FOMC Consensus Forecasts

William T. Gavin and Geetanjali Pande

In November 2007, the Federal Open Market Committee (FOMC) announced a change in the way it communicates its view of the economic outlook: It increased the frequency of its forecasts from two to four times per year, and it increased the length of the forecasting horizon from two to three years. The FOMC does not release the individual members' forecasts or standard measures of consensus such as the mean or median. Rather, it continues to release the forecast information as a range of forecasts, both the full range between the high and the low and a central tendency that omits the extreme values. This paper uses individual forecaster data from the Survey of Professional Forecasters (SPF) to mimic the FOMC's method for creating their central tendency. The authors show that the midpoint of the central tendency of the SPF is a reliable measure of the consensus, suggesting that the FOMC reporting method is also a reliable measure of consensus. For the dates when both are available, the authors also compare the relative forecast accuracy of the FOMC and SPF consensus forecasts for output growth and inflation. Overall, the differences in forecast accuracy are too small to be statistically significant. (JEL C42, E17, E37, E52)

I n a November 14, 2007, press release, the Federal Open Market Committee (FOMC) announced a change in the way it communicates its view of the economic outlook. With the release of the minutes of the FOMC meeting of October 30-31 was a Summary of Economic Projections that included explicit multiyear forecasts for real gross domestic product (GDP), the fourth-quarter average unemployment rate, and two measures of consumer price inflation—the chain price index for personal consumption expenditures (PCEPI) and the same measure excluding food and energy (core PCEPI).[1] The FOMC also added a 3-year-ahead forecast. For the October meeting, they made forecasts for calendar years 2007 through 2010. The FOMC will release projections for

these calendar years with the minutes of FOMC meetings held in January, March, and June. At the October 2008 FOMC meeting, they will extend the forecasts to 2011. The projections will be supplemented with summaries and explanations of the projections, including more information about the dispersion of views among the FOMC participants. This change was made to improve communication about monetary

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[1] We use the term "projection" interchangeably with "forecast." There is a technical distinction: a projection is based on a policy assumption that may or may not also be the policy that the forecaster expects. Each FOMC participant conditions his or her assumption about "appropriate" monetary policy. This can be different for each participant and may be different from the policy that is actually expected. Note also that the Federal Reserve Board staff "Greenbook" forecasts were often based on a federal funds rate path that was constrained to be different from the one that the staff expected.

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policy and to further increase the transparency of the policy process.[2]

Currently, the FOMC issues a statement following each policy meeting that contains a decision about the federal funds rate target and a brief analysis of the economic risks as seen by policymakers. Market observers monitor these statements closely, looking for clues about future policy moves and the FOMC's beliefs about the economic outlook. Sack (2007) describes a recent survey in which Macroeconomic Advisors LLC asked 61 "very active players" in the fixed income market what changes they would like to see in the Fed's economic forecast.[3] They replied that they would like more of everything—more variables to be forecasted, forecasts of more years out into the future, and more details and insights about the reasons for the changes in the forecasts. The enhanced projection process should help to quantify the risks and explain the nature of uncertainty in the policy statement.

FOMC forecasts are important because they contain information about the FOMC policy preferences. Most important of these is the FOMC's implicit inflation objective. Monetary policy is the main factor determining inflation in the long run. The near-term outlook for inflation is affected by all the economic shocks hitting the economy. But the aggregate effects of such shocks decay quite rapidly if they are not accommodated by monetary policy. The newly available 3-year-ahead forecast adds more information about the FOMC's desired inflation objective because, as the horizon gets longer, the forecast becomes more a projection of these preferences. For the near term, the forecasts provide a benchmark for gauging how policymakers respond to news about inflation, output, and unemployment. The policy reactions and accompanying narrative help the public understand how the FOMC believes that policy affects the economy.

The forecasts also provide information about the FOMC's assessment of the state of the economy—assessment of the trend growth of real GDP and the natural rate of unemployment and the stage of the business cycle around these trends. This information is important for the market's assessment of the equilibrium real interest rate and the real effects of policy actions.

The information gleaned from FOMC forecasts is important for Wall Street because it provides a frame of reference for the expected neutral federal funds rate—the rate that is expected to prevail in a world with full employment and price stability. Forecasters can make better forecasts in the short run if they know the long-run trends. Knowledge of the long-run trends is also important for Main Street to help set prices in wage and supply contracts and to know what interest rates are appropriate when making savings and investment decisions.

The FOMC projections are made by the individual Federal Reserve Bank presidents and Federal Reserve governors. The new forecast information includes histograms showing the distribution of the individual forecasts. The Fed reports two summary statistics: the full range (the high and the low for each variable) as well as a smaller range (called the central tendency) that eliminates the three high and the three low forecasts, but does not include the mean, median, or the actual forecasts.[4] In this study, we define the FOMC "consensus" forecasts as the midpoints of the reported ranges.

