the regional banking sector z-score (being 5), suggesting a higher degree of regional banking sector instability, increases the probability of votes to lower interest rates by around 1.5 percentage points[10] (-1), while also decreasing the probability of votes to raise interest rates by around 2 percentage points (+1). To assess the economic significance of these results, we note that 16.8% of all votes cast favored monetary easing, whereas 21% were in favor of monetary tightening. These results thus constitute statistically and economically significant support for our hypothesis that FOMC members take regional banking sector instability into account when casting their interest rate votes in the FOMC.

Regarding the relative economic importance of regional banking sector instability, compared to traditional stabilization goals involving inflation and the output gap, we test standardized marginal effects. A one standard deviation increase in the national inflation rate decreases the probability of votes to lower interest rates by 4.1 percentage points and increases the probability of votes to raise interest rates by 4.9 percentage points. A one standard deviation increase in the national output gap decreases (increases) the probability of lower (higher) interest rate votes by 7.8 (9.1) percentage points. A comparison of the standardized marginal effects indicates that the impact of the z-score on voting behavior is approximately one-third as substantial as that for national inflation and one-fifth as great as that for the national output gap. Although the economic significance of regional banking sector instability for FOMC voting thus is lower than

[10] To calculate this average standardized impact, we multiplied the average marginal effect in the lower interest rate category estimated in Specification (IV) (0.003) by the standard deviation of the regional banking sector z-score (5). The standardized marginal impacts of all other variables we discuss hereafter were calculated in the same way.

the economic significance of inflation or the output gap, it is still considerable and offers explanatory value in terms of voting behavior in the FOMC.

The results for the control variables are mostly in line with our expectations. The most important drivers of FOMC voting are national inflation and output gap (or their respective forecast values, according to the Survey of Professional Forecasters). Regional house prices are robust drivers of FOMC voting behavior, reflecting the importance of housing prices for monetary policy making, as was particularly stressed during the recent subprime mortgage crisis. The coefficient of the Federal Funds rate was negative and significant, indicating some anticyclical voting behavior in the FOMC. The Board dummy variable also was negative and significant, in line with frequent prior findings (e.g., Belden, 1989; Havrilesky and Gildea, 1995; Meade and Sheets, 2005) that show that Bard members tend to prefer monetary policy easing more than do regional Federal Reserve Bank presidents.

C. *Robustness checks*

We performed several sensitivity analyses to check the robustness of our results. First, we used alternative measures of regional banking sector instability—namely, ratios of non-performing loans to total assets, loan provisions to total loans, and deposits of failed banks to total banking assets. Second, we applied the natural logarithm of the z-score (Laeven and Levine, 2009). Third, we used member-specific (instead of district-specific) fixed effects to account for heterogeneity among FOMC voting members. The results of these robustness checks are in Tables 5–7.[11] Overall, the baseline regression results remained robust, indicating the strong link between regional banking sector instability and the voting preferences of regionally affiliated FOMC voting members.

[11] The results of the other robustness checks are available on request.

<Please insert Tables 5 - 7 around here>

III. Interaction models

Our baseline models suggest that FOMC members align their voting behaviors with the degree of banking sector instability in their Federal Reserve district. This result holds for the whole sample, yet it seems plausible to expect different magnitudes of this effect, in terms of its economic importance and statistical significance, across various types of FOMC members. For example, a FOMC member with a career background in the financial industry is probably more focused on banking sector instability when deciding on the appropriate interest rate than a FOMC member with no finance background. Thus, member-specific or regional characteristics may determine the extent to which a FOMC member takes instability in the banking sector in his or her district into account when voting on the interest rate in FOMC meetings.

To test for such a conditionality in FOMC voting sensitivity to regional banking sector instability, we used interaction models with the following conditioning variables:

1) Career background in finance (number of years the FOMC member worked in full-time positions in the financial industry before becoming Federal Reserve Bank president or Governor);
2) Size of regional banking sector (value of total assets relative to total income in the Federal Reserve district of the voting member);
3) Board dummy (1 = Governor, 0 = Bank president);
4) Committee experience (number of years the voter has been a member of the FOMC);
5) Republican Bank president dummy (1 = Bank president was elected during Republican presidency, 0 = Bank president was elected during Democratic presidency); and

6) Republican Governor dummy (1 = Governor was appointed by Republican President, 0 = Governor was appointed by Democratic President).

Conditioning variables 3, 5, and 6 are binary; variables 1, 2, and 4 instead are continuous variables or, alternatively, coded as dummies to indicate if the value is above (1) or below (0) the sample median. Then, to identify these conditional effects of regional banking sector instability, we estimated the following interaction model:

(7) $$Y_{it}^{*} = X_{it}'\beta + \varepsilon_{it} = X_{it1}\beta_1 + C_{it}\beta_2 + C_{it}X_{it1}\beta_3 + \sum_{j=2}^{J} X_{itj}\beta_{j+2} + \varepsilon_{it}\ ,$$

where unobservable voting preference Y_{it}^{*}, is determined by the degree of banking sector instability in the FOMC member's district X_{it1}, interacted with one of the conditioning variables. The voting categories defined in Equations (3a–3c) still hold.

The marginal effects of a change in the banking sector z-score in the FOMC member's district on the probability of entering the respective voting category also depends on the conditioning variable, C_{it}:

(8a) $$\frac{\partial Prob(Y_{it}=-1)}{\partial X_1} = -\phi(X_{it}'\beta - \gamma_1)(\beta_1 + \beta_3 C_{it}),$$

(8b) $$\frac{\partial Prob(Y_{it}=0)}{\partial X_1} = [\phi(\gamma_1 - X_{it}'\beta) - \phi(\gamma_2 - X_{it}'\beta)](\beta_1 + \beta_3 C_{it}),$$

(8c) $$\frac{\partial Prob(Y_{it}=1)}{\partial X_1} = \phi(\gamma_2 - X_{it}'\beta)(\beta_1 + \beta_3 C_{it}).$$

For the conditioning dummy variables, we computed the marginal effects outlined in Equations (8a–8c) for C_{it} = 1 and C_{it} = 0.

<Please insert Table 8 around here>

The estimation results for the interaction models are reported in Table A3 in the Appendix. The results for the marginal effects, when we used the conditioning variables as dummies in the

interaction models, are in Table 8. The results for the marginal effects when we used the continuous conditioning variables instead appear in Figure 1.

