FOMC Forecasts as a Focal Point for Private Expectations

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Abstract
We explore empirically the theoretical prediction that public information acts as a focal point in the context of the US monetary policy. We aim at establishing whether the publication of FOMC inflation forecasts affects the cross-sectional dispersion of private inflation expectations. Our main finding is that publishing FOMC inflation forecasts has a negative effect on the cross-sectional dispersion of private current-year inflation forecasts. This effect is found to be robust to another survey dataset and to various macroeconomic controls. Moreover, we find that the dispersion of private inflation forecasts is not affected by the dispersion of views among FOMC members.

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1. Introduction

Does the publication of FOMC inflation forecasts contribute to the anchoring of private inflation expectations? This paper examines both a topical issue and a theoretical question. Policymakers of the Federal Open Market Committee (FOMC) at the Federal Reserve publish inflation forecasts since 1979 and decided to increase the frequency of releases in 2007Q4 in order to provide "the public with more context for understanding the Committee's monetary policy decisions" (see FOMC, 2007), while Morris and Shin (2002), in a theoretical paper, show that public information is a double-edged instrument which conveys information on the underlying fundamentals but also acts as a focal point for beliefs. This paper explores empirically the theoretical prediction of Morris and Shin (2002) on the value of public information by establishing the effect of publishing FOMC inflation forecasts. This is important for policymakers because of the role played by inflation expectations in macroeconomic outcomes and because steering inflation expectations is a crucial ingredient of monetary policy.

We aim at investigating whether the publication of FOMC inflation forecasts acts as a focal point for private inflation expectations, and more specifically, negatively affects the cross-sectional dispersion of private inflation forecasts, using two different surveys of professional forecasters[1]: the Survey of Professional Forecasters and Consensus Forecasts. We also test the effects of the dispersion of views among FOMC members – measured by the magnitude of the published range of FOMC inflation forecasts – which can be interpreted as the precision of the signal disclosed to the public, on the dispersion of private inflation forecasts. Since the frequency of the FOMC releases has increased recently, we study as well whether estimates of the two preceding effects have evolved with this modification of the FOMC communication policy.

This work is related to two strands of literature on the dispersion of private expectations: the process for disagreement and the determinants of disagreement. On one side, Mankiw and Reis (2002) propose a sticky-information model of private expectations formation which explains why forecasters disagree. An alternative is the noisy information models of Sims (2003) and Mackowiak and Wiederholt (2009) in which rational inattention also generates cross-sectional dispersion of forecasts.[2] On the other side, Mankiw *et al.* (2003) establish some stylized facts about the dispersion of private forecasts extending Cukierman and Wachtel (1979) which show that differences in expectations are driven by the variance of aggregate demand shocks. Swanson (2006) finds that increased transparency of the US Federal Reserve has reduced dispersion across forecasts of US interest rates, while Bauer *et al.* (2006) show that private macroeconomic forecasts have become more synchronized for the same reason. Fujiwara (2005) assesses whether Bank of Japan's economic forecasts affect professional forecasters. Beechey *et al.* (2011) find larger dispersion across long-horizon forecasts of US inflation than of euro area inflation. Cecchetti and Hakkio (2010) together with Capistrán and Ramos-Francia (2010) and Ehrmann *et al.* (2012) focus on the effects of inflation targeting and enhanced central bank transparency respectively on the dispersion of private inflation forecasts. Maag and Lamla (2012) find that media coverage affects the dispersion of inflation forecasts of households. Dovern *et al.* (2012) assess the macroeconomic determinants of forecasters'

[1] Carroll (2003) shows that professional forecasters pay attention to news and form their forecasts with the latest information available to them. He also suggests that professional forecasts spread epidemiologically to other agents.

[2] Coibion and Gorodnichenko (2008) and Andrade and Le Bihan (2010) provide tests to distinguish empirically both classes of model. Lanne *et al.* (2009) find that the cross-sectional distribution of inflation expectations is consistent with a simple sticky information model, while Pfajfar and Santoro (2010) explain the heterogeneity in private forecasts by three expectations formation models: an autoregressive process, a nearly rational process and a combination of adaptive learning and sticky information. Among other sources of forecasters' disagreement, Branch (2004, 2007) propose a model in which private agents select between different costly forecasting models, and Lahiri and Sheng (2008) put forward forecasters' initial beliefs and the interpretation of public information. Capistran and Timmermann (2009) stress the importance of asymmetries in the forecasters' loss function, while Patton and Timmermann (2010) also focus on prior beliefs and private individual signals.

disagreement as well as the effect of central bank independence. To our knowledge, the effects of the publication of FOMC inflation forecasts and their dispersion on the cross-sectional dispersion of private inflation forecasts are so far unexplored.

Our findings contribute to the literature by documenting the coordinating effect of Morris and Shin (2002) and by establishing that the publication of FOMC inflation forecasts plays a role in reducing the dispersion of private inflation expectations during "normal times". Over the pre-2007 sample, the reduction of the cross-sectional dispersion of private current year inflation forecasts when FOMC inflation forecasts become public information supports that FOMC inflation forecasts act as a focal point. This effect is found to be robust to a different data set, to the exclusion of two outliers, and to various macroeconomic controls that the existing literature has found to be the main determinants of forecasters' disagreement. In addition to the reduction in dispersion, we find that the median of private forecasts moves toward the FOMC forecast when the latter is published. It strengthens our conclusion that FOMC inflation forecasts act as a focal point. Evidence on the effect of the increased frequency of the publication of FOMC forecasts on the post-2007 sample is however inconclusive, possibly because it coincides with the "exceptional times" of the Great Recession and extreme volatility. Last but not least, the cross-sectional dispersion of private inflation forecasts, for current and next year horizons, is not affected by the dispersion of forecasts among FOMC members, a proxy of the precision of the signal disclosed to the public. As a robustness test, we also show that the forecast accuracy of past FOMC inflation forecasts, another dimension of the precision of the public signal, neither affects the dispersion of private forecasts.