The primary goal of this article is to evaluate the reliability of the midpoint of the central tendency as a measure of consensus. We do this by replicating the Fed's reporting method using the individual responses in the Survey of Professional Forecasters (SPF). That is, we construct the range and central tendency of the SPF individual forecasts and compare the midpoint of these ranges with the traditional measures of consensus—the median and mean response. This comparison is intended to determine whether the midpoint of the range serves as an accurate proxy for the mean and/or median. The second goal is to compare

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[2] Bernanke (2007) discusses the rationale for making these changes. The minutes of the October 30-31, 2007, meeting also reported evidence from Reifschneider and Tulip (2007) about the uncertainty in the forecasts based on the history of various forecasts made between 1986 and 2006.

[3] See Sack (2007).

[4] See footnote 6 in Bernanke (2007).

the accuracy of FOMC consensus forecasts with the SPF consensus forecasts.

PREVIOUS STUDIES OF FOMC FORECASTS

Although there are many studies of the Board staff's Greenbook forecast, there are only a few studies that analyze the biannual FOMC forecasts directly.[5] The first study was McNees (1995), which tabulated how often the actual forecast fell within each of the two intervals, the full range and the central tendency. Generally, he found that the FOMC was more likely to be successful (that is, have the actual outcome fall within the forecast intervals) when the value used to measure the outcome was the first published figure and the forecast horizon was longer. He concluded that, although inherent uncertainty in the forecast rose with the length of the forecast horizon, dispersion among the FOMC member forecasts rose even faster, so that the outcome was more likely to fall within the forecast range.

Gavin and Mandal (2003) use the midpoint of the range as a consensus FOMC forecast. They compare these point forecasts of output and inflation with the Blue Chip consensus. They conclude that the Blue Chip consensus closely matches the FOMC's central tendency forecasts; and, for 1983-94, the Blue Chip consensus was as good as or a better match for the FOMC forecasts than were the Federal Reserve Board staff Greenbook forecasts. In the early years, the Blue Chip consensus real GDP growth forecast was at least as accurate as the FOMC forecast, but the inflation forecast was less accurate. These results will differ from others for two reasons. First, as we also do in this study, Gavin and Mandal (2003) define the FOMC's consensus inflation forecast as the difference between the midpoint of the range for nominal output minus the midpoint of the range for real output. Second, as in this study, they use the

first-released data as the "truth" against which the forecasts were measured.

Gavin (2003) describes the history and detail of the FOMC forecasts and shows that there is not much difference between the midpoints of the full range and the central tendency. He also shows that disagreement among the FOMC members' inflation forecasts rose with the length of the forecast horizon, suggesting that, although the Committee had reached a consensus on the importance of the long-term price stability objective, they had not reached a consensus on how that long-term price stability objective mapped into a numeric inflation rate.

Gavin and Mandal (2001) show that a forward-looking Taylor rule estimated using FOMC forecasts of output and inflation fits the interest rate data quite well, but no better than one using the Blue Chip forecasts. Levy and Kretzmer (2006) provide a historical description of the FOMC forecasts, comparing the forecasts with those of the Greenbook. They use regression analysis to estimate how the FOMC changed the federal funds rate target in reaction to errors in its forecasts. Orphanides and Wieland (2007) also use regression analysis to estimate FOMC reaction functions that use the FOMC consensus forecasts for inflation and unemployment. They find that using the FOMC forecasts in forward-looking Taylor rules fit the historical federal funds rate data better than in backward-looking versions that rely on recent economic outcomes. Romer and Romer (2007) use forecast combination methods to test whether the FOMC forecasts added useful information to the Greenbook forecasts: They find that knowing the FOMC forecasts did add useful information to the Greenbook forecasts for output growth, but not for inflation or the unemployment rate.

Other studies have used the size of the range of FOMC forecasts as a measure of uncertainty. Mankiw, Reis, and Wolfers (2003) show that the size of the FOMC's range and truncated central tendency are correlated with measures of uncertainty in private sector forecasts. Dowd (2004) tests and rejects the assumption that the FOMC forecasts are independent random draws from a common density function. Although he does not discuss alternative interpretations, a more accu-

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[5] An early study of Greenbook forecasts was Lombra and Moran (1980). A sample of studies since then includes Karamouzis and Lombra (1989), Jansen and Kishan (1996), Romer and Romer (2000), Joutz and Stekler (2000), Gavin and Mandal (2003), and Baghestani (2008).

rate view is that the forecasts are individual esti-
mates of the mean of an uncertain distribution.
Rich and Tracey (2006) use the SPF forecasts,
which include probability densities for the indi-
vidual forecasts of inflation and output, to address
this issue directly. With the new FOMC forecasting
process, the Summary of Economic Projections
provides quantitative and qualitative information
on outlook uncertainty.

THE HISTORICAL DATA

The FOMC Forecasts

Fed policymakers began reporting economic
projections to Congress in response to require-
ments of Section 108 of the 1979 Humphrey-
Hawkins Act. The first report was made in July
1979.[6] Since then, similar summaries of forecasts
have been reported every February and July. The
FOMC members made forecasts of annual, fourth-
quarter-over-fourth-quarter growth rates for nomi-
nal GDP, real GDP, and inflation.[7] They also
forecasted the average level of unemployment
for the fourth quarter of the year. In February, the
forecasts pertain to the current calendar year (also
referred to below, simply, as the 12-month-ahead
forecasts) and, since 2005, also to the next calen-
dar year (24-month-ahead forecasts). In July, fore-
casts are updated for the current calendar year
(6-month-ahead forecasts) and preliminary pro-
jections are made for the next calendar year (18-
month-ahead forecasts). From these reports, we
can construct "consensus" forecasts based on the
midpoint of the respective intervals—the full
range and the central tendency.