<Please insert Figure 1 here>

For each conditioning dummy variable, we report four marginal effects and their respective significance. The first marginal effect represents the impact of a one-unit change in the regional banking sector z-score on the probability of voting in favor of a lower interest rate (-1), given that the conditioning dummy variable equals 0. The second effect indicates the marginal impact of the regional z-score on the probability of a lower interest rate vote (category -1), given that the conditioning dummy equals 1. With the third and fourth marginal effects, we assess the marginal impact of the regional banking sector z-score on the probability of a higher interest rate vote (category +1), given that the conditioning dummy equals 0 or 1, respectively. In Figure 1, the results reveal the marginal effects when we used three continuous conditioning variables: career background in finance, committee experience, and size of the regional banking sector. For each conditioning variable, we indicate the marginal effect of the regional banking sector z-score on the probability of voting in favor of a lower interest rate (-1), followed by the marginal effect of the regional banking sector z-score on the probability of voting in favor of a higher interest rate (+1). The x-axis shows the value of the respective conditioning variable, and the y-axis represents the marginal effect of a one-unit change of the regional banking sector z-score on the probability of being in the respective voting category.

The results for the career background in finance variable suggest that regional banking sector instability exerts a significant impact on the voting behavior of FOMC members with a career background in finance, but we detect no significant effect for FOMC members with no such

career background.[12] Lobbying for the regional banking industry is plausible in this setting, for several reasons. First, FOMC members with a career background in finance may enter the finance branch again (in their district) after they complete their service to the FOMC. To improve their job market opportunities, these members might vote in ways that meet the banking sector stability needs of their district. Second, FOMC members with a finance background may have informational advantages, such that they can better anticipate potential threats to banking sector stability than their peers without a finance background. Third, a career in finance could shape the monetary policy objectives of FOMC members. Traditional monetary policy objectives include stabilization of output and inflation, but stabilizing the banking sector typically is not a standard monetary policy objective. However, FOMC members with a background in finance may have a less orthodox view of monetary policy goals, such that they might be more likely to align their voting behavior with various economic variables, including regional banking sector instability.

We also find that FOMC members representing a district with a large banking sector are more likely to align their voting behavior with banking sector instability than are FOMC members representing a smaller regional banking sector. This result again is reasonable; the potential impact of bank distress on output and price fluctuations should be greater in districts with a larger banking sector. Moreover, a more powerful regional banking industry can exert more pressure on regional Bank presidents (e.g., influencing reelection), so this president's voting decision likely is more sensitive to the interests of the large regional banking industry.

[12] Other studies concur that the career background of FOMC members influences their voting behavior (Gildea, 1990; Havrilesky and Schweitzer, 1990; Havrilesky and Gildea, 1991; Chappell et al., 1995; Harris et al., 2011; Eichler and Lähner, 2014a). However, these previous works do not focus on the conditional impact of banking instability on FOMC voting.

The Board dummy results indicate that the interest rate votes of Bank presidents depend significantly on regional banking sector instability, but the votes of Board members do not.[13] This result resembles the greater regional bias of Bank presidents, compared with Board members, indicated in prior literature (e.g., Belden, 1989; Chappell and McGregor, 2000; Meade and Sheets, 2005). Bank presidents typically appear to have closer regional affiliations to the Federal Reserve district they represent, but Board members' regional affiliation is de jure. Bank presidents reside and work in their district and maintain frequent contacts in regional business and banking communities. In turn, they should be more aware and informed of any deterioration in bank health in their district, compared with Board members who serve in Washington, D.C., and have fewer opportunities to monitor changes in regional bank health in their district.[14] Bank presidents thus enjoy an information advantage over Board members, which can make them more likely to align their voting behavior with regional banking sector instability. Bank presidents also are elected (and can be reelected) by the Board of Directors of their regional Federal Reserve Bank, which features representatives of the district's banking industry. To get reelected, Bank presidents reasonably may take the stabilization needs of the regional banking sector into account when voting on interest rates in the FOMC. Board members instead are appointed directly by the President of the United States, so their term of office is independent of the interests of their district's banking industry.

The interaction models with FOMC experience suggest that FOMC members with longer terms of office align their voting more with regional banking sector instability. We consider several possible explanations for this result. First, FOMC members might shift their monetary policy objectives during their term in office, putting more weight on banking sector stability at the expense

[13] Separate regression analyses using either Bank presidents' votes or governors' votes (Tables A4 and A5 in the Appendix) confirm that only Bank presidents respond to regional banking sector instability Governors do not.

[14] Bank presidents also benefit from regional information provided by members of their regional Federal Reserve Bank's Board of Directors, which consists, by construction, of different branches, such as banking, agriculture, industry, trade, and public interest.

of more traditional monetary policy targets, because these experienced FOMC members become more pragmatic during their terms. Second, banking stability deteriorates erratically, such as in response to a banking crisis, and FOMC members with longer committee experience likely have faced more frequent banking crises than committee members with less experience. This circumstance may lead the experienced members to react more sensitively to an economy marked by banking instability.

For the political affiliation dummies, the results suggest a significant impact of regional banking sector instability only among Democratic appointees. Previous studies generally indicate unconditional preferences for monetary easing among Democratic appointees and monetary tightening among Republican appointees (e.g., Havrilesky and Gildea 1992, 1995; Chappell et al., 1993, 1995; Tootell 1996; Meade and Sheets, 2005). Our results instead offer greater insight by shedding light on conditional monetary preferences: Democratic appointees focus on regional banking sector stability, but Republican appointees do not.

IV. Conclusions

We investigate whether FOMC members align their voting behaviors in the FOMC with the degree of banking sector instability in their districts. To address this question, we have combined the voting outcomes of individual FOMC members, representing the 12 Federal Reserve districts, with measures of regional banking instability. The instability of the respective banking sector exerts a significant influence on the voting behavior of FOMC members. Specifically, our results show that FOMC members vote for lower interest rates when confronted with higher levels of banking instability in their district. This robust result is relevant from an economic point of view: The estimated marginal effects reveal that a one standard deviation decrease in the regional banking sector z-score increases the probability that a FOMC member casts a vote for lower interest rates

by around 1.5 percentage points, but it decreases the probability that the member casts a vote for higher interest rates by around 2 percentage points. The impact of regional bank instability on FOMC voting also is economically significant, in that 16.8% of all votes were cast in favor of monetary easing, whereas 21% favored monetary tightening.

By exploring different channels, we also shed light on which FOMC members respond most to regional banking sector instability. Bank presidents focus on bank instability in their district, but Governors generally do not. When FOMC members have a career background in the finance industry, they react strongly, whether because they make better assessments of the financial industry's situation or because they are considering their future job market opportunities. The votes of FOMC members representing relatively large financial sectors also are significantly affected by the stability needs of these sectors, which likely reflects strong lobbying pressure from the banking industry in these districts. Overall, our results suggest that the institutional structure of the Federal Reserve System (regional representation, influence of regional banks on the appointments of Bank presidents) constitutes a channel that enables regional banks to lobby for their interests in the FOMC, using the voice of the district representatives.