These results may be of interest for policymakers as they put forward that the publication of FOMC inflation forecasts can significantly contribute to the anchoring[3] of private inflation expectations and that policymakers can document their disagreement concerning the future state of the economy without worrying to disrupt the anchoring of private inflation expectations.

The rest of the paper is organized as follows. Section 2 outlines the theoretical framework. Section 3 describes the data. Section 4 reports the methodology and the results, and Section 5 concludes.

2. Theoretical Framework

This section describes the Keynes' "beauty contest" model of Morris and Shin (2002) to motivate the empirical analysis. The model is a principal-agent game in which the central bank discloses some public information that private agents combine with their private information about the underlying fundamentals of the economy to take decisions. In this setup, with imperfect information and strategic complementarities, public information takes on a dual role: it conveys central bank information about the underlying fundamentals, but it also acts as a focal point for private agents' beliefs who attempt to second-guess the decisions of other private agents.

There is a continuum of agents, indexed by the unit interval [0, 1]. The payoff function for agent i has two components. The first term is a standard quadratic loss in the distance between the underlying state of the economy θ and the expectation a_i of agent i. The second term captures the "beauty contest" part of the

[3] The concept of the anchoring of inflation expectations has two dimensions: the first one relates to the level of inflation expectations which should be close to the inflation target in the medium term, while the second one refers to the dispersion of inflation expectations which should be the lowest possible. Indeed, a low dispersion around a median at 10% or a uniform distribution around a median at 2% both correspond to unanchored inflation expectations. Then, central banks increasingly report in their publications (*Inflation Reports*, *Month Bulletin*) not only the median of inflation expectations but also their dispersion and/or distribution. The main focus of this paper is on the second dimension: the clustering of inflation expectations, while we also test whether the median of inflation expectations shifts toward the FOMC forecast to fully establish the result that the FOMC forecast acts as a focal point.

private agents' decision process. The loss L_i is increasing in the distance between i's expectation and the average expectation of the whole population. The higher r, the more the effect of the coordination motive is important for private agents. The payoff function is given by:

$$u_i(a,\theta) \equiv -(1-r)(a_i-\theta)^2 - r(L_i - \bar{L}) \tag{1}$$

where r is a constant, with $0 < r < 1$, and represents the weight put on each agent's second-guess of the expectations of other private agents in the economy and

$$L_i \equiv \int_0^1 (a_j - a_i)^2 \mathrm{d}j \,,\ \bar{L} \equiv \int_0^1 L_j \mathrm{d}j \,.$$

Private agents observe the central bank public information y and their own private information x_i about the fundamental state of the economy θ, both with noise represented by independent error terms with normal distributions:

$$\begin{aligned} x_i &= \theta + \varepsilon_i \text{ with } \varepsilon_i \sim N(0, \sigma_\varepsilon^2) \\ y &= \theta + \eta \text{ with } \eta \sim N(0, \sigma_\eta^2) \end{aligned} \tag{2}$$

The private signal of one agent is not observable by the others, while the public signal is common knowledge among private agents. Denoting by α the precision of the public information and by β the precision of the private information, we get:

$$\alpha = \frac{1}{\sigma_\eta^2} \text{ and } \beta = \frac{1}{\sigma_\varepsilon^2}$$

In equilibrium (see Morris and Shin, 2002, for details), the optimal expectation a_i of the agent i is given by:

$$a_i = \frac{x_i \beta(1-r) + y\alpha}{\alpha + \beta(1-r)} \tag{3}$$

The equation (3) shows that when public information is very precise, $\alpha \to \infty$, private agents ignore their private information and focus solely on the public information y. At the opposite, if public information is imprecise, $\alpha \to 0$, then it loses its coordination role and is ignored. In general, there is an over-reaction to public information with regards to its informational content about the fundamental θ.[4] Its relative weight solely based on its precision should be $\alpha / \alpha + \beta$ while its relative weight at the equilibrium is given by $\alpha / \alpha + \beta(1-r)$ which is always higher than the first term and reflects the public signal value in coordinating private agents. They attribute a greater weight to public information since it incorporates information on higher-order beliefs of other private agents. Applied to FOMC disclosure of information[5], this leads us to formulate the following hypothesis:

> *Hypothesis 1*: the *publication* of FOMC inflation forecasts acts as a focal point for private inflation expectations and therefore affects (and *reduces*) the cross-sectional dispersion of private inflation expectations.

The coordination device of public information depends on the relative weight given to the public signal in equation (3) which is increasing with the precision α of the public signal and with the weight r associated

[4] The welfare effects of this deviation to fundamentals are an important issue in Morris and Shin (2002) as well as the crowding-out effect of central bank information on private information acquisition and its impact on private forecast precision shown by Kool et al. (2011). These theoretical issues are beyond the scope of this paper, and we are primarily interested in establishing the effects of publishing FOMC forecasts on the dispersion of private forecasts.

[5] Demertzis and Viegi (2008) apply the model of Morris and Shin (2002) to the announcement of an inflation target and show that inflation targets may serve as focal points for coordinating private expectations.

with the coordination motive. Then the higher the precision, the more the public signal acts as a focal point. Taking this relation to the data requires some identifying assumptions: (a) the weight *r* attributed to the coordination motive is constant over time, and (b) the dispersion of FOMC inflation forecasts is a proxy of (the inverse of) the precision of the public signal disclosed to private agents. Indeed, for a given level of strategic complementarities, imprecise public signals reduce the value of public information as a coordination device and should increase the dispersion of private expectations. This leads us to formulate:

Hypothesis 2: the *dispersion* of FOMC inflation forecasts affects (and *increases*) the cross-sectional dispersion of private inflation expectations.