The Private-Sector Forecasts

The Blue Chip Consensus. Most of the work
comparing the FOMC policymaker forecasts with
private sector forecasts has been done using the

Blue Chip consensus forecasts, which are updat-
ed every month and, therefore, can be closely
aligned with FOMC forecasts made at the end
of January and June. However, the Blue Chip
does not maintain records of individual fourth-
quarter-over-fourth-quarter forecasts that are
needed to simulate the FOMC reporting method.
Therefore, we use the SPF data for this analysis.
However, the SPF makes forecasts in February,
May, August, and November, and so it is not
possible to align any of these forecasts with the
FOMC policymaker forecasts that are made at
the end of June. Consequently, we restrict the
comparison to the 12-month-ahead forecast—
which matches the FOMC's February forecasts.

The SPF. The SPF is a quarterly survey
started by the American Statistical Association
and the National Bureau of Economic Research
in 1968; since the second quarter of 1990, it has
been conducted by the Federal Reserve Bank of
Philadelphia. The survey presents consensus
forecasts, as well as individual and probabilistic
forecasts, for variables including real output
and inflation. As noted, forecasts are made in
February, May, August, and November of each
year and provide predicted values of variables
for the current quarter and the next four quarters,
as well as annual averages for the current and
following year. Although the real GDP forecasts
(real GNP before 1992) and GDP price index fore-
casts are for quarterly and annual average levels,
consumer price index (CPI) forecasts are for
annualized quarter-over-quarter percent changes
in the quarterly horizon and fourth-quarter-over-
fourth-quarter percent changes in the annual
horizon. Beginning in the first quarter of 2007, the
forecast horizon for CPI inflation was extended
to report the fourth-quarter-over-fourth-quarter
percent change for the current year and next two
years.

The SPF's February reports serve as our source
for the 12-month-ahead forecasts of real output
and inflation. Like the FOMC members, the SPF
respondents would have had information about
fourth-quarter GDP in hand when they made this
forecast. Here, we construct a central tendency
range for the SPF. Because the SPF often includes
more than 19 forecasts (the maximum number

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[6] The reporting requirements of the Humphrey-Hawkins Act
    expired in May 2000. The Congress amended and continued the
    reporting requirements in the American Homeownership and
    Economic Opportunity Act of 2000 (Section 1003).

[7] The Fed followed the Bureau of Economic Analysis, switching
    from GNP to GDP in 1992.

possible for the Fed policy group), we compute the central tendency by eliminating two outliers (one high and one low) for every six forecasts. For a group the size of the FOMC, this is comparable to eliminating the top and bottom three forecasts—the method the FOMC uses to calculate its central tendency.

RESULTS

We compare the forecasts for output and inflation separately. The FOMC and the private forecasters used GNP as the measure of output until 1992, when they switched (along with the Bureau of Economic Analysis) to GDP. The FOMC switched among price indices several times: Specifically, it used the GDP deflator from 1983 through 1988, the CPI from 1989 through 1999, the PCEPI from 2000 through 2003, and finally the core PCEPI from 2004 through 2006. The SPF has included forecasts for both the GDP deflator and the CPI, but not the PCEPI or its core until recently; so we use the SPF forecast for the GDP deflator from 2000 through 2006 because it is more comparable to the PCEPI than is the CPI. Note, also, that the FOMC always made an implied forecast for inflation in the GDP deflator because, until November 2007, they had made forecasts for both nominal and real output. We match apples to apples between the FOMC and SPF projections where possible—i.e., GDP/GNP deflator to GDP/ GNP deflator for either the full sample or through 1988 and the CPI to CPI from 1989 through 1999.

Output Growth Forecasts

Figures 1 and 2 show the 12-month-ahead output growth forecasts. Figure 1 shows the full range and central tendency of FOMC forecasts. Whenever the central tendency limits coincide with the limits of the full range, eliminating the three extreme values does not change the limiting value. These forecasts reflect the 1990-91 recession (with a trough in March 1991) but not the 2001 recession (trough in November 2001).

Figure 2 shows the full range and central tendency of SPF output growth forecasts. In this case, eliminating outliers makes a big difference

in the size of the range. The range of SPF forecasts is much wider than that for the FOMC forecasts. The SPF group is larger, which may account for some of the difference. But it also appears that the distributions of SPF forecasts have fatter tails. A plausible explanation for the more concentrated distribution of FOMC forecasts is that the policymakers get together eight times per year at meetings that include an economic briefing by the research staff at the Board of Governors. The purpose of the staff briefing, which includes the Greenbook forecast, is to provide the FOMC a common point-of-departure for discussing the outlook and monetary policy. Furthermore, some participants may not produce forecasts from scratch but instead may use the Greenbook as a benchmark from which to generate an outlook in sync with their views.