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Table 1: Interest rate votes and regional banking sector z-score by Federal Reserve districts

District	Boston			New York			Philadelphia			Cleveland			Richmond			Atlanta		
Percentile	Z-Score	Vote	Obs.	Z-Score	Vote	Obs.	Z-Score	Vote	Obs.	Z-Score	Vote	Obs.	Z-Score	Vote	Obs.	Z-Score	Vote	Obs.
<10%	20.32	-1	3	14.81	-1	8	20.80	-1	0	20.93	-1	0	23.07	-1	4	21.50	-1	0
		0	26		0	39		0	20		0	6		0	29		0	18
		1	5		1	4		1	1		1	6		1	3		1	0
<20%	23.87	-1	4	23.07	-1	8	21.87	-1	6	21.38	-1	0	24.26	-1	6	24.65	-1	1
		0	19		0	40		0	16		0	8		0	15		0	16
		1	7		1	8		1	0		1	7		1	10		1	3
<30%	25.84	-1	9	24.87	-1	14	23.44	-1	2	21.85	-1	2	24.75	-1	6	25.31	-1	1
		0	21		0	42		0	16		0	7		0	21		0	10
		1	6		1	6		1	6		1	5		1	8		1	6
<40%	26.61	-1	2	26.36	-1	18	24.30	-1	1	23.17	-1	2	25.22	-1	4	25.22	-1	2
		0	20		0	28		0	15		0	8		0	21		0	16
		1	6		1	2		1	2		1	3		1	7		1	3
<50%	27.63	-1	14	27.03	-1	0	25.58	-1	5	24.32	-1	3	25.98	-1	5	27.44	-1	0
		0	18		0	36		0	12		0	6		0	16		0	12
		1	2		1	22		1	4		1	4		1	11		1	6
<60%	29.03	-1	14	28.42	-1	6	26.59	-1	4	25.28	-1	1	26.95	-1	1	28.69	-1	3
		0	24		0	32		0	20		0	10		0	24		0	13
		1	3		1	14		1	2		1	3		1	11		1	4
<70%	30.73	-1	2	29.79	-1	4	27.16	-1	6	25.82	-1	6	27.59	-1	6	31.21	-1	4
		0	17		0	34		0	16		0	8		0	24		0	3
		1	5		1	12		1	0		1	0		1	2		1	4
<80%	33.04	-1	5	31.76	-1	14	29.53	-1	2	27.66	-1	4	28.78	-1	11	33.03	-1	0
		0	21		0	39		0	12		0	5		0	16		0	12
		1	16		1	6		1	7		1	5		1	8		1	15
<90%	38.04	-1	2	33.22	-1	17	33.99	-1	9	32.27	-1	4	30.59	-1	10	34.62	-1	4
		0	12		0	33		0	4		0	5		0	16		0	9
		1	15		1	1		1	6		1	3		1	9		1	3

≥90%		-1	8		-1	6		-1	2		-1	2		-1	1		-1	6
		0	11		0	26		0	14		0	8		0	17		0	7
		1	12		1	26		1	7		1	4		1	15		1	7
		-1	63		-1	95		-1	37		-1	24		-1	54		-1	21
Total		0	189		0	349		0	145		0	71		0	199		0	116
		1	77		1	101		1	35		1	40		1	84		1	51
			329			545			217			135			337			188

Table 1: Interest rate votes and regional banking sector z-score by Federal Reserve districts, cont'd

District	Chicago			St. Louis			Minneapolis			Kansas City			Dallas			San Francisco		
Percentile	Z-Score	Vote	Obs.	Z-Score	Vote	Obs.	Z-Score	Vote	Obs.	Z-Score	Vote	Obs.	Z-Score	Vote	Obs.	Z-Score	Vote	Obs.
<10%	21.80	-1	7	24.98	-1	0	19.80	-1	0	23.56	-1	5	14.21	-1	0	18.83	-1	1
		0	25		0	8		0	10		0	24		0	21		0	12
		1	0		1	4		1	3		1	1		1	2		1	3
<20%	24.33	-1	12	26.05	-1	2	20.56	-1	1	24.48	-1	0	19.17	-1	2	21.01	-1	1
		0	21		0	21		0	8		0	21		0	16		0	14
		1	5		1	2		1	3		1	5		1	4		1	5
<30%	25.55	-1	8	26.50	-1	7	21.47	-1	3	24.90	-1	4	21.39	-1	7	22.83	-1	1
		0	26		0	6		0	2		0	19		0	12		0	17
		1	2		1	4		1	3		1	5		1	1		1	1
<40%	26.28	-1	4	27.12	-1	5	22.33	-1	1	25.54	-1	4	22.75	-1	1	23.67	-1	5
		0	32		0	16		0	17		0	20		0	18		0	10
		1	2		1	1		1	0		1	4		1	5		1	1
<50%	27.07	-1	7	27.52	-1	5	22.80	-1	4	26.02	-1	1	24.38	-1	2	24.94	-1	5
		0	23		0	8		0	2		0	24		0	14		0	11
		1	2		1	1		1	4		1	4		1	2		1	0
<60%	27.95	-1	9	28.31	-1	3	23.99	-1	4	27.24	-1	9	25.70	-1	0	25.61	-1	2

		0	16		0	9		0	7		0	16		0	23		0	15
		1	9		1	2		1	0		1	4		1	3		1	2
<70%	28.87	-1	4	29.33	-1	12	25.19	-1	0	27.83	-1	6	26.49	-1	0	26.49	-1	0
		0	21		0	6		0	7		0	8		0	15		0	12
		1	8		1	4		1	4		1	10		1	7		1	9
<80%	30.09	-1	5	30.06	-1	2	25.56	-1	2	29.28	-1	6	27.45	-1	2	27.85	-1	1
		0	16		0	13		0	8		0	21		0	8		0	11
		1	15		1	2		1	5		1	5		1	11		1	4
<90%	31.22	-1	3	30.96	-1	4	26.38	-1	0	29.92	-1	7	28.73	-1	7	28.52	-1	0
		0	18		0	12		0	4		0	14		0	10		0	10
		1	10		1	2		1	5		1	8		1	5		1	9
≥90%		-1	4		-1	2		-1	2		-1	6		-1	12		-1	6
		0	30		0	9		0	6		0	7		0	6		0	11
		1	6		1	7		1	5		1	14		1	4		1	2
		-1	63		-1	42		-1	17		-1	33		-1	22		-1	22
Total		0	228		0	108		0	71		0	143		0	125		0	125
		1	59		1	29		1	32		1	44		1	34		1	34
			350			179			120			282			220			181

Notes: This table reports the number of votes in favor of higher (+1), lower (-1), or unchanged (0) interest rates, cast by the representative of the respective Federal Reserve district in the FOMC for each decile of regional banking sector z-score. The sum of total votes includes 519 votes in favor of monetary easing (16.83%), 646 in favor of monetary tightening (20.95%), and 1,918 in favor of leaving interest rate unchanged (62.21%).