Cornand and Heinemann (2008) extend the model of Morris and Shin (2002) by complementing the precision of public information with the degree of publicity which is the proportion of agents who receive the public signal. They find that a smaller than full degree of publicity may be optimal if public information has low precision. When public information is disclosed to almost nobody, then the coordination content of public information disappears, public information is ignored and do not act as a focal point. Let us reinterpret this model by substituting the degree of publicity by the frequency at which public information is released. In a framework with imperfect information in which private agents are subject to either sticky information (Mankiw and Reis, 2002) or rational inattention (Sims, 2003), increasing the frequency of public information releases should enlarge the proportion of private agents who receive the public signal. This should therefore increase the weight put on public information which would magnify its ability to serve as a focal point.

However, this prediction relies on the assumption that the precision of public signals is independent of the frequency of releases. Amato et al. (2002) suggest that the mechanism at work could be exactly the opposite: "*Australia moved from a monthly (…) to a quarterly calendar because it was felt that the noise in the monthly statistics was injecting too much volatility into the price signals from financial markets*". Under the assumption that more frequent information has a lower precision, the prediction would be that the higher frequency of publication of FOMC inflation forecast should reduce the coordination feature of FOMC inflation forecasts, i.e. should reduce the negative effect of the publication of FOMC inflation forecasts on the cross-sectional dispersion of private inflation expectations. Since the frequency of FOMC releases has increased after 2007, we aim at investigating on the effect of the more frequent publication of FOMC forecasts on the dispersion of private forecasts after controlling for the precision of public information.

3. Data

This section describes the variables used to estimate the effects of the publication of FOMC inflation forecasts on the cross-sectional dispersion of two surveys of private inflation forecasts. Because the FOMC has changed its publication frequency (from biannually to quarterly) in 2007, the analysis is performed on two samples with different frequencies: quarterly before 2007 and monthly after. Data sources are Philadelphia Federal Reserve's and FRED St-Louis' websites, and Consensus Economics. Table 1 summarizes the key descriptive statistics about the following series.

3.1. FOMC forecasts

Since 1979, the FOMC has reported forecasts for key macroeconomic variables – inflation, real and nominal GDP growth, and unemployment – twice each year in the Monetary Policy Report to the Congress. Since October 2007, the publication of these FOMC forecasts has become quarterly and its horizon extended by one additional year.

FOMC forecasts were realized each year in early February and early July until 2007Q3, and since then in February, April, July and November. They forecast the fourth-quarter-over-fourth-quarter growth rates

and so are fixed-event forecasts. Before 2007, the FOMC published current year forecasts in both February and July, whereas it published next year forecasts only in July until 2004Q3, and then in February and July until 2007Q3. Because the frequency of publication of next year forecasts changed and so that there is only one point per year during most of the sample, we focus exclusively on the publication of current year forecasts in the pre-2007 sample. Our first variable of interest capturing the publication of FOMC forecasts is therefore a quarterly dummy taking the value 1 in quarters (Q1 and Q3) when the FOMC publishes forecasts, and 0 when not. On the post-2007 sample, the dummy becomes monthly and equals 1 the exact four months when the FOMC releases its quarterly current and next year forecasts.

These forecasts are published as two ranges encompassing each individual FOMC member's forecasts: the "full range" includes the highest and the lowest forecasts while the "central tendency" removes the three highest and three lowest forecasts. Our second set of variables of interest capturing the dispersion of views among FOMC members is the distance between the highest and lowest bounds of the two ranges, the full range and the central tendency. Because the dispersion between FOMC members' views reduces each year meetings after meetings when more information is made available, we correct for the seasonality of the mechanical decreasing dispersion of these fixed-event forecasts.

Since the pre-2007 dataset has a quarterly frequency, we interpolate the FOMC dispersion variables from biannual frequency to quarterly by filling gaps (Q2 and Q4) with the latest observation known (Q1 and Q3). This assumption does not distort the information structure as it corresponds to a situation where private agents simply use the latest value disclosed and known to them. However, this assumption introduces a bias against the FOMC dispersion variables which remain constant until next FOMC publication whatever the macroeconomic or policy developments. We use the same constant extrapolation technique for the post-2007 sample, except that in January and February of each year the extrapolation of the past November FOMC dispersion for current year forecasts has no meaning for the following year and we replace it by the past November FOMC dispersion for next year forecasts.

Finally, the variables forecasted have changed over time. Different measures of inflation have been used by FOMC policymakers: the FOMC inflation forecast is for the implicit GNP price deflator until the end of July 1988, the CPI between February 1989 and July 1999, the chain-type price index for personal consumption expenditures (PCE) between February 2000 and February 2004, and the core PCE since then.

3.2. Cross-sectional dispersion of private forecasts

We use two different datasets with different features to measure the cross-sectional dispersion of private forecasts: the Survey of Professional Forecasts (SPF) which is collected quarterly and Consensus Forecasts (CF) which has a monthly frequency. Among others differences, the dispersion is measured with the interquantile range in the SPF and with standard deviation in the CF, and SPF forecasts are fixed-horizon forecasts whereas CF forecasts are fixed-event forecasts. Figure 1 plots these series.

SPF forecasts of CPI[6] are annualized quarter-over-quarter growth rates available from 1981Q3. Responses of professional forecasters are due around the third week of the middle month of each quarter, so in the second half of February, May, August, and November. Private forecasters therefore tend to form their forecasts after those of the FOMC have been published. However, the timing difference is small in Q1 while quite large in Q3. The cross-sectional dispersion measure is the interquantile range which is the 75th percentile minus the 25th percentile of individual forecasts. One advantage of this measure[7] is to be

[6] For comparison purposes with CF, we focus on the CPI measure of inflation. Moreover, CPI is the inflation measure which has been the longest forecasted by the FOMC and which is the most central measure of inflation.