We construct "consensus" forecasts by taking the midpoints of the range and the CT. Figure 3 plots the midpoint of the CT forecast ranges for both the FOMC and the SPF. The CTs of both the SPF and FOMC forecasts are quite similar, although the SPF forecasts are slightly more pessimistic about output growth during the late 1980s and recently. Figure 4 shows that the SPF CT aligns very well with the respective mean and median output forecast—which would be the conventional measures of consensus. This alignment suggests that the midpoint of the CT for the FOMC forecasts is probably a good measure of the group consensus for output growth. Note that, going forward, one could also construct a consensus that is an approximation to the mean using histograms (see boxed insert). We did this for the forecasts made at the October 30-31, 2007, FOMC meeting and found that this approximation was always within 5 basis points of the midpoint of the CT for all the variables forecasted and over all horizons.

To assess the accuracy of these alternative forecasts, we calculate the difference between the consensus forecasts and the real-time data that were first released. We use the first-released numbers as the actual because we believe that these data contain more news than subsequent revisions and are, therefore, more important for financial markets. It is also important to use first-

Figure 1

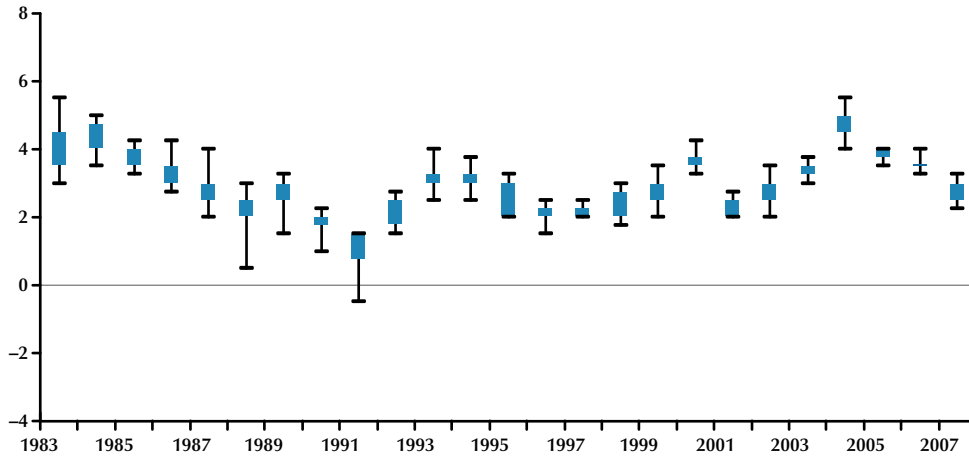**FOMC Output Growth Forecasts Range and Central Tendency**

Figure 2

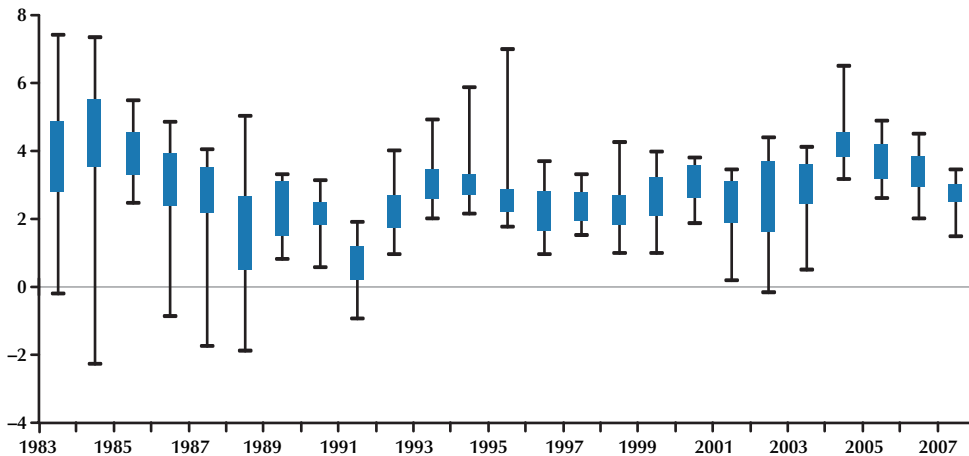**SPF Output Growth Forecasts Range and Central Tendency**

Figure 3

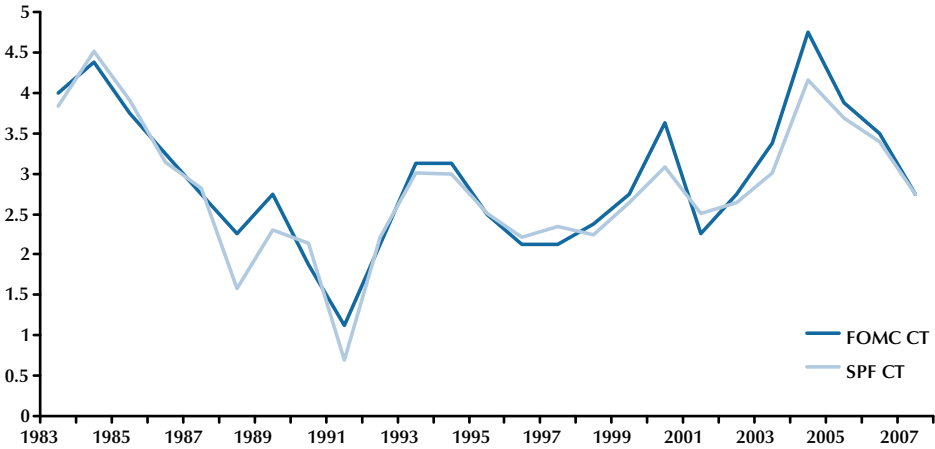**Consensus Forecasts of Real GDP Growth (4Q/4Q) Made in February**