Table 2: Descriptive evidence

District	Boston	New York	Philadel-phia	Cleve-land	Rich-mond	Atlanta	Chicago	St. Louis	Minnea-polis	Kansas City	Dallas	San Francisco
Probability ratio (-1) to (+1) entire sample	0.82	0.94	1.06	0.60	0.64	0.41	1.07	1.45	0.53	0.75	0.65	0.65
Probability ratio (-1) to (+1) at z-score lower 20%	0.58	1.33	6.00	0.00	0.77	0.33	3.80	0.33	0.17	0.83	0.33	0.25
Probability ratio (-1) to (+1) at z-score lower 50%	1.23	1.14	1.08	0.28	0.64	0.22	3.45	1.58	0.69	0.74	0.86	1.30
Probability ratio (-1) to (+1) at z-score upper 50%	0.61	0.80	1.05	1.13	0.64	0.52	0.52	1.35	0.42	0.83	0.70	0.35
Probability ratio (-1) to (+1) at z-score upper 20%	0.37	0.85	0.85	0.86	0.46	1.00	0.44	0.67	0.20	0.59	2.11	0.55

Notes: The probability ratio is the number of votes in favor of monetary easing (-1) relative to the number of votes in favor of monetary tightening (+1) for each Federal Reserve district. Cells in dark grey support our hypothesis that in districts with below-average z-scores, FOMC representatives are relatively dovish (i.e., conditional probability ratio is greater than the probability ratio of the entire sample) and in districts with above-average z-scores, they are relatively hawkish (i.e., conditional probability ratio lower than the probability ratio of the entire sample). Cells in light grey contradict this prediction.

Table 3: Ordered probit regression analysis of z-scores

	I		II		III		IV	
Z-score	0.015	***	0.014	***	0.015	***	0.015	***
	(0.00)		(0.01)		(0.01)		(0.01)	
Regional house price gap			0.088	***	0.065	***	0.087	***
			(0.01)		(0.01)		(0.01)	
Regional unemployment rate			0.009		-0.055	***	0.001	
			(0.02)		(0.02)		(0.02)	
National inflation			0.522	***			0.498	***
			(0.09)				(0.09)	
National output gap			0.421	***			0.426	***
			(0.04)				(0.04)	
National inflation forecast					0.305	***		
					(0.03)			
National GDP forecast					0.113	***		
					(0.02)			
Federal funds rate			-0.059	***	-0.133	***	-0.056	***
			(0.01)		(0.02)		(0.01)	
Board			-0.067		-0.075	*		
			(0.04)		(0.04)			
Meeting			0.175		0.233	**	0.176	
			(0.11)		(0.12)		(0.11)	
Volcker			-0.132		-0.039		-0.140	
			(0.14)		(0.16)		(0.14)	
Greenspan			-0.292	**	0.126		-0.293	**
			(0.15)		(0.16)		(0.15)	
Bernanke			-0.965	***	-0.420	**	-0.982	***
			(0.16)		(0.17)		(0.16)	
FOMC experience							0.000	
							(0.01)	
Finance background							0.007	**

							(0.00)	
Republican Bank president							0.154	**
							(0.07)	
Democratic Bank president							0.077	
							(0.09)	
Republican Governor							0.097	
							(0.07)	
Banking sector							0.001	
							(0.00)	
Threshold 1	-0.676		-1.144		-0.380		-0.904	
	(0.21)		(0.30)		(0.29)		(0.32)	
Threshold 2	1.160		0.796		1.500		1.042	
	(0.21)		(0.30)		(0.29)		(0.32)	
Observations	3083		3083		3083		3073	
Wald chi²	35.6	***	359.92	***	314.39	***	362.00	***
Prob > chi²	0		0		0		0	
Pseudo R²	0.01		0.08		0.05		0.08	
Log pseudo-likelihood	-2,826		-2,619		-2,701		-2,604	

Notes: This table reports the baseline ordered probit model estimations using the FOMC member's interest rate vote as the dependent variable; regional district dummies are included but not reported. The robust standard errors are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 4: Marginal effects of baseline regressions

	I			II		
	-1	0	+1	-1	0	+1
Z-score	-0.004 ***	-0.001 **	0.004 ***	-0.003 ***	-0.001 **	0.004 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Regional house price gap				-0.020 ***	-0.003 ***	0.024 ***
				(0.00)	(0.00)	(0.00)
Regional unemployment rate				-0.002	-0.000	0.002
				(0.00)	(0.00)	(0.00)
National inflation				-0.120 ***	-0.021 ***	0.140 ***
				(0.02)	(0.01)	(0.02)
National output gap				-0.097 ***	-0.017 ***	0.113 ***
				(0.01)	(0.01)	(0.01)
Federal funds rate				0.014 ***	0.002 ***	-0.016 ***
				(0.00)	(0.00)	(0.00)
Board				0.015	0.003	-0.018
				(0.01)	(0.00)	(0.01)
Meeting				-0.040	-0.007	0.047
				(0.03)	(0.00)	(0.03)
Volcker				0.030	0.005	-0.036
				(0.03)	(0.01)	(0.04)
Greenspan				0.067 **	0.012 *	-0.079 **
				(0.03)	(0.01)	(0.04)
Bernanke				0.221 ***	0.038 ***	-0.260 ***
				(0.04)	(0.01)	(0.04)

Table 4: Marginal effects of baseline regressions cont'd

	III			IV		
	-1	0	+1	-1	0	+1
Z-score	-0.004 ***	-0.001 **	0.004 ***	-0.003 ***	-0.001 **	0.004 ***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Regional house price gap	-0.015 ***	-0.003 ***	0.018 ***	-0.020 ***	-0.003 ***	0.023 ***

	(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)	
Regional unemployment rate	0.013	***	0.002	**	-0.015	***	-0.000		-0.000		0.000	
	(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)	
National inflation							-0.114	***	-0.020	***	0.134	***
							(0.01)		(0.01)		(0.02)	
National output gap							-0.097	***	-0.017	***	0.114	***
							(0.01)		(0.00)		(0.01)	
National inflation forecast	-0.072	***	-0.012	***	0.084	***						
	(0.01)		(0.00)		(0.01)							
National GDP forecast	-0.027	***	-0.004	***	0.031	***						
	(0.00)		(0.00)		(0.01)							
Federal funds rate	0.031	***	0.005	***	-0.037	***	0.013	***	0.002	***	-0.015	***
	(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)	
Board	0.018	*	0.003		-0.021	*						
	(0.01)		(0.00)		(0.01)							
Meeting	-0.055	**	-0.009	*	0.064	**	-0.040		-0.007		0.047	
	(0.03)		(0.00)		(0.03)		(0.03)		(0.00)		(0.03)	
Volcker	0.009		0.002		-0.011		0.032		0.006		-0.038	
	(0.04)		(0.01)		(0.04)		(0.03)		(0.01)		(0.04)	
Greenspan	-0.030		-0.005		0.035		0.067	**	0.012	*	-0.079	**
	(0.04)		(0.01)		(0.04)		(0.03)		(0.01)		(0.04)	
Bernanke	0.010	**	0.016	**	-0.116	**	0.225	***	0.039	***	-0.263	***
	(0.04)		(0.01)		(0.05)		(0.04)		(0.01)		(0.04)	
FOMC experience							-0.000		-0.000		0.000	
							(0.00)		(0.00)		(0.00)	
Finance background							-0.002	***	-0.000	**	0.002	***
							(0.00)		(0.00)		(0.00)	
Republican Bank president							-0.035	**	-0.006	**	0.041	**
							(0.02)		(0.02)		(0.02)	
Democratic Bank president							-0.018		-0.003		0.020	
							(0.02)		(0.02)		(0.02)	

Republican Governor		-0.022	-0.004	0.026
		(0.02)	(0.02)	(0.02)
Banking sector		-0.000	-0.000	0.000
		(0.00)	(0.00)	(0.00)

Notes: This table reports the marginal effects based on the baseline ordered probit model estimations from Table 4; the robust standard errors are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 5: Robustness checks using the ratio of non-performing assets (NPA) to total assets as a bank stability indicator

	I	II	III	IV
NPA to assets	-34.932 ***	-20.479 ***	-19.449 ***	-27.912 ***
	(3.53)	(5.06)	(5.10)	(5.59)
Regional house price gap		0.080 ***	0.057 ***	0.079 ***
		(0.01)	(0.01)	(0.01)
Regional unemployment rate		0.023	-0.043 **	0.023
		(0.02)	(0.02)	(0.02)
National inflation		0.579 ***		0.560 ***
		(0.09)		(0.09)
National output gap		0.387 ***		0.390 ***
		(0.03)		(0.03)
National inflation forecast			0.309 ***	
			(0.03)	
National GDP forecast			0.103 ***	
			(0.02)	
Federal funds rate		-0.066 ***	-0.141 ***	-0.065 ***
		(0.01)	(0.02)	(0.01)
Board		-0.066	-0.074 *	
		(0.04)	(0.04)	
Meeting		0.375 ***	0.392 ***	0.371 ***
		(0.10)	(0.10)	(0.10)
Volcker		-0.485 ***	-0.535 ***	-0.487 ***
		(0.11)	(0.12)	(0.11)
Greenspan		-0.642 ***	-0.393 ***	-0.622 ***
		(0.10)	(0.12)	(0.10)
Bernanke		-1.158 ***	-0.781 ***	-1.129 ***
		(0.13)	(0.15)	(0.13)
FOMC experience				-0.000
				(0.01)
Finance background				0.008 ***

							(0.00)	
Republican Bank president							0.176	**
							(0.07)	
Democratic Bank president							0.126	
							(0.08)	
Republican Governor							0.140	**
							(0.07)	
Banking sector							0.001	**
							(0.00)	
Threshold 1	-1.335		-1.674		-1.185		-1.422	
	(0.08)		(0.19)		(0.20)		(0.21)	
Threshold 2	0.430		0.263		0.693		0.525	
	(0.08)		(0.19)		(0.20)		(0.20)	
Observations	3264		3264		3264		3254	
Wald chi^2	134.41	***	513.26	***	474.42	***	519.97	***
Prob > chi^2	0		0		0		0	
Pseudo R^2	0.02		0.1		0.07		0.10	
Log pseudo-likelihood	-2,993		-2,747		-2,832		-2,728	

Notes: This table reports a specification analogous to the baseline regression in Table 4 but with the ratio of non-performing assets to total assets as the bank stability indicator. The robust standard errors are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 6: Robustness check using provisions to loans as the bank stability indicator

	I	II	III	IV
Provisions to loans	-24.767 ***	-11.074 ***	-10.772 ***	-13.863 ***
	(3.06)	(3.20)	(3.25)	(3.38)
Regional house price gap		0.080 ***	0.058 ***	0.080 ***
		(0.01)	(0.01)	(0.01)
Regional unemployment rate		0.008	-0.056 ***	0.002
		(0.02)	(0.02)	(0.02)
National inflation		0.565 ***		0.540 ***
		(0.09)		(0.09)
National output gap		0.385 ***		0.389 ***
		(0.03)		(0.03)
National inflation forecast			0.304 ***	
			(0.03)	
National GDP forecast			0.100 ***	
			(0.02)	
Federal funds rate		-0.058 ***	-0.132 ***	-0.055 ***
		(0.01)	(0.02)	(0.01)
Board		-0.072 *	-0.079 *	
		(0.04)	(0.04)	
Meeting		0.371 ***	0.388 ***	0.368 ***
		(0.10)	(0.10)	(0.10)
Volcker		-0.508 ***	-0.556 ***	-0.517 ***
		(0.11)	(0.12)	(0.11)
Greenspan		-0.700 ***	-0.453 ***	-0.701 ***
		(0.10)	(0.12)	(0.10)
Bernanke		-1.261 ***	-0.885 ***	-1.269 ***
		(0.12)	(0.14)	(0.12)
FOMC experience				-0.001
				(0.01)
Finance background				0.007 ***

							(0.00)	
Republican Bank president							0.158	**
							(0.07)	
Democratic Bank president							0.081	
							(0.08)	
Republican Governor							0.090	
							(0.07)	
Banking sector							0.001	**
							(0.00)	
Threshold 1	-1.248		-1.710		-1.230		-1.513	
	(0.08)		(0.19)		(0.20)		(0.20)	
Threshold 2	0.506		0.224		0.646		0.429	
	(0.08)		(0.19)		(0.20)		(0.20)	
Observations	3264		3264		3264		3254	
Wald chi^2	104.91	***	500.35	***	471.79	***	504.21	***
Prob > chi^2	0		0		0		0	
Pseudo R^2	0.01		0.10		0.07		0.10	
Log pseudo-likelihood	-3,009		-2,750		-2,834		-2,733	

Notes: This table reports a specification analogous to the baseline regression in Table 4 but with provisions to loans as the bank stability indicator. The robust standard errors are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 7: Robustness checks using failed deposits as the bank stability indicator

	I	II	III	IV
Failed deposits of regional banks per total assets	-18.070 ***	-8.748 **	-12.249 **	-9.047 **
	(4.92)	(4.38)	(4.96)	(4.29)
Regional house price gap		0.081 ***	0.058 ***	0.081 ***
		(0.01)	(0.01)	(0.01)
Regional unemployment rate		0.000	-0.064 ***	-0.007
		(0.01)	(0.02)	(0.02)
National inflation		0.569 ***		0.546 ***
		(0.09)		(0.09)
National output gap		0.387 ***		0.391 ***
		(0.03)		(0.03)
National inflation forecast			0.311 ***	
			(0.03)	
National GDP forecast			0.107 ***	
			(0.02)	
Federal funds rate		-0.056 ***	-0.132 ***	-0.053 ***
		(0.01)	(0.02)	(0.01)
Board		-0.069	-0.075 *	
		(0.04)	(0.04)	
Meeting		0.385 ***	0.404 ***	0.387 ***
		(0.10)	(0.10)	(0.10)
Volcker		-0.509 ***	-0.559 ***	-0.521 ***
		(0.11)	(0.12)	(0.11)
Greenspan		-0.720 ***	-0.457 ***	-0.731 ***
		(0.10)	(0.12)	(0.10)
Bernanke		-1.299 ***	-0.904 ***	-1.315 ***
		(0.12)	(0.14)	(0.12)
FOMC experience				0.000
				(0.01)
Finance background				0.007 ***

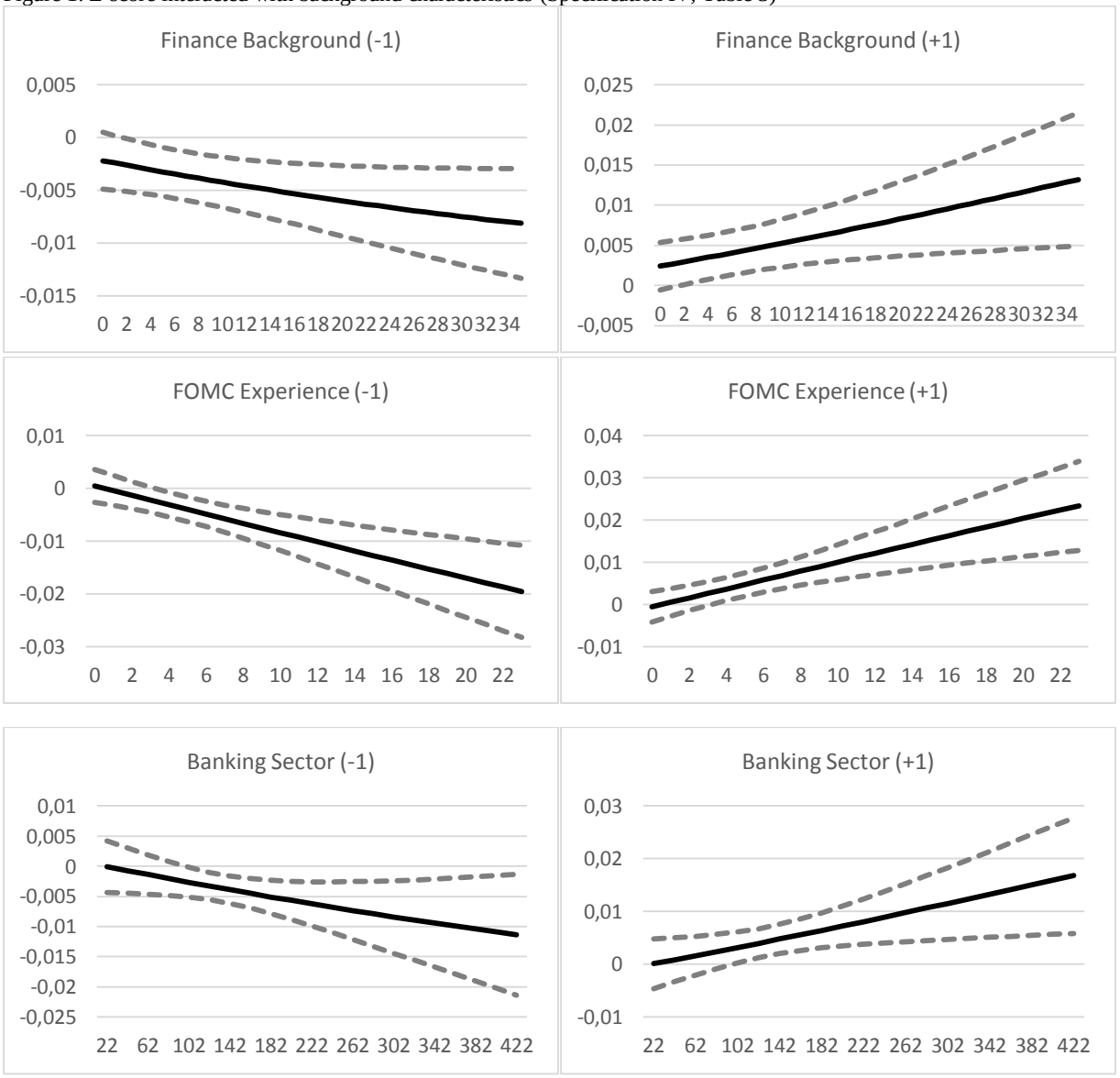
							(0.00)	
Republican Bank president							0.131	*
							(0.07)	
Democratic Bank president							0.073	
							(0.08)	
Republican Governor							0.069	
							(0.07)	
Banking sector							0.001	
							(0.00)	
Threshold 1	-1.097		-1.682		-1.161		-1.520	
	(0.08)		(0.20)		(0.20)		(0.20)	
Threshold 2	0.643		0.250		0.715		0.418	
	(0.08)		(0.19)		(0.20)		(0.20)	
Observations	3264		3264		3264		3254	
Wald chi^2	52.21	***	501.63	***	470.46	***	502.75	***
Prob > chi^2	0		0		0		0	
Pseudo R^2	0.01		0.10		0.07		0.10	
Log pseudo-likelihood	-3,028		-2,753		-2,835		-2,738	

Notes: This table reports a specification analogous to the baseline regression in Table 4 but with failed deposits as the bank stability indicator. The robust standard errors are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 8: Z-score interacted with member-specific characteristics (Specification IV from Table 3)

Z-score interacted with	Easing (-1)		Tightening (+1)	
	0	1	0	1
Finance background	-0.002	-0.005 ***	0.002	0.006 ***
	(0.00)	(0.00)	(0.00)	(0.00)
Banking sector	0.002	-0.005 ***	-0.002	0.006 ***
	(0.00)	(0.00)	(0.00)	(0.00)
Board	-0.005 ***	-0.002	0.006 ***	0.003 *
	(0.00)	(0.00)	(0.00)	(0.00)
FOMC experience	-0.000	-0.008 ***	0.000	0.009 ***
	(0.00)	(0.00)	(0.00)	(0.00)
Republican Governor	-0.010 ***	0.001	0.009 ***	-0.001
	(0.00)	(0.00)	(0.00)	(0.00)
Republican Bank president	-0.015 ***	-0.002	0.018 ***	0.002
	(0.00)	(0.00)	(0.00)	(0.00)

Figure 1: Z-score interacted with background characteristics (Specification IV, Table 3)



Appendix

Table A1: Variable definitions and sources

Variable	Definition	Data Source
	Dependent Variable	
Vote	FOMC member from Federal Reserve district votes in favor of interest rate increase (+1), interest rate decrease (-1), or unchanged interest rate (0)	FOMC voting *minutes*
	Regional variables	
Z-Score	Ratio of the sum of a bank's return on assets and its equity ratio by the (12-quarter rolling) standard deviation of return on assets. Individual bank z-scores are aggregated to the district level, using total assets as a weighting scheme.	Call reports: Fed Chicago and own calculations
Provisions to loans	Provisions for loans and lease losses over total assets. Individual bank provisions to loans are aggregated to the district level using total assets as a weighting scheme.	Call reports: Fed Chicago Call reports: Fed Chicago
NPAs to assets	Sum of total loans and lease financing receivables past due 30-90 or more than 90 days and other real estate owned, both in relation to total assets. Individual bank non-performing assets to assets are aggregated to the district level using total assets as a weighting scheme.	Call reports: Fed Chicago
Failed deposits of regional banks to total assets	Failed deposits of insolvent banks per total assets in the district	Failed deposits: Federal Deposit Insurance Company Call reports: Fed Chicago
Banking sector size	Sum of total assets of all banks in each district, relative to the district's total income.	Call reports: Fed Chicago
Regional house price gap	Percentage deviation of district house price index from time trend. The state-specific house price gap is calculated as the percentage difference between the state-specific house price index and Hodrick-Prescott-based time trend; the smoothing parameter for the Hodrick-Prescott filter was set to 1,600; quarterly house price indexes are interpolated to monthly data using the cubic spline method. The district-specific house price gap is the weighted average of state-specific house price gaps (district boundaries taken from Chappell et al., 2008), with population shares used as the weighting scheme.	House price index for U.S. states: Federal Housing Finance Agency Resident population: Census Bureau
Regional unemployment rate	Difference between unemployment rate in the district and national unemployment rate. The district unemployment rate is the weighted average of state-specific unemployment rates (district boundaries taken from Chappell et al., 2008), with population shares used as the weighting scheme.	National and state unemployment rate: Bureau of Labor Statistics Resident population: Census Bureau
	National Variables	

National inflation	Month-over-month percentage change in consumer price index	Consumer price index: Bureau of Labor Statistics
National output gap	Month-over-month change in Hodrick-Prescott-based GDP gap; the smoothing parameter for the Hodrick-Prescott filter was set to 1,600	National output gap: Bureau of Labor Statistics
National inflation forecast	Inflation forecasts made by professional forecasters, published in the quarterly Survey of Professional Forecasters	Inflation forecast: Federal Reserve Bank of Philadelphia
National GDP forecast	National GDP forecasts made by professional forecasters, published in the quarterly Survey of Professional Forecasters	GDP forecast: Federal Reserve Bank of Philadelphia
Federal funds rate	Federal funds rate on the Wednesday prior to the FOMC meeting	Federal funds rate: Board of Governors
	Institutional Dummy Variables	
Board	Dummy variable; 1 if vote cast by Board member, 0 if vote cast by Bank president	
Meeting	Dummy variable; 1 if vote cast at face-to-face meeting, 0 if vote cast at conference call	
Volcker	Dummy variable; 1 if FOMC chairman is Volcker, 0 otherwise; reference category is the chairmanship of Arthur Miller	
Greenspan	Dummy variable; 1 if FOMC chairman is Greenspan, 0 otherwise; reference category is the chairmanship of Arthur Miller	
Bernanke	Dummy variable; 1 if FOMC chairman is Bernanke, 0 otherwise; reference category is the chairmanship of Arthur Miller	
	Individual background characteristics	
FOMC Experience	Number of years FOMC member has been a committee member	Own calculations
Finance background	Number of years FOMC member has worked in full-time positions in the financial industry before becoming Federal Reserve Bank president or Governor	Own calculations
Republican Bank president	Dummy variable; 1 if Bank president was elected during Republican presidency; 0 if Bank president was elected during Democratic presidency	Own calculations
Republican Governor	Dummy variable; 1 if Governor was appointed by Republican president; 0 if Governor was appointed by Democratic president	Own calculations

Table A2: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Z-score	3083	26.36928	4.936883	10.54077	47.69334
Provisions to loans	3264	0.0051115	0.0058797	-0.0396999	0.0572433
NPAs to assets	3264	0.0063448	0.0054487	0.0007293	0.0363712
Failed deposits of regional banks per total assets	3264	0.0006506	0.0039603	0	0.107443
Regional house price gap	3264	-0.0504266	2.744361	-9.925537	12.52735
Regional unemployment rate	3264	6.116485	1.706874	2.710988	13.53995
National inflation	3264	0.3731528	0.3635116	-1.802778	1.430429
National output gap	3264	0.0372998	0.801422	-2.566872	3.164649
National inflation forecast	3264	3.923963	2.262787	1.236345	9.46113
National GDP forecast	3264	2.48454	1.39078	-2.8214	4.808771
Federal funds rate	3264	6.579779	4.126605	0.11	18.84
Board	3264	0.5490196	0.4976675	0	1
Meeting	3264	0.9178922	0.274571	0	1
Volcker	3264	0.270527	0.4443001	0	1
Greenspan	3264	0.5284926	0.499264	0	1
Bernanke	3264	0.1207108	0.3258408	0	1
FOMC experience	3254	4.770129	4.274621	0	23
FOMC experience dummy	3254	0.419791	0.4936004	0	1
Finance background	3254	5.963122	8.654938	0	35
Finance background	3254	0.4468347	0.4972418	0	1
Banking sector (in %)	3264	92.53082	56.6903	22.12312	431.6582
Banking sector dummy	3264	0.5	0.5000766	0	1
Republican Governor	3254	0.3712354	0.4832095	0	1
Republican Bank president	3254	0.313153	0.4638473	0	1
Democratic Bank president	3254	0.1367548	0.3436411	0	1

Table A3: Ordered probit regression results for the interaction models

	I		II		III		IV		V	
Z-score	0.009		0.010		-0.003		-0.007		0.021	***
	(0.01)		(0.01)		(0.01)		(0.01)		(0.01)	
Regional house price gap	0.086	***	0.085	***	0.091	***	0.089	***	0.088	***
	(0.01)		(0.01)		(0.01)		(0.01)		(0.01)	
Regional unemployment rate	0.003		0.006		-0.003		-0.007		0.001	
	(0.02)		(0.02)		(0.02)		(0.02)		(0.02)	
National inflation	0.500	***	0.498	***	0.505	***	0.501	***	0.498	***
	(0.09)		(0.09)		(0.09)		(0.09)		(0.09)	
National output gap	0.425	***	0.425	***	0.425	***	0.429	***	0.425	***
	(0.04)		(0.04)		(0.04)		(0.04)		(0.04)	
Federal funds rate	-0.055	***	-0.056	***	-0.057	***	-0.055	***	-0.056	***
	(0.01)		(0.01)		(0.01)		(0.01)		(0.01)	
Board									0.210	
									(0.26)	
Z-Score×Board									-0.010	
									(0.01)	
Meeting	0.176		0.176		0.171		0.167		0.177	
	(0.11)		(0.11)		(0.11)		(0.11)		(0.11)	
Volcker	-0.144		-0.135		-0.138		-0.139		-0.130	
	(0.14)		(0.14)		(0.14)		(0.14)		(0.14)	
Greenspan	-0.282	*	-0.254	*	-0.304	**	-0.309	**	-0.285	*
	(0.15)		(0.15)		(0.15)		(0.15)		(0.15)	
Bernanke	-0.965	***	-0.944	***	-0.981	***	-0.949	***	-0.975	***
	(0.16)		(0.16)		(0.16)		(0.16)		(0.16)	
FOMC experience	0.000		-0.002		0.001		0.001		0.001	
	(0.01)		(0.01)		(0.01)		(0.01)		(0.01)	
Finance background	-0.019				0.007	***	0.007	***	0.007	***
	(0.01)				(0.00)		(0.00)		(0.00)	
Z-Score×Finance background	0.001	**								

	(0.00)									
Finance background dummy			-0.272							
			(0.25)							
Z-Score×Finance background dummy			0.013							
			(0.01)							
Republican Bank president	0.162	**	0.173	**	0.152	**	0.157	**	0.087	
	(0.07)		(0.07)		(0.07)		(0.08)		(0.08)	
Democratic Bank president	0.090		0.111		0.070		0.086			
	(0.09)		(0.09)		(0.09)		(0.09)			
Republican Governor	0.111		0.109		0.098		0.103		0.082	
	(0.07)		(0.07)		(0.07)		(0.07)		(0.07)	
Banking sector	0.001	*	0.001	*	-0.003				0.001	
	(0.00)		(0.00)		(0.00)				(0.00)	
Z-Score×Banking sector					0.000	**				
					(0.00)					
Banking sector dummy							-0.770	***		
							(0.25)			
Z-Score×Banking sector dummy							0.031	***		
							(0.01)			
Threshold 1	-1.020		-0.994		-1.424		-1.566		-0.817	
	(0.32)		(0.33)		(0.42)		(0.37)		(0.35)	
Threshold 2	0.928		0.951		0.525		0.384		1.130	
	(0.32)		(0.33)		(0.42)		(0.37)		(0.35)	
Observations	3073		3073		3073		3073		3073	
Wald chi²	367.65	***	363.91	***	366.34	***	373.82	***	362.45	***
Prob > chi²	0		0		0		0		0	
Pseudo R²	0.0816		0.0805		0.0816		0.0824		0.0812	
Log pseudo-likelihood	-2,602		-2,605		-2,602		-2,599		-2,603	

Table A3: Ordered probit regression results interaction models, cont'd

	VI		VII		VIII		IX	
Z-score	-0.002		0.001		0.040	***	0.071	***
	(0.01)		(0.01)		(0.01)		(0.01)	
Regional house price gap	0.085	***	0.085	***	0.081	***	0.099	***
	(0.01)		(0.01)		(0.01)		(0.01)	
Regional unemployment rate	0.003		0.002		-0.022		0.013	
	(0.02)		(0.02)		(0.02)		(0.03)	
National inflation	0.506	***	0.505	***	0.523	***	0.430	***
	(0.09)		(0.09)		(0.12)		(0.13)	
National output gap	0.422	***	0.427	***	0.407	***	0.481	***
	(0.04)		(0.04)		(0.05)		(0.06)	
Federal funds rate	-0.054	***	-0.056	***	-0.060	***	-0.055	***
	(0.01)		(0.01)		(0.02)		(0.02)	
Meeting	0.171		0.163		0.165		0.087	
	(0.11)		(0.11)		(0.15)		(0.16)	
Volcker	-0.135		-0.120		-0.358	*	0.100	
	(0.14)		(0.14)		(0.21)		(0.21)	
Greenspan	-0.277	*	-0.272	*	-0.573	***	-0.043	
	(0.15)		(0.15)		(0.21)		(0.22)	
Bernanke	-0.934	***	-0.938	***	-1.283	***	-0.684	***
	(0.16)		(0.16)		(0.23)		(0.23)	
FOMC experience	-0.103	***			0.009		-0.010	
	(0.03)				(0.01)		(0.01)	
Z-Score×FOMC experience	0.004	***						
	(0.00)							
FOMC experience dummy			-0.981	***				
			(0.22)					
Z-Score×FOMC experience dummy			0.035	***				
			(0.01)					
Finance background	0.006	**	0.006	**	0.001		0.007	*

	(0.00)		(0.00)		(0.00)		(0.00)	
Republican Bank president	0.171	**	0.198	***			1.643	***
	(0.07)		(0.07)				(0.43)	
Z-Score×Republican Bank president							-0.063	***
							(0.02)	
Democratic Bank president	0.038		0.063					
	(0.09)		(0.08)					
Republican Governor	0.076		0.087		1.364	***		
	(0.07)		(0.07)		(0.45)			
Z-Score×Republican Governor					-0.044	***		
					(0.02)			
Banking sector	0.001	*	0.001		0.001		0.001	
	(0.00)		(0.00)		(0.00)		(0.00)	
Threshold 1	-1.283		-1.267		-0.442		0.322	
	(0.34)		(0.33)		(0.49)		(0.56)	
Threshold 2	0.667		0.685		1.542		2.306	
	(0.33)		(0.33)		(0.49)		(0.56)	
Observations	3073		3073		1694		1379	
Wald chi^2	372.25	***	374.65	***	213.61	***	229.25	***
Prob > chi^2	0		0		0		0	
Pseudo R^2	0.083		0.0837		0.0851		0.1104	
Log pseudo-likelihood	-2,598		-2,596		-1,415		-1,143	

Notes: The results came from the ordered probit model estimation. The dependent variable is FOMC member's vote; regional district dummies are included but not reported. The robust standard errors are in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table A4: Marginal effects of z-score using only Bank presidents' votes

Outcome	I	II	III	IV
-1	-0.006 ***	-0.006 ***	-0.007 ***	-0.006 ***
0	-0.001 **	-0.002 ***	-0.002 ***	-0.002 ***
1	0.007 ***	0.008 ***	0.009 ***	0.007 ***
# Obs.	1387	1387	1387	1379

Note: These specifications are analogous to the baseline specification in Table 3 but use only data about Bank presidents' votes.

Table A5: Marginal effects of z-score using only Governors' votes

Outcome	I	II	III	IV
-1	-0.003 *	-0.001	-0.001	-0.001
0	0.000	-0.000	-0.000	-0.000
1	0.003 *	0.001	0.001	0.002
# Obs.	1696	1696	1696	1694

Note: These specifications are analogous to the baseline specification in Table 3 but use only data about Governors' votes.