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# Documenting FOMC Voting Patterns<sup>1</sup>

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In this paper, we outline the key features of the Federal Reserve's (Fed) regional voting rotation and present some data that summarize how that rotation system has worked in practice. We do not address directly a number of underlying issues related to the Federal Open Market Committee's (FOMC) voting outcomes, including the potential role or importance of regional considerations in influencing the votes of FOMC members, the factors that drive FOMC dissents more generally, or lessons from the U.S. experience for the optimal design of the European Central Bank's (ECB) voting mechanism as the number of countries in the euro area expands. Nevertheless, our work does bear on such issues to varying degrees, and we provide some thoughts and conjectures about them in the discussion below.

## 1. Structure of the FOMC

The Fed's key policy-setting body, the Federal Open Market Committee or FOMC, is comprised of 19 members. The composition of the FOMC highlights the dual, public-private nature of the Federal Reserve System. The seven members of the Board of Governors in Washington DC are members of the FOMC. The Board members are nominated by the U.S. President and confirmed by the Senate, and they are public officials in every respect. The FOMC also includes the presidents of the twelve regional Federal Reserve Banks. The Reserve Banks are sprinkled through the country from Boston to San Francisco. The Reserve Bank Presidents are appointed by each bank's Board of Directors, with the approval of the Board of Governors in Washington.<sup>2</sup> The U.S. President and Congress have no formal role

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<sup>1</sup> The views expressed in this paper are solely the responsibility of the authors and should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or of any other person associated with the Federal Reserve System. The authors thank Nathan Montgomery for excellent research support.

<sup>2</sup> Each Federal Reserve Bank has a Board of Directors comprised of nine members. Six of these members are elected by the member commercial banks in each Federal Reserve

in the selection of the Reserve Bank Presidents. As a general statement, the responsibilities and functions of the Bank Presidents have both public sector and private sector elements.

There are twelve votes cast at each FOMC meeting. The seven members of the Board of Governors vote at every FOMC meeting. The voting prerogatives of the Reserve Bank Presidents are determined by a 1942 amendment to the Federal Reserve Act. The President of the Federal Reserve Bank of New York votes at each FOMC meeting and has always been elected the Vice Chairman of the FOMC. In these important respects, the Federal Reserve Bank of New York has been the most influential of the regional banks.<sup>3</sup> The Presidents of the other Reserve Banks cast the four remaining votes according to the following rotation:

- The first of these votes rotates annually between Chicago and Cleveland. The designers of the Fed's voting system apparently wanted to balance concerns about the country's financial interests, which they thought would particularly influence the views of the President of the New York Fed, with concerns about the country's industrial interests, which they expected would particularly influence the thinking of the Reserve Bank Presidents from Chicago and Cleveland.
- The second vote rotates annually between three Eastern regions - Boston, Philadelphia, and Richmond. Thus, these banks vote in one out of every three years.
- The third vote rotates annually between Atlanta, Dallas, and St. Louis.
- The fourth vote rotates annually between Kansas City, Minneapolis, and San Francisco.

It should be noted that non-voting members of the FOMC participate fully in meetings – reporting on economic developments in their respective regions and

district, while the remaining three Directors (including the Chairman and the Vice Chairman) are appointed by the Board of Governors. For further details see *The Federal Reserve System Purposes and Functions* (2005).

<sup>3</sup>In explaining the rationale for allowing the President of the Federal Reserve Bank of New York to vote at every FOMC meeting, the *Federal Reserve Bulletin* (1942) made the following observations: “The Federal Reserve Bank of New York occupies a unique position with respect to the Federal Reserve System, the Treasury, and the banking system of the country. Its resources total approximately 40% of the aggregate of the twelve Federal Reserve Banks. It is located at the central money market and at the principal market for Government securities; its operations as fiscal agent for the United States and its transactions with foreign governments, foreign central banks and bankers, as well as its operations in foreign exchange, are in far greater volume than those of any other Federal Reserve Bank. It is clearly in the public interest that the Federal Open Market Committee be given at all times the benefit of counsel of the Federal Reserve Bank which is in constant touch with the domestic and international money markets and has had long experience in these fields.”

sharing their views regarding the national economy and the appropriate stance of policy—they simply do not cast a vote at the end of the meeting.<sup>4</sup>