Figure 4

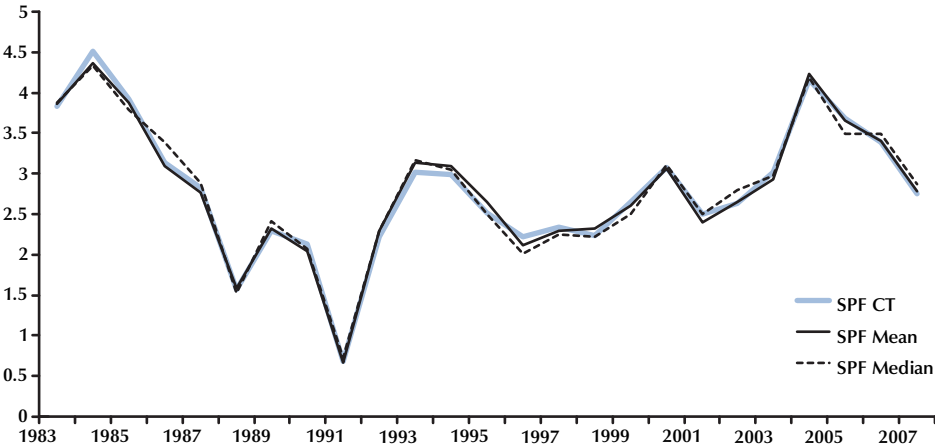**Measures of the Middle for Real GDP Growth (4Q/4Q) Made in February**

Figure 5

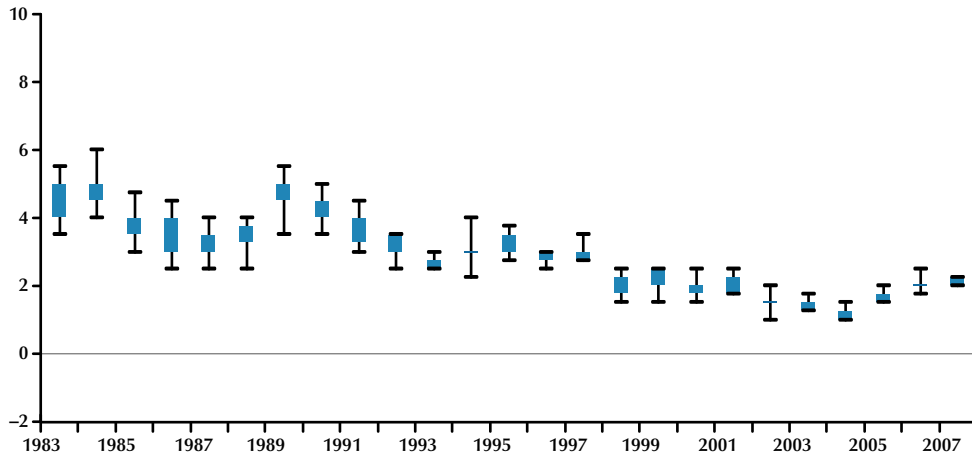**FOMC Inflation Forecasts Range and Central Tendency**

Figure 6

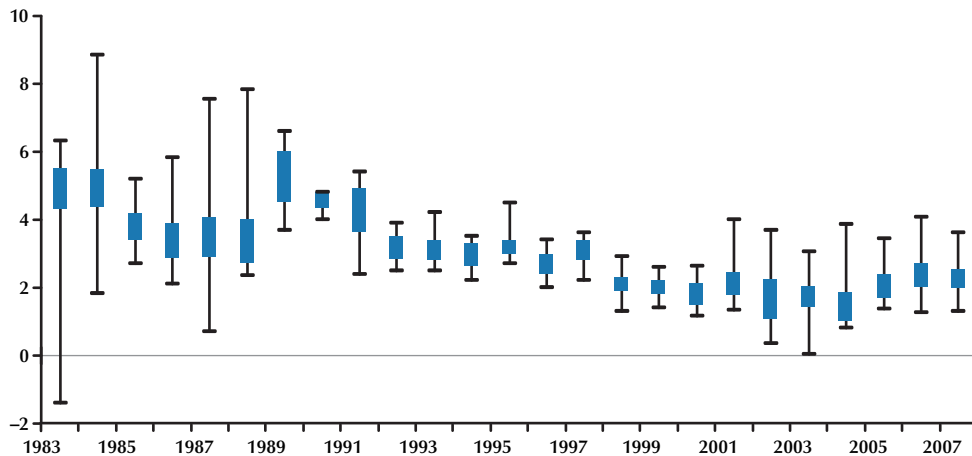**SPF Inflation Forecasts Range and Central Tendency**