[7] It has to be acknowledged that cross-sectional dispersion is not a good proxy for inflation uncertainty. D'Amico and Orphanides (2008) show that dispersion across forecasters in the Survey of Professional Forecasters is not necessarily

independent of outliers compared to the standard deviation. While FOMC forecasts are fixed-event current year forecasts, SPF forecasts are fixed-horizon[8] forecasts for current to next four quarters. For each quarter of a given year, current quarter forecasts are always in the current year and four-quarter-ahead forecasts are always in the next year, so we associate the dispersion of these two forecasts to current and next year. Because SPF forecasts are collected quarterly, we use them only on the pre-2007 sample.

CF forecasts are published monthly as annual average CPI growth rates for current and next year. They have also been used in related studies by Dovern *et al.* (2012) and Ehrmann *et al.* (2012). They are fixed-event forecasts and we adjust for the decreasing forecasting horizon by correcting this monthly seasonality. The cross-sectional dispersion is measured by the standard deviation of individual forecasts. Responses of individual participants are due between the 10th and 15th of each month. This dataset ranges from October 1989 to June 2012.

To match FOMC timing and frequency on the pre-2007 sample, we take care of using CF forecasts of February and July for Q1 and Q3 to ensure that private forecasters form their forecasts after FOMC disclosed its own forecasts, while we use April and October for Q2 and Q4. These quarterly CF forecasts are thus those of the first month of each quarter except for February. On the post-2007 monthly sample, we assign FOMC publication dummy and FOMC dispersion to the month when private forecasters are able to use this information for the first time after its publication. For instance, in 2007Q4, FOMC forecasts were released on November 20th. Private forecasters could therefore include this information only their December CF forecasts.

3.3. Macroeconomic controls

Along with the cross-sectional dispersion of private forecasts as the dependent variable and the FOMC publication dummy or the FOMC forecast dispersion as our main independent variables of interest, we include the effective Federal Funds rate (FRED series ID: FEDFUNDS), the year-over-year growth rate of the West Texas Intermediate spot oil price (OILPRICE), and the conditional volatility of inflation, measured as the year-over-year CPI for all Urban Consumers (CPIAUCSL). Following Capistran and Timmermann (2009) and Ehrmann *et al.* (2012), we estimate a GARCH(1,1) model, with 2 lags to remove serial correlation, to obtain estimates of the conditional volatility of inflation. This control variable is important for at least two reasons. First, volatility increases the difficulty of the forecasting task what in turn should magnify the cross-sectional dispersion of private forecasters. Second, the pre-2007 sample coincides with the strong disinflation of early eighties and then the Great Moderation associated with low volatility of macroeconomic variables, while the post-2007 sample coincides with the 2008 oil price shock, the recent financial crisis and the Great Recession during which uncertainty greatly rose. In order to compare the determinants of cross-sectional dispersion in the two samples, it is necessary to control for the effect of the conditional volatility of inflation. We therefore expect that the conditional volatility has a positive effect on the cross-sectional dispersion. Since the Fed rate is correlated with the inflation rate and following the result of Mankiw *et al.* (2003) that disagreement about inflation increases with its level, we expect the Fed rate to have a positive effect on the cross-sectional dispersion. Including this variable also enables to control for the FOMC information captured by the Fed rate which should be distinguished from the information content of FOMC forecasts. Finally, we expect changes in oil prices to have a positive impact on the cross-sectional dispersion of private forecasts since large variations in oil prices, related to oil shocks, might introduce increased uncertainty.[9]

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equivalent to the inflation uncertainty expressed by forecasters in the form of probabilistic responses. We nevertheless focus here on the determinants of cross-sectional dispersion rather than uncertainty.

[8] We therefore do not need to correct for a potential decreasing dispersion due to decreasing horizon.

[9] We also control for the absolute change in oil prices. Results are similar and available from the author upon request.

4. Do FOMC Forecasts affect the Dispersion of Private Expectations?

We investigate the effects of FOMC inflation forecasts on the cross-sectional dispersion of private inflation forecasts using simple regression analysis. More precisely, we test the following two hypotheses on both the pre-2007 and the post-2007 samples, and then compare estimates in both samples to shed light on the effect of the frequency of publication of FOMC forecasts:

Hypothesis 1: the *publication* of FOMC inflation forecasts affects (and *reduces*) the cross-sectional dispersion of private inflation expectations.

Hypothesis 2: the *dispersion* of FOMC inflation forecasts affects (and *increases*) the cross-sectional dispersion of private inflation expectations.

4.1. Empirical model

Following Mankiw *et al.* (2003), Capistran and Ramos-Francia (2010), Dovern *et al.* (2012) and Ehrmann *et al.* (2012), we use simple regression analysis[10] in which our dependent variable is the cross-sectional dispersion of private inflation forecasts. While Mankiw *et al.* (2003) focus on the effect of macroeconomic variables, the latter three papers rely in addition on dummies to identify respectively inflation targeting, central bank independence and central bank transparency. In line with this literature, we include a dummy for the publication of FOMC inflation forecasts and a continuous variable for the dispersion of FOMC inflation forecasts as independent variables, in addition to macroeconomic controls. Our benchmark equation is:

$$SPF_t^h = \alpha + \beta_1 \cdot Publi\_FOMC_t + \beta_2 \cdot FOMC_t^{h,r} + \beta_3 \cdot SPF_{t-1}^h + \beta_4 \cdot X_t + \varepsilon_t \quad (4)$$