## 2. Regional Identity of FOMC Members

It is relatively straight forward to ascribe regional identity to the Reserve Bank Presidents; they live, work, and interact with people in their regions. And, as part of the FOMC process, they typically monitor and report on developments in their regions. Under the Federal Reserve Act, the Board members also have regional identity. No two Board members can come from the same Federal Reserve district. This requirement is treated somewhat flexibly, however. For example, residency requirements surfaced in the 1991 Senate hearings for Lawrence Lindsey's nomination to serve on the Board. The following is an excerpt from those hearings:<sup>5</sup>

*Senator Sarbanes:* “All right. Now, for what geographic region are you being appointed to the Board to represent?”

*Mr. Lindsey:* “I’m representing the Richmond Federal Reserve district.”

*Senator Sarbanes:* “What’s your connection with the Richmond Federal Reserve district?”

*Mr. Lindsey:* “I own a house in Virginia. It’s the only house that my wife and I own. I pay income taxes there, personal property taxes there, vote there. We’ve actually spent half our married life there, in two stints.”

*Senator Sarbanes:* “How much of your life have you spent there?”

*Mr. Lindsey:* “Five years.”

*Senator Sarbanes:* “Out of how many?”

*Mr. Lindsey:* “Thirty-six.”

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<sup>4</sup> Meade (2005) reviews FOMC transcripts and compiles explicit indications of policy preferences for both voting and non-voting FOMC members. She finds that over the 1989-97 period, non-voting Bank Presidents were significantly more likely than voting Bank Presidents to voice disagreement with the Chairman’s interest rate proposal.

<sup>5</sup> See Hearings, pp. 45-46.

*Senator Sarbanes:* “Well. Half of your married life is not highly relevant to the nexus with the Richmond Reserve district, is it?”

*Mr. Lindsey:* “Well, Senator, my –”

*Senator Sarbanes:* “Why do you think that requirement is in the law, in the Federal Reserve law? Why was it put there? Why do we have a geographical requirement? ... Wasn’t one intent at least to get people from different regions of the country who participated in the economic life of their region to sit on the Federal Reserve Board making nationwide monetary policy? ... I don’t understand how you under any stretch of the imagination would meet that criteria for the Richmond Reserve district.”

Despite these objections, Lindsey was subsequently confirmed as a Board member. The residency requirement has been treated flexibly for more recent appointments as well. For example, Edward Gramlich, who lived for many years in Ann Arbor, Michigan and returned there last August after he resigned from the Board, was appointed as representing the Richmond district; his link to the Richmond district was that he had worked in Washington DC (part of the Richmond district) early in his career.<sup>6</sup> Donald Kohn who has lived in the Richmond district for decades, was appointed from the Kansas City district, justified by the fact that he began his professional career as an economist at the Federal Reserve Bank of Kansas City. In contrast, other Board members, including Martha Seger, John LaWare, and Laurence Meyer had comparatively deep roots in their regions.

The clear conclusion is that the nature and extent of regional affiliations differ significantly across Board members. Some have strong connections to their regions, while others do not. For that matter, the same may be said for the Reserve Bank Presidents. Some have spent many years working in their regions (e.g., Alfred Broaddus, Anthony Santomero, and Janet Yellen), while others are appointed as geographic outsiders (e.g., William Poole and Timothy Geithner). As such, the regional identity of Federal Reserve policymakers in many cases is much less clear than is the case, for instance, with the ECB.

For the sake of our analysis, we assign regional identity to Fed policymakers – both Board member and Bank Presidents. We then examine whether there are any systematic differences in the voting behavior of FOMC members from different districts. As we discuss below, one noteworthy feature of the Federal Reserve System is that the Chairman has often had roots in the New York district.

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<sup>6</sup> Biographical information for FOMC members comes from Bloomberg.

### 3. Distribution of FOMC Votes

*Table 1: Size of Federal Reserve Districts*

	Assets (1990)		Population (1990)		Real GDP (1990)	
	USD billions	%	Millions	%	USD billions*	%
Boston	21.5	6.6	12.4	5.0	334	5.6
New York	125.2	38.2	24.1	9.7	718	11.9
Philadelphia	9.3	2.8	11.5	4.6	280	4.6
Cleveland	19.3	5.9	16.1	6.5	352	5.8
Richmond	22.3	6.8	23.3	9.4	580	9.6
Atlanta	16.3	5.0	31.8	12.8	668	11.1
Chicago	40.9	12.5	30.6	12.3	695	11.5
St. Louis	9.2	2.8	12.5	5.0	253	4.2
Minneapolis	5.5	1.7	7.6	3.1	168	2.8
Kansas City	9.7	3.0	13.5	5.5	294	4.9
Dallas	14.5	4.4	18.5	7.4	436	7.2
San Francisco	33.7	10.3	46.7	18.8	1247	20.7
Total	327.6	100.0	248.7	100.0	6024	100.0

*Source: Annual Report of the Board of Governors of the Federal Reserve System (1990), Bureau of Economic Analysis (BEA) data and authors' calculations.*

\* Expressed in 1992 U.S. dollars.

As shown in table 1, there is significant variation in the size of the Federal Reserve districts. (We choose 1990 as our comparison year, since it is near the mid-point of the two samples that we study.) The first two columns of data focus on the assets held by each of the Federal Reserve Banks, sometimes seen as a proxy for the extent of each district's financial development. Three banks hold over 60% of the System's assets, with the New York Fed holding 38.2%, the Chicago Fed holding 12.5%, and the San Francisco Fed holding 10.3%. Population and real GDP are somewhat more evenly distributed, with the San Francisco district at around 20% of both categories, and New York, Richmond, Atlanta, and Chicago all hovering at around 10%. As such, the five largest districts account for 60 to 65% of U.S. population and GDP. Notably, Minneapolis is the smallest district by all three of these measures, with only 1.7% of the System's assets, 3.1% of the U.S. population, and 2.8% of the country's GDP.

*Table 2: Average Votes per FOMC Meeting from 1968 to 2004\**

	All Voters	Board	Bank	Total Votes
New York	1.93	0.93	1.00	733
Chicago	1.27	0.79	0.48	485
Richmond	1.20	0.89	0.31	455
Boston	1.05	0.68	0.37	398
Kansas City	1.00	0.63	0.37	380
Dallas	0.98	0.65	0.33	371
Philadelphia	0.95	0.63	0.32	362
San Francisco	0.85	0.54	0.31	324
St. Louis	0.64	0.31	0.33	244
Atlanta	0.60	0.26	0.34	228
Cleveland	0.51	0.00	0.51	195
Minneapolis	0.44	0.12	0.32	170

*Source: Authors' calculations.*

\* Calculated using 380 FOMC meetings, including both scheduled meetings and conference calls.

Table 2 tabulates FOMC votes by region (including both Board members and Reserve Banks Presidents) from 1968 to 2004.<sup>7</sup> As shown in the first row, the New York district has had far and away the most voting power, casting on average 1.93 votes at each FOMC meetings over this period, for a total of 733 votes. The New York Fed President (or First Vice President) cast a vote at 379 of the 380 meetings,<sup>8</sup> and a New York Board member voted at 93% of the meetings. Moreover, these voting statistics if anything understate the influence of the New York district in the formulation of monetary policy because three of the Chairmen during this period – William Martin, Arthur Burns, and Alan Greenspan – came

<sup>7</sup> See also Meade and Sheets (1999).

<sup>8</sup> If the President of the Federal Reserve Bank of New York cannot attend an FOMC meeting, his vote is cast by the Bank's First Vice President.

from New York. Thus, the person chairing the FOMC meeting represented New York in 279 of the 380 meetings that we consider.<sup>9</sup>

After New York, the regions divide quite neatly into three separate groups. The next group includes Chicago and Richmond, which have each cast on average about 1-1/4 votes at FOMC meetings. The following group includes Boston, Kansas City, Dallas, Philadelphia, and San Francisco. Each of these districts has cast roughly one vote per meeting. Finally, St. Louis, Atlanta, Cleveland, and Minneapolis have had the least voting power, casting only about ½ vote on average per meeting.

There is notable variation in the extent to which the various districts have been represented on the Board. New York and Richmond (the district that includes Washington DC) have been represented by Board members at about 90% of the FOMC meetings. In contrast, Minneapolis has been represented only 12% of the time, and there has not been a Board member from Cleveland in the entire span of our 1968 – 2004 sample.<sup>10</sup>

There are clearly some divergences between measures of relative district size – such as financial assets, population, and real GDP – and regional voting power. The most striking divergence (see table 3) is that San Francisco ranks third for assets and first for population and real GDP, but only eighth for voting frequency. Cleveland and Atlanta also seem to be significantly under-represented given measures of their economic mass. In contrast, Philadelphia and Kansas City seem to have had more votes than would be justified on the basis of these criteria. For example, Kansas City is ninth in terms of assets and real GDP and eighth in terms of population, but fifth in terms of voting power.

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<sup>9</sup> In addition, Paul Volcker was serving as President of the New York Fed when he was appointed Federal Reserve Chairman, but Emmett Rice held a seat for New York at that time. Accordingly, during Volcker's tenure as Chairman he represented the Philadelphia district, which encompasses the place where he was born (Cape May, New Jersey).

<sup>10</sup> The last Board member from the Cleveland district was John McKee, who served on the Board from February 1936 through April 1946.



*Table 3: Rankings of Federal Reserve Districts*

	Votes per Meeting (1968–2004)	Assets (1990)	Population (1990)	Real GDP (1990)
Boston	4	5	10	8
New York	1	1	4	2
Philadelphia	7	10	11	10
Cleveland	11	6	7	7
Richmond	3	4	5	5
Atlanta	10	7	2	4
Chicago	2	2	3	3
St. Louis	9	11	9	11
Minneapolis	12	12	12	12
Kansas City	5	9	8	9
Dallas	6	8	6	6
San Francisco	8	3	1	1

*Source: Authors' calculations.*

Such observations regarding apparent misalignments between voting shares and measures of relative regional size and significance are not widely recognized. Such observations certainly are not part of public discussions of how the Federal Reserve operates, and they have not really been part of the academic discussion either. This may at root reflect that regardless of the geographical composition of the FOMC, the members are primarily concerned with constructing policy to achieve national objectives; and, for this reason, the regional composition of the FOMC has had little effect on policy and, thus, has not drawn attention.

Along these lines, we emphasize that the Federal Reserve districts do not correspond to any well-delineated political jurisdictions. Many U.S. states are split between two Federal Reserve districts. The average “person on the street” would have little idea which district his home was in.<sup>11</sup> For these reasons, regional identity on the FOMC is likely much less pronounced than is the case in Europe for the ECB. If ECB voting structures resulted in the kinds of divergences between relative voting strength and, say, real GDP that have been observed for the FOMC, it would have likely attracted much more attention than has been the case for the United States. For example, if Germany had cast twice as many votes as France (or

<sup>11</sup> Gildea (1992) similarly notes that “typically a Federal Reserve district covers several entire states and sections of several other states. The irregular and little known boundaries of these districts may make the economic statistics and political events in these districts less likely to attract day-to-day highly publicized attention from the popular media.”

vice versa) – similar to what has happened with New York and San Francisco – this likely would have drawn public attention and been a subject of discussion.<sup>12</sup>

#### 4. FOMC Dissenting Votes

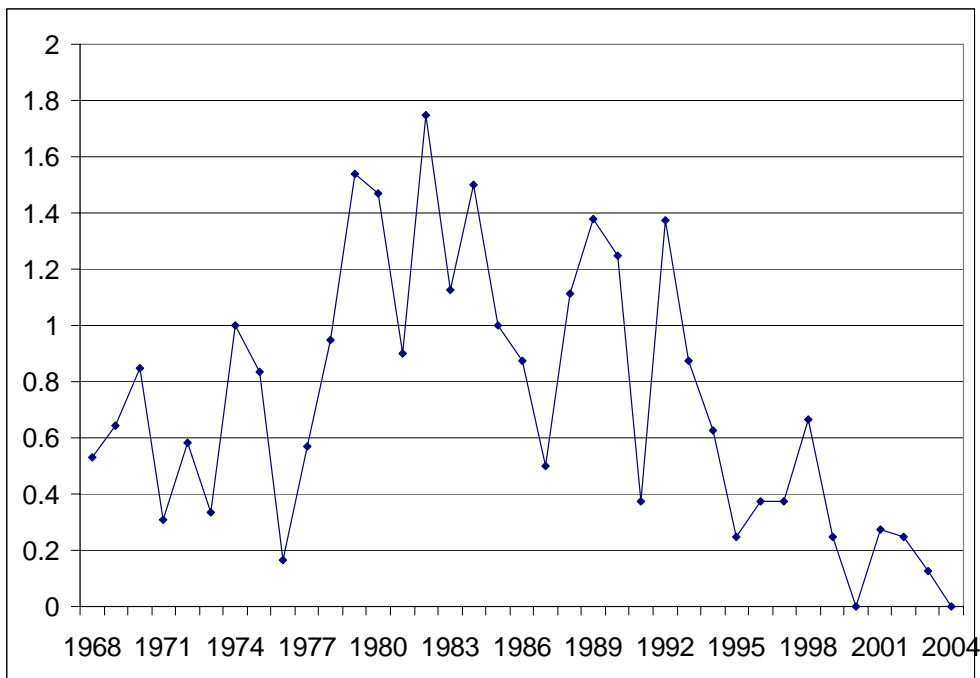
We now turn to a discussion of FOMC dissenting votes. As shown in chart 1, which plots the average number of dissents per meeting for each year from 1968 to 2004, dissents per meeting peaked in the late 1970s and early 1980s, as the FOMC aggressively tightened policy to bring down high inflation. Over the past five years, however, dissents from the majority have been at or near zero. For all intents and purposes, there has been consensus on the FOMC regarding the course of policy. This is remarkable, given that the economy has experienced some sizable shocks and that the global economic environment has been quite challenging. On average over this 36-year period, there has been about three quarters of a dissent per meeting or, alternatively, three dissents for every four meetings.

A discussion of what drives dissents is beyond the scope of this paper. However, we have found in other work that divergent regional performance may be a source of dissents. In particular, when a region's unemployment rate is below the national average, FOMC members from that region (both Board members and Bank Presidents) are more likely to dissent for tighter policy and less likely to dissent for easier policy than would otherwise be the case. By the same token, when a region's unemployment rate is above the national average, FOMC members from that region are more likely to dissent for easier policy and less likely to dissent for tightening.<sup>13</sup> Of course, there are other factors – including the Chairman's ability to persuade members and form coalitions and the extent of prevailing economic uncertainties – that also play an important role in driving FOMC dissents. (An interesting, albeit somewhat speculative, question is whether FOMC dissents will again rise following the departure of Chairman Greenspan in early 2006.)

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<sup>12</sup> This observation is not inconsistent with results shown in Berger (2005) suggesting that a measure of the aggregate mismatch between voting weights and regional GDP shares is greater for the ECB than for the Federal Reserve. First, Berger's calculations assume that Board members have no regional identity and, as such, weight regions according to GDP shares. Given that Board members constitute 7 of the 12 members of the FOMC but only 6 of the 18 members of the ECB Governing Council, this feature of his calculations tends to reduce mismatch for the FOMC relative to the ECB. Second, in the case of the ECB, mismatch has arisen because the central bank governors from large countries and small countries each cast one vote at policy meetings not because one large country has voted significantly more frequently than another large country, an outcome which would be more likely to draw public attention.

<sup>13</sup> This evidence is outlined in detail in Meade and Sheets (2005).

*Chart 1: Dissents per Meeting\**

\* Number of dissents in all meetings in a given year divided by the number of meetings in that year.

Source: Authors' calculations.

As shown in table 4, over our sample period dissents have totaled 7.1% of FOMC votes. Board members have dissented 6.3% of the time, while Bank Presidents have dissented more frequently, 8% of the time.<sup>14</sup> One hypothesis to explain the lower dissent rate for Board members is that working in the same building with the Chairman and sharing staff with the Chairman, Board members are more likely than Bank Presidents to see the world in the same way that the Chairman does. It is also possible that, given this proximity, the Chairman has more opportunities to influence the thinking of the Board members.

<sup>14</sup> The dissent probabilities reported in Table 4 exclude votes by the Chairman. A feature of FOMC meetings is that the Chairman frames the question on which votes are cast and, as such, the Chairman does not dissent. If votes by the Chairman are included in the tally (the last line of Table 4), the dissent frequency for all voters falls to 6.5%, and the dissent rate for Board members declines to 5.4%.

*Table 4: Frequency of Dissent from 1968 to 2004\**

	All Voters (%)	Board (%)	Bank (%)	Tot. Dissents
Cleveland	12.3	.....	12.3	24
St. Louis	11.5	1.7	20.8	28
Boston	10.6	12.8	6.4	42
Minneapolis	7.6	4.3	8.9	13
San Francisco	7.0	8.3	6.4	21
Chicago	7.0	11.3	0.0	34
Richmond	6.4	3.6	14.4	29
Dallas	6.2	4.5	9.7	23
Kansas City	6.1	5.4	7.2	23
New York	5.7	6.5	5.5	26
Atlanta	5.3	1.0	8.4	12
Philadelphia	2.4	1.8	3.3	7
Total	7.1	6.3	8.0	282
<i>Total including Chairmen</i>	<i>6.5</i>	<i>5.4</i>	<i>8.0</i>	<i>282</i>

\* Dissents as share of each district's votes; excludes votes by Chairmen.

Source: Authors' calculations.

Among the regional banks, there have been striking differences in dissent frequency. The Presidents of the St. Louis Bank have been the most frequent dissenters by far, disagreeing with the majority 20.8% of time. Dissent probabilities for Richmond and Cleveland Fed Presidents have also been high, 14.4% and 12.3%, respectively. Previous researchers have linked the frequent dissents of the St. Louis and Cleveland Reserve Bank Presidents to the monetarist views held by some presidents of those banks.<sup>15</sup> On the other end of the spectrum, the President of the Chicago Fed has not dissented even once since 1968, and the President of the Philadelphia Fed has only dissented 3.3% of the time.

For the Board members, Boston and Chicago have been the most frequent dissenters, voting "no" in well over 10% of their votes. In contrast, dissents for the Board members from several other districts – including St. Louis, Atlanta, and Philadelphia – have been very rare, in the 1 to 2% range.

<sup>15</sup> See, for example, Gildea (1990).

## 5. Direction of Dissenting Votes

We now turn to the direction of dissent; that is, whether the dissenting vote was in favor of tighter policy or looser policy than that preferred by the FOMC majority. We have collected information on the direction of dissents from 1978 to 2004, a somewhat shorter sample than in the previous discussion. This sample captures 249 meetings (including both scheduled meetings and conference calls), 2,788 FOMC votes, and 206 dissents.

*Table 5: Direction of Dissents from 1978 to 2004*

	Tightening Dissents		Easing Dissents	
	Number	Share*	Number	Share*
Atlanta	7	1.00	0	0.00
Boston	32	0.94	2	0.06
Minneapolis	10	0.91	1	0.09
Cleveland	19	0.90	2	0.10
Kansas City	17	0.89	2	0.11
St. Louis	12	0.80	3	0.20
Dallas	13	0.76	4	0.24
Richmond	19	0.66	10	0.34
New York	5	0.45	6	0.55
San Francisco	3	0.30	7	0.70
Philadelphia	0	0.00	1	1.00
Chicago	0	0.00	31	1.00
Total	137	0.67	69	0.33

*Source: Authors' calculations.*

\* *Dissents in favor of tightening/easing as a share of each district's total dissents.*

As shown in table 5, two thirds of total dissents – including both Board members and Bank Presidents – were in favor of tighter policy, and only one third were in favor of easier policy. In other words, dissenters were twice as likely to be hawks as doves.

There are some striking differences in voting behavior across regions. Most districts have cast the vast majority of their dissents in favor of tighter policy. For example, Boston voters dissented 32 times for tighter policy and only twice for easier policy. On the other hand, voters from Chicago voted 31 times for easing

and did not cast a single dissent for tighter policy. Another remarkable observation is that voters from Philadelphia dissented only once in the 1978 – 2004 period.

*Table 6: Dissents by Board Members from 1978 to 2004*

	Tightening Dissents		Easing Dissents	
	Number	Share*	Number	Share*
Boston	31	1.00	0	0.00
Kansas City	10	0.91	1	0.09
Dallas	7	0.88	1	0.13
Richmond	2	0.17	10	0.83
Minneapolis	0	0.00	1	1.00
San Francisco	0	0.00	5	1.00
New York	0	0.00	5	1.00
Chicago	0	0.00	31	1.00
<i>No Dissents:</i>				
St. Louis	0	.....	0	.....
Atlanta	0	.....	0	.....
Philadelphia	0	.....	0	.....
<i>No Votes:</i>				
Cleveland	.....	.....	.....	.....
Total	50	0.48	54	0.52

*Source: Authors' calculations.*

*\* Dissents in favor of tightening/easing as share of dissents by Board members from that district.*

Tables 6 and 7 take a closer look at these differences across regions, again breaking dissents into those by Board members and those by Bank Presidents. Notably, Board members (shown on table 6) were slightly more likely to dissent for easier policy than for tighter policy. Equally striking, Boston and Chicago account for more than half of the dissents by Board members. Board members from the Boston region have dissented for tighter policy 31 times, with no dissents for easier policy, while those from Chicago have dissented for easier policy 31 times, with no

dissents in the opposite direction.<sup>16</sup> Board members from other districts have also shown pronounced differences in their dissent behavior. For example, voters from Kansas City and Dallas have tended to be hawks like those from Boston, while voters from Richmond, San Francisco, and New York have been relatively dovish. Another systematic difference is that while Board members from Boston and Chicago dissented frequently during our sample, those from St. Louis, Atlanta, and Philadelphia did not cast even a single dissenting vote.

*Table 7: Dissents by Bank Presidents from 1978 to 2004*

	Tightening Dissents		Easing Dissents	
	Number	Share*	Number	Share*
Richmond	17	1.00	0	0.00
Minneapolis	10	1.00	0	0.00
Atlanta	7	1.00	0	0.00
Cleveland	19	0.90	2	0.10
Kansas City	7	0.88	1	0.13
New York	5	0.83	1	0.17
St. Louis	12	0.80	3	0.20
Dallas	6	0.67	3	0.33
San Francisco	3	0.60	2	0.40
Boston	1	0.33	2	0.67
Philadelphia	0	0.00	1	1.00
<i>No Dissents:</i>				
Chicago	0	.....	0	.....
Total	87	0.85	15	0.17

*Source: Authors' calculations.*

\* *Dissents in favor of tightening/easing as share of dissents by Bank Presidents from that district.*

<sup>16</sup> Through our sample period, the Boston seat has been held by three different people (Henry Wallich, John LaWare, and Roger Ferguson), and the Chicago seat has been held by four individuals (Nancy Teeters, Martha Seger, Susan Phillips, and Susan Bies). The divergence between the voting patterns of the Boston and Chicago Board members appears to have attenuated over time, however, as FOMC dissents have become increasingly rare. The last occupants of these seats – Ferguson and Bies – have never cast a dissenting vote.

The source of these differences in the dissent patterns of Board members remains very much an open issue. As noted above, we think regional concerns may have played a role in driving these results. Whatever the cause, there do seem to have been differences in the frequency of dissent and the direction of dissent across Board members from various regions.

Table 7 highlights the relative hawkishness of the Bank Presidents. Their dissents have been for tighter policy a substantial 85% of the time. There is no regional bank that shows an inclination to dissent consistently for easier policy. One interesting observation is that the Reserve Bank President from Boston has dissented on only three occasions and the President of the Chicago Fed has never dissented, in marked contrast to the frequent dissents by the Board members from these regions.

## 6. Conclusions

Our examination of Federal Reserve voting data has suggested the following broad conclusions about the features of the FOMC's voting rotation and of voting patterns more generally:

- First, New York appears to have been the most influential district, averaging nearly two votes per FOMC meeting; in addition, Chairmen have often had roots in the New York region. The other districts fall into three tiers of voting strength. Two districts (Chicago and Richmond) have averaged about 1-1/4 votes per meeting. Five districts have averaged about one vote per meeting. And the remaining four districts have averaged roughly half a vote per meeting.
- Second, in a number of instances, we see marked divergences between a region's voting frequency and its relative economic size and population. Most notably, the San Francisco district appears to be significantly underrepresented by these metrics. Such divergences have drawn little attention in the United States, but might be less politically viable in a monetary union composed of nation states such as EMU.
- Third, the extent to which regional identity and regional considerations influence FOMC voting behavior remains an open issue, but we do observe significant differences across regions in the frequency and direction of dissents. The source of these differences merits further examination.
- Fourth, Board members who share a building with and are briefed by the same staff as the Chairman have dissented less frequently on average and have been less hawkish in their dissents than have the regional banks presidents.



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