Figure 7

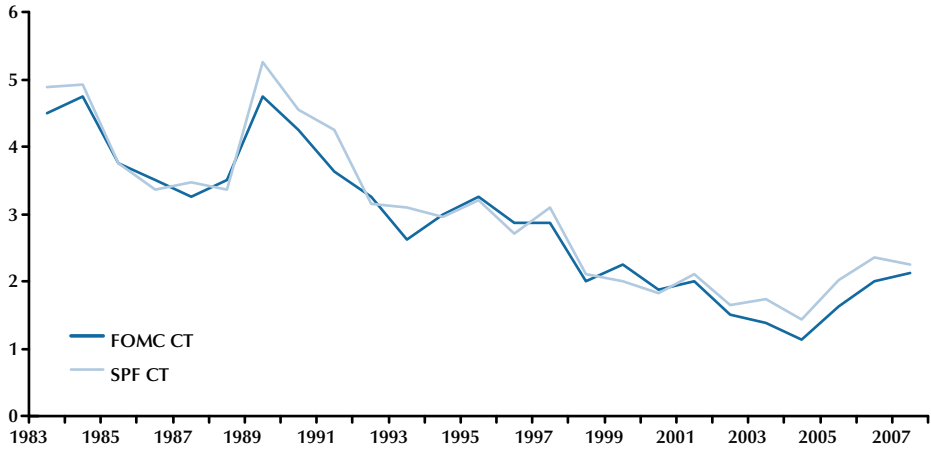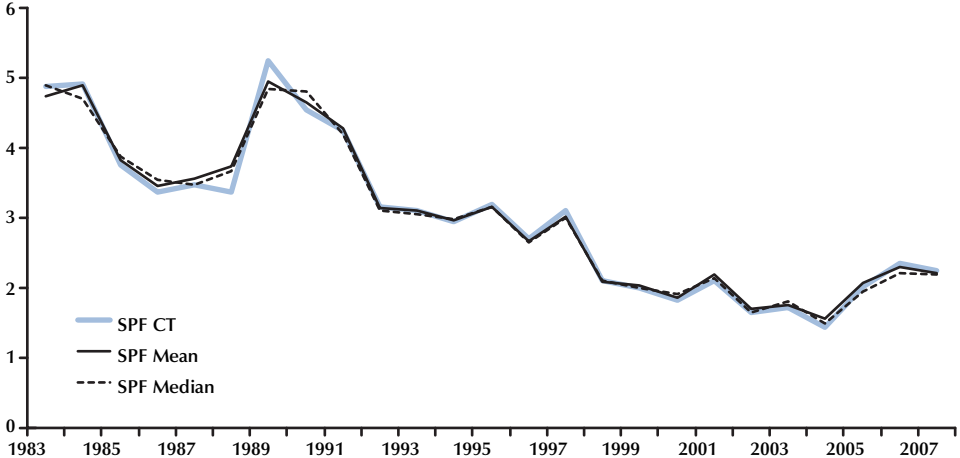**Inflation Forecasts (Excluding Outliers) Made in February**

Figure 8

Measures of the Middle for Inflation (4Q/4Q) Made in February

USING THE HISTOGRAMS TO MEASURE CONSENSUS

In this box we show that one can use the histograms provided with the FOMC forecasts to construct a consensus forecast that is an approximation of the mean of the individual forecasts. In Figure B1, we show the GDP forecasts from 2007 to illustrate the method. The histogram shows the distribution of the 17 forecasts presented at the October 30-31, 2007, FOMC meeting by the governors and Bank presidents that participated in the meeting. The vertical axis shows the number of participants whose forecast fell within the different bins. The horizontal axis shows the bins within each 0.2-percentage-point range. To calculate the weighted average of the bins, we multiply the number of participants times the midpoint of the bin. So this measure of consensus for real GDP in 2007 is $2.43 = 3 \times 2.25 + 13 \times 2.45 + 1 \times 2.65$.

Note that this is almost exactly equal to the center of the central tendency. In this case it is easy to see that if we delete the top and bottom three forecasts, all the remaining forecasts are in the center bin. So the CT forecast is 2.45, the midpoint of this bin. In Table B1 we show the weighted averages of the bins in the histograms along with the midpoint of the central tendency for all of the forecasts. The largest difference is only 0.05 percentage points at an annual rate, which further suggests the usefulness of using the midpoint of the central tendency as the measure of FOMC consensus.

Figure B1

Real GDP, 2007

Number of Participants

Weighted Average = 2.43
Midpoint 2.2 of CT = 2.45
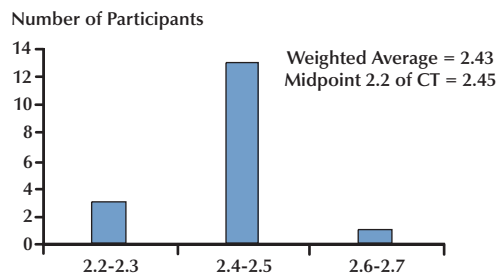
Table B1

	Real GDP		Unemployment rate		PCE inflation		Core PCE inflation	
	Weighted average	Midpoint of CT*	Weighted average	Midpoint of CT	Weighted average	Midpoint of CT	Weighted average	Midpoint of CT
2007	2.43	2.45	4.76	4.75	2.95	2.95	1.89	1.85
2008	2.18	2.15	4.87	4.85	1.94	1.95	1.84	1.80
2009	2.46	2.50	4.86	4.85	1.82	1.85	1.80	1.80
2010	2.50	2.55	4.84	4.80	1.79	1.75	1.76	1.75

NOTE: *CT is the central tendency range of forecasts reported with the minutes of the October 30-31, 2007, FOMC meeting.

Table 1

Accuracy of Output Forecasts

	RMSE			
Period	FOMC CT	SPF CT	SPF mean	SPF median
1983 to 2006	1.17	1.22	1.22	1.24
1983 to 1990	1.24	1.34	1.34	1.36
1991 to 1998	1.20	1.15	1.16	1.19
1999 to 2006	1.08	1.15	1.14	1.17

NOTE: Forecasts were made in late January or early February for the current calendar year. The SPF CT is the central tendency constructed by taking the range of individual forecasts after eliminating two outliers (one high and one low) for every six forecasts. RMSE is root mean squared error.

released data to evaluate policy decisions that are made before the data are revised.[8] We report forecast accuracy comparisons for the CT only because the SPF range was a much less accurate forecast and there is little to distinguish the FOMC range and CT forecasts. The root mean squared errors (RMSEs) of the output forecasts are shown in Table 1.

We report results for the entire period, 1983 through 2006, and for three eight-year subperiods: 1983-90, 1991-98, and 1999-2006. We break up the sample to show how distribution of individual forecasts changed over time. In all but the middle period, the RMSEs of the FOMC output forecasts were lower than those of the private sector forecasts. It is also interesting to note that the RMSE of the SPF CT output forecast was slightly lower than the SPF median (the measure of consensus used by the SPF) in all instances.

Inflation Forecasts

The FOMC inflation forecasts shown in Figure 5 reflect an ongoing decline in the trend of inflation through 2000 with temporary upward deviations in 1989, 1996, and 2006. Figure 6 shows the inflation forecast range and CT for the SPF survey. Similar to output growth, the disper-

sion of inflation forecasts by the SPF respondents is much wider than it is for the FOMC. Overall, the ranges have become narrower since the beginning of the sample.

Figure 7 shows that there is more variation in the spread between the FOMC and SPF CT inflation forecasts than we saw in the case for output growth. Also, the FOMC and SPF CT inflation forecasts are substantially different during the period after 2000, when the SPF was forecasting inflation in the GDP price index and the FOMC was forecasting either the PCE price index or, beginning in 2004, the core PCE price index. Figure 8 shows that the SPC CT closely matches the mean and median inflation forecasts—as was the case for the output forecasts in Figure 4.

In Table 2 we report information on inflation forecast accuracy during the two periods for which we have comparable forecasts. During the period from 1983 to 1988, both forecasted inflation in the GNP deflator. For these six years, the FOMC had the lowest RMSE, but all are within 0.08 percentage points. During the period from 1989 to 1999, both forecasted CPI inflation. For these 11 years, the SPF median forecast had the lowest RMSE, but all are within 0.09 percentage points. For the period between 2000 and 2006, the SPF did not forecast either the PCEPI or the core PCEPI, so no valid comparison can be made.

We use two approaches to deal with the problem that the SPF did not forecast the PCEPI or core measure until 2005. First, we note that

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[8] The use of first-released data makes it more difficult to compare our results with those who use third-released data, such as Tulip and Reifschneider (2007). We realize that using first-released data is not the best definition of "truth" for evaluating forecast accuracy in all circumstances.

Table 2

Accuracy of Inflation Forecasts

| | RMSE | | | |
Period	FOMC CT	SPF CT	SPF mean	SPF median
1983 to 1988	0.85	0.93	0.89	0.90
1989 to 1999	0.79	0.88	0.83	0.78

NOTE: The FOMC made projections for the GNP deflator during the period 1983-88 and the CPI for 1989-99.

Table 3

Accuracy of Indirect GDP Deflator Forecasts

| | RMSE | |
Period	FOMC CT	SPF CT
1983 to 2006	0.77	0.71
1983 to 1990	0.97	0.90
1991 to 1998	0.60	0.67
1999 to 2006	0.68	0.47

NOTE: To make the comparison as close as possible, we calculated the CT for both the FOMC and SPF CT forecasts for the GDP/GNP deflator as the difference between the CT forecasts for nominal GDP and those for real GDP.

both the SPF and the FOMC make implicit forecasts of the GDP deflator. We construct an FOMC consensus forecast for the output deflator by taking the difference between the consensus forecasts for nominal and real output. To make the forecasts comparable, we construct an SPF CT for the GDP deflator in the same manner. Table 3 presents the results from the comparison of these forecasts. In contrast to the results in Table 2, we see that the SPF CT generally has a lower RMSE than does the FOMC CT. The difference is due in part to how the forecasts are constructed. In Table 2, both the FOMC and SPF are making explicit forecasts of the GDP deflator. In Table 3, the implicit forecasts will, in general, not yield the same value as an explicit forecast because the process of removing outliers separately from nominal and real GDP does not require that the outliers come from the same individual.

The second way that we attempt to take account of the differences in forecast accuracy that may be attributed to the difference in the indices is to document differences in the accuracy of random walk forecasts for each of the indices used by the Fed. Table 4 reports the RMSEs for the random walk forecasts for the full sample period and each of the subperiods considered in Tables 2 and 3. The top four rows construct the fourth-quarter-over-fourth-quarter forecast for the current calendar year using the real-time data fourth-quarter-over-fourth-quarter growth rate of the previous year (which is first reported in January). As far as we know, there is no record of first-released real-time data for first-released core PCEPI before August 2000.[9] Among the other three, the RMSE of the GDP deflator forecast is always lower than the RMSEs for the CPI and the PCEPI. By comparing the real-time random walk forecasts for the GDP deflator with the results in Table 3, we find, as did Atkeson and Ohanian (2001) and others, that the random walk forecast was quite good in recent periods. The CPI always has the highest RMSE, and is, in this sense, the most difficult to forecast. Except for the period 1983 to 1990, the RMSE for the core PCEPI was always lowest among these inflation measures. In this sense, it has been the easiest to predict.

We also report the RMSEs using the current vintage data (shown in the bottom four rows of Table 4). The core PCEPI has the least amount of

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[9] The Federal Reserve Bank of St. Louis maintains the monthly releases for the PCEPI and core PCEPI back to the August 1, 2000, release. Quarterly releases of PCEPI are available back to the January 19, 1996, released date. See the ALFRED database at http://alfred.stlouisfed.org/category?cid=21.

Table 4

Accuracy of Random Walk Inflation Forecasts

	GDP deflator	CPI	PCEPI	Core PCEPI
Real-time data				
1983 to 2006	0.63	1.32	1.17	0.67
1983 to 1990	0.70	1.52	1.46	1.00
1991 to 1998	0.57	1.30	1.10	0.45
1999 to 2006	0.61	1.13	0.86	0.37
December 2007 vintage data				
1983 to 2006	0.68	1.32	0.90	0.57
1983 to 1990	0.83	1.52	0.93	0.72
1991 to 1998	0.52	1.30	0.99	0.50
1999 to 2006	0.64	1.13	0.76	0.45

NOTE: The forecast is equal to the real-time fourth-quarter-over-fourth-quarter inflation rate from the previous year (first available in the second half of January). The CPI is not revised so the real-time data is also current vintage. The real-time GDP deflator data are calculated from the nominal and real GDP numbers reported in the real-time data set on the Philadelphia Fed web site: www.philadelphiafed.org/econ/forecast/real-time-data/index.cfm. The CPI data are from Haver/USECON database. PCEPI data are taken directly from reports of the Survey of Current Business. We thank David Reifschneider and Peter Tulip for supplying the real time core PCEPI data. Note that, unlike the other real-time data we use, these are third-release "final" values published in March. The December 2007 vintage data are taken from the Haver/USECON database for all the measures of inflation.

uncertainty by this measure. The GDP deflator is the next-easier to predict and, again, the CPI proves most difficult. Note that the SPF has begun to publish forecasts for both PCEPI and its core measure in 2005.

CONCLUSION

By increasing the frequency of their forecasts to four times per year and by extending the forecast horizon to 3 years, Federal Reserve policymakers have taken an important step forward in providing information about their views of the current economic situation and the long-run trends.

We use the individual forecasts from the SPF to construct the range and central tendency statistics that are analogous to those reported by the FOMC. We find that the midpoint of the central tendency coincides closely with both the mean and median of the forecasts. We conclude, therefore, that the midpoint of the FOMC central tendency is probably a reliable measure of the policymakers' consensus.

Comparing the history of the year-ahead forecasts made by the FOMC participants in February to similar forecasts made by the SPF, we find mixed results when testing for relative accuracy among the alternative consensus forecasts. The sample sizes are too small for reliable tests of statistical significance. Yet, FOMC forecasts of real GDP growth perhaps are somewhat more accurate than those of the SPF, and SPF forecasts of inflation as measured by the output deflator are somewhat more accurate than those of the FOMC in the most recent period. There is less dispersion (or disagreement) among the FOMC forecasts than we see in SPF forecasts; but this policymaking body (and the number of forecasts) is smaller and, unlike the individuals in the SPF, the FOMC participants regularly attend meetings in which they receive a common economic briefing from the Federal Reserve Board staff.

Although this study addresses the issue of relative forecast accuracy, we agree with Reifschneider and Tulip (2007), who argue that too much emphasis may be put on the relative accuracy of different forecasts. Even the forecast

errors of a poorly performing forecast will be positively correlated with the smaller errors of better forecasts. Making a forecast requires purposeful analysis of the details of the economy and is probably the best way to understand changes in the current stage of the business cycle. Policymakers who are also forecasters are likely to learn from their mistakes and better understand when and why policy changes are needed. In our view, there is a substantial value in the FOMC's forecasting process that lies in the knowledge it adds to those who participate in making forecasts and in the information it sends to the public about policy assumptions and objectives.

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