where *h* denotes the forecasting horizon, *t* current quarter or *t4* four-quarter-ahead in the case of the cross-sectional dispersion of SPF forecasts, *Publi_FOMC* is the dummy taking the value 1 when the FOMC publishes its inflation forecasts, *FOMC* is the dispersion of FOMC forecasts: the distance between the lowest and highest forecasts (the horizon *h* being either current year *cy* or next year *ny*) of the two ranges published by the FOMC and differentiated by the subscript *r* which could be either the full range *fr* or the central tendency *ct*. The vector X_t comprises the macroeconomic controls. This empirical model can be thought as representing the cross-sectional dispersion of private inflation forecasts as an AR(1), an autoregressive process of order one, complemented by FOMC variables, the conditional volatility of inflation, changes in oil prices and the Fed rate. Only Ehrmann *et al.* (2012) estimate the same type of empirical model and this is equivalent to evaluate the effect of FOMC variables and controls beyond the information contained in the lagged cross-sectional dispersion of private inflation forecasts. This model is estimated by ordinary least-squares (OLS), with Huber-White robust standard errors due to potential heteroscedasticity. One may argue that when the variance of ε_t is assumed to be fixed, estimates of the β parameters would be biased if the variance of residuals has evolved across time.

4.2. Estimates

The determinants of the cross-sectional dispersion of private inflation forecasts are analyzed in table 2. Column 1 reports that the cross-sectional dispersion of SPF forecasts for the current year decreases by 0.26 percentage point when the FOMC publishes its inflation forecasts. The past cross-sectional dispersion and the conditional volatility of inflation increase as expected the cross-sectional dispersion of SPF forecasts. These latter findings are in line with Dovern *et al.* (2012) and Ehrmann *et al.* (2012). Columns 2 and 3 display that the cross-sectional dispersion of private forecasts is not affected by the dispersion of inflation forecasts among FOMC members. Columns 4 and 5 test both hypotheses together and confirm the

[10] We have checked that our two variables of interest are not subject to endogeneity and we do not need to use instrumental variables analysis. Test statistics are available upon request to the author.

previous outcomes. Columns 6 to 10 investigate how the cross-sectional dispersion of SPF *next-year* forecasts is affected by FOMC variables and the macroeconomic controls. Neither the publication of FOMC inflation forecasts nor their dispersion affects our dependent variable. The Fed rate, as for it, has a positive effect on the cross-sectional dispersion of private forecasts. Our interpretation is that the central bank interest rate may signal policymakers' will to counter inflationary pressures and therefore coincides with higher uncertainty about expected future inflation.

It is particularly interesting to compare the effects of FOMC inflation current-year forecasts and the Fed rate over the two different horizons of private forecasts: current year and next year. Indeed, the interest rate instrument gives the central bank some control over the forecasted variable after a certain period of time. As the rationale of this study is to assess the publication and communication effects of FOMC forecasts, the control issue is circumvented when the horizon of forecasts is shorter than the transmission lags of monetary policy since policymakers have no effective control on variables forecasted. It appears that the effects of FOMC inflation forecasts on the dispersion of private ones are different from the effect of interest rate changes on the dispersion of private forecasts in two respects: the sign of the effect and the horizon at which they affect private forecasts.

Table 3 analyzes drivers of the cross-sectional dispersion of CF forecasts. This estimation serves as a robustness test in many dimensions: CF forecasts have a different frequency, are fixed-event forecasts like FOMC ones, and the dispersion is measured by the standard deviation. Moreover, because Consensus Economics only started to gather CF forecasts in October 1989, the estimation is performed on a more stable pre-2007 sample, after the disinflation of the eighties has been realized. Columns 1 and 2 confirm that the publication of FOMC inflation forecasts reduces the cross-sectional dispersion of private current-year forecasts with a coefficient of -0.02. The standard deviation of the dispersion measure of CF forecasts (0.06) being approximately 10 times smaller than the one of the dispersion measure of SPF forecasts (0.5 on the same sample period), the size of both effects of FOMC inflation forecasts is quantitatively similar. Again, the publication of FOMC inflation forecasts has no effect on the cross-sectional dispersion of private next-year forecasts. The dispersion of FOMC inflation forecasts has also no effect on the dispersion of private forecasts at both horizons. Estimates of this table are directly comparable to those of Ehrmann *et al.* (2012), the closet paper to ours. Similarly, they find a negative coefficient. However, they estimate a panel for 12 countries and their pooled estimates, which is twice smaller (-0.01), does not allow to evaluate the US case explicitly. Our contribution to the literature is to focus on US data, over a longer sample, in order to establish the effect of the publication of FOMC forecasts specifically and to evaluate in addition the effect of the dispersion of views among FOMC members.

As can be seen on Figure 1, the dispersion of SPF inflation forecasts is quite stable over time for next year forecasts, but as two massive outliers for current year forecasts. The fact that these two outliers happens in quarters in which the FOMC does not publish its forecasts mechanically explain a part of the negative correlation between the publication of FOMC forecasts and the dispersion of private forecasts. In order to check that our main result does not depend only on those two points, we replace them by the average of the two values in quarters before and after their occurrence. This means that the number for 1986Q2 is 0.78 rather than 3.55 and is 0.99 rather than 3.4 for 2006Q4. This correction is extremely conservative as we replace the value of the dispersion of private forecasts in a quarter in which the FOMC does not publish forecasts by the average of two quarters in which the FOMC does publish forecasts. It therefore goes against our hypothesis that the dispersion of private forecasts is lower in quarters in which the FOMC publishes forecasts. Estimates presented in Table 4 show that the negative effect of publishing FOMC forecasts on the dispersion of SPF forecasts is still significant without the two outliers. Another argument against our identification is that there might be a seasonal in the dispersion of private forecasts that has nothing to do with the FOMC publication but captures it. We therefore include a seasonal dummy in our baseline regression. The negative effect is still significant, while the seasonal is also significant though at the 10% level only. Another argument would be that the dispersion of private inflation forecasts depends on the dispersion of output forecasts if private agents have a Phillips curve in mind. The negative effect of

publishing FOMC forecasts remains significant when controlling for the dispersion of private forecasts of real GDP. Finally, table 4 also investigates whether this could be the change in the dispersion of FOMC inflation forecasts that affects the cross-sectional dispersion of private forecasters and whether this change in the dispersion of FOMC inflation forecasts modify the impact of the publication of FOMC inflation forecasts on our dependent variable. It appears that the publication of FOMC inflation forecasts still has a negative effect on the dispersion of current year forecasts. The change in the full range dispersion of FOMC forecasts has a positive effect, but is not confirmed by the change in the central tendency dispersion of FOMC forecasts, so the value of this specific result seems limited.

We control for the effect of some additional macroeconomic variables in table 5. We include separately and together the NBER recession dummy, a news variable, the level of CPI, and the square change in the Fed interest rate. Indeed, Bloom *et al.* (2012) find that uncertainty, based on measures of firm and industry dispersion and forecasters' disagreement, increases during recessions. This is confirmed by Dovern *et al.* (2012) which show that the cross-sectional dispersion of private forecasts rises during recessions. To control for this effect, we add the NBER recession dummy to the equation. We also add a variable comprising the set of macroeconomic news released between *t* and *t-1*. Based on the news and announcement literature (see Andersen *et al.* 2003), we construct the news variable by deducting the forecast of a given variable (inflation) in *t-1* from the actual realized value of this given variable in *t*. Private forecasters update their information set with new macroeconomic data, possibly at different frequencies, and adjust their forecasts. This may affect the cross-sectional dispersion of their forecasts. Gürkaynak *et al*. (2005, 2010) show that, in response to macroeconomic news shocks, long-term interest rates and inflation expectations are better anchored in inflation-targeting countries, in which central banks' strategy relies heavily on communication and on the publication of Inflation Reports or macroeconomic forecasts. We also include the level of CPI since Mankiw et al. (2003), D'Amico and Orphanides (2008) and Dovern *et al.* (2012) report that the cross-sectional dispersion of inflation forecasts increases with the level of inflation. Finally, Dovern *et al.* (2012) show that the square change in the policy interest rate, considered as a proxy for the variation and uncertainty about monetary policy has a positive effect on forecasters' disagreement about inflation. The negative effect of the publication of FOMC inflation forecasts on the cross-sectional dispersion of private current year forecasts is confirmed with all additional variables, as well as the absence of an effect of the dispersion of FOMC inflation forecasts.

In addition to the effect of some seasonal behavior of the dispersion of private forecasts tested in Table 4, it has to be acknowledged that the dummy variable identifying the publication of FOMC inflation forecasts might capture some omitted variables occurring each year in Q1 and Q3 and which also affect the dispersion of private inflation forecasts. We attempt to control for this potential bias by generating a variable which is the interaction of the FOMC publication dummy and of FOMC inflation forecasts published, and by replacing the FOMC dummy by this new variable in the equation estimated. The standard approach in the literature is to consider the midpoint of the central tendency as the figure for the level of the FOMC forecast (Romer and Romer, 2008). We generate a second control variable which is the FOMC publication dummy times the full range dispersion of FOMC inflation forecasts. Both variables in table 6 provide evidence that this is the publication of FOMC inflation forecasts that has a negative effect on the cross-sectional dispersion of private inflation current-year forecasts.

Up to this point, the analysis focuses exclusively on the cross-sectional dispersion of private forecasts to assess the hypothesis 1. However, the behavior of the level of private inflation forecasts would also be important for addressing the question of whether FOMC forecasts act as a focal point for private forecasts. Thus, an alternative interpretation of this issue would be to assess whether the median of private forecasts moves toward the FOMC forecast when the latter is published. In table 7, the dependent variable is different from previous tables: we look at first moments instead of second moments, and we test whether the absolute value of the distance between the median of SPF inflation forecasts and the midpoint of FOMC inflation forecasts is affected by the publication of FOMC forecasts. We expect that this difference is smaller in quarters in which FOMC forecasts are published. We also include the news variable

described above to correct for incoming macroeconomic news that both forecasts should be responding to. We find that the coefficient of the FOMC publication dummy is negative for current year forecasts: it suggests that SPF forecasts move toward FOMC forecasts when the latter are published. One could nevertheless argue that FOMC forecasts move toward SPF forecasts rather than the opposite. However, the FOMC is the first mover: FOMC forecasts are published before SPF forecasts, so private forecasters take the FOMC forecast as given. To ensure the validity of the previous outcome, we construct a variable measuring the difference between the absolute value of the distance of the SPF forecast in *t-1* to the FOMC forecast in *t* – so before the FOMC publication – and the absolute value of the distance of the SPF forecast in *t* to the FOMC forecast in *t* – so after the FOMC publication –. The distance between the SPF forecast and the FOMC forecast should be smaller after the publication than before, so the difference between the two distances should be positive. We therefore expect a positive effect of the FOMC publication dummy as it would mean that SPF forecasts move toward FOMC forecasts when the latter are published. The coefficient of the FOMC publication dummy is found to be positive for current year forecasts. These tests strengthen the main result that FOMC forecasts act as a focal point for private expectations.

Another complementary test refers to the precision of the public signal disclosed to private agents. Indeed, the result that the cross-sectional dispersion of FOMC forecasts does not have any effect on the dispersion of private forecasts may simply reflect that the dispersion of views among FOMC members is not a relevant measure of the precision of the FOMC forecast. Another dimension of the precision of the FOMC forecast may be its forecast accuracy. In table 8, we test whether the forecast accuracy of past FOMC forecasts affect the dispersion of private inflation forecasts and find that it is not significant. Neither the dispersion of views among FOMC members nor the forecast accuracy of FOMC forecasts – the two dimensions of the precision of the public signal – affects the dispersion of private inflation forecasts.

These outcomes all suggest that the publication of FOMC inflation forecasts acts as a coordination device for private inflation current-year forecasts and therefore reduces their cross-sectional dispersion. In the meantime, the cross-sectional dispersion of private forecasts does not react neither to the dispersion of views among FOMC members, nor to the pas forecast accuracy of FOMC forecasts. The detrimental effect of a low precision of the public signal on coordination does not seem at work. It has to be acknowledged that we can not test formally the effect of the distance of public information to the true fundamentals of the economy, the exact precision of the public signal; however, these results show that disagreement between FOMC members and the past forecast accuracy do not contribute to disrupt the anchoring of private inflation expectations.

4.3. Post-2007

Since 2007Q4, the FOMC started to publish its forecasts more frequently and for one additional year. According to the minutes from the Oct. 31 Federal Reserve meeting (FOMC, 2007), "the release of more frequent forecasts was seen as providing the public with more context for understanding the Committee's monetary policy decisions". This subsection assesses whether more frequent public information is beneficial or detrimental to coordination and so to the cross-sectional dispersion of private inflation expectations. Two competing hypotheses conflict: more frequent public information may reinforce the value of public information as a focal point for higher-order beliefs while more frequent public information may be associated with a lower precision of this public information and reduce the value of public information as a focal point. Because these two hypotheses might be at work in the same time, we keep controlling for the precision of the public signal by including the dispersion of FOMC inflation forecasts in the estimated equation.

Table 9 investigates the effect of FOMC inflation forecasts on the cross-sectional dispersion of CF inflation forecasts on a monthly sample from 2007m10 to 2012m06. Compared to the pre-2007 sample, we are now able to estimate the effects of both current and next year FOMC inflation forecasts. Neither the publication of FOMC inflation forecasts nor the dispersion of FOMC inflation forecasts has an effect on the dispersion

of private forecasts. Neither separately, nor together.[11] One might suppose that the disappearance of the negative effect of the publication of FOMC inflation forecasts on the cross-sectional dispersion of private forecasts is due to the relationship according to which more frequent information is correlated to a lower precision of information. However, the fact that the dispersion of FOMC inflation forecasts is quantitatively similar over the pre- and post-2007 samples, and the outcome that this dispersion of views among FOMC members still does not impact the cross-sectional dispersion of private forecasts challenge this view. One would have therefore expected that the more frequent release of FOMC inflation forecasts increases the coordination device. The reason for the absence of such a negative effect on the dispersion of private forecasts might simply be that the post-2007 sample encompasses the extremely volatile period of the Great Recession. Without a counterfactual of what would have been the effect of the more frequent publication of FOMC inflation forecasts in a sample of "normal times" in opposition to the exceptional and turbulent times of this post-2007 sample, it is difficult to conclude that the more frequent publication of FOMC inflation forecasts has definitely nullified the coordinating effect of the publication of FOMC inflation forecasts. Further insights about the coordinating effect of more frequent FOMC forecasts will be available once more data points are collected.

5. Conclusion

Our findings document the coordinating effect of the publication of FOMC inflation forecasts on private expectations during "normal times". The reduction of the cross-sectional dispersion of private inflation current-year forecasts when FOMC inflation forecasts become public information suggests that FOMC inflation forecasts act as a focal point. This effect is found to be robust to a different data set, to the exclusion of two outliers, and to various macroeconomic controls that the existing literature has found to be the main determinants of forecasters' disagreement. Evidence on the effect of the increased frequency of FOMC publication is however inconclusive, possibly because of the extreme volatility of the most recent period. Moreover, the cross-sectional dispersion of private inflation forecasts is not affected by the dispersion of views among FOMC members or the forecast accuracy of past FOMC forecasts which can both be interpreted as the precision of the public signal disclosed to private agents. This paper suggests that the publication of FOMC inflation forecasts can significantly contribute to the anchoring of private inflation expectations and that policymakers can document their disagreement concerning the future state of the economy without worrying to disrupt the anchoring of private inflation expectations.

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[11] The same robustness tests than for the pre-2007 sample have been performed and are available from the author upon request. They confirm that the effect of the publication of FOMC forecasts on the dispersion of private forecasts has vanished in the post-2007 sample.

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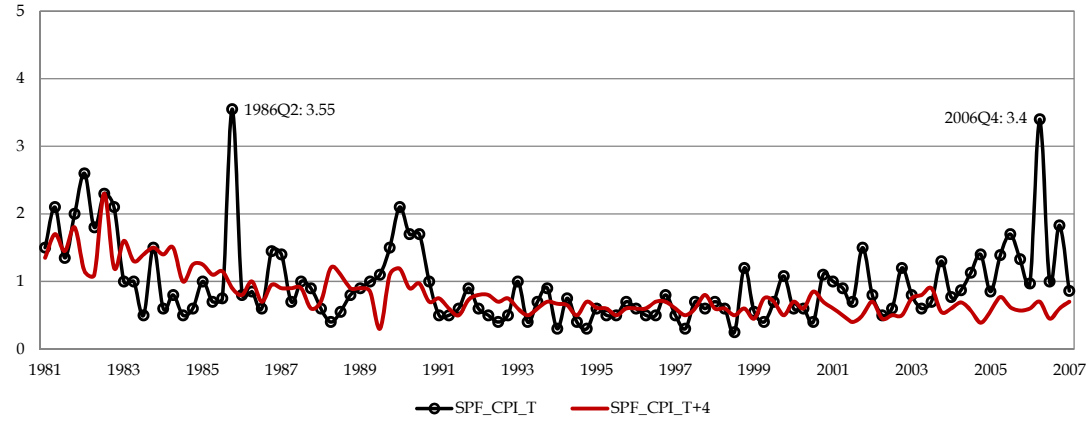
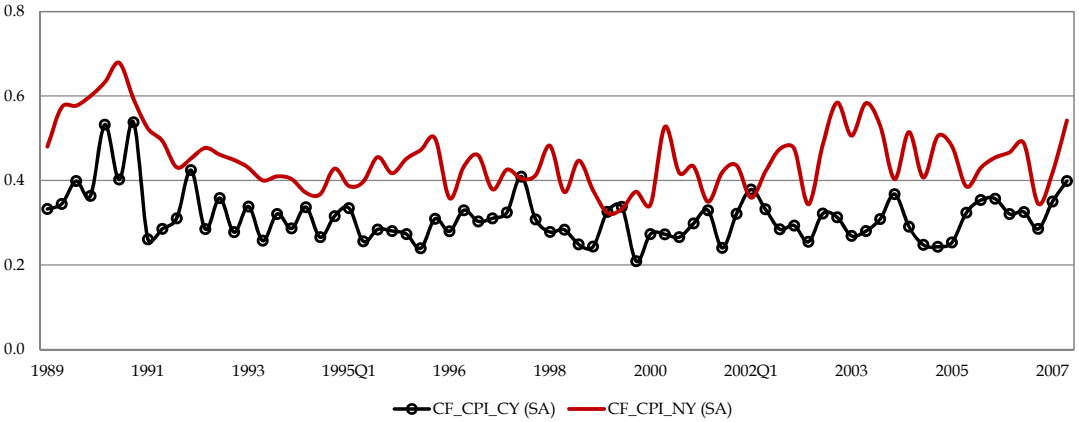
Figure 1 – Cross-Sectional Dispersion of private inflation forecasts

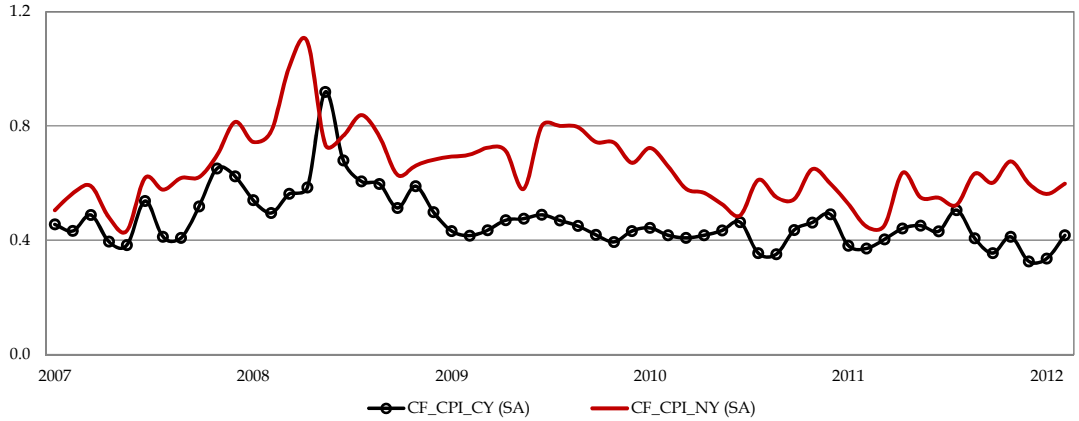
Interquantile range of SPF inflation forecasts – 1981Q3-2007Q3



Standard Deviation of CF inflation forecasts – 1989Q4-2007Q3



Standard Deviation of CF inflation forecasts – 2007M10-2012M06



Note: Because CF forecasts are fixed-event forecasts for the current year (CY) or the next year (NY), the series plotted here are corrected for the decreasing horizon and the mechanical drop in the dispersion month after month during each year.

Table 1: Introductory Desriptive Statistics

Pre-2007Q3

SPF data - 1981Q3-2007Q3 - 104 observations

	SPF_t	*SPF_t4*	*Publi_FOMC*	*FOMC_fr_cy*	*FOMC_ct_cy*
SPF_t	1				
SPF_t4	0.36	1			
Publi_FOMC	-0.18	-0.01	1		
FOMC_fr_cy	0.20	0.52	-0.01	1	
FOMC_ct_cy	0.43	0.59	-0.01	0.54	1

CF data - 1989Q4-2007Q3 - 72 observations

	CF_cy	*CF_ny*	*Publi_FOMC*	*FOMC_fr_cy*	*FOMC_ct_cy*
CF_cy	1				
CF_ny	0.39	1			
Publi_FOMC	-0.17	0.05	1		
FOMC_fr_cy	0.23	0.22	-0.04	1	
FOMC_ct_cy	0.35	0.33	-0.02	0.34	1

	Obs	**Mean**	**Std. Dev.**	**Min**	**Max**
SPF_t	104	0.96	0.60	0.25	3.55
SPF_t4	104	0.81	0.34	0.3	2.3
Publi_FOMC	104	0.50	0.50	0	1
FOMC_fr_cy	104	1.13	0.47	0.25	2
FOMC_ct_cy	104	0.45	0.26	0	1.54
CF_cy	72	0.31	0.06	0.21	0.54
CF_ny	72	0.45	0.08	0.32	0.68
Fed rate	104	5.81	2.87	1	14.51
Cond_Volatility	104	0.32	0.21	0.09	1.05
Oil price	104	5.82	28.73	-50.13	120.79

Post-2007Q3

CF data - 2007M10-2012M06 - 57 observations

	CF_cy	*CF_ny*	*Publi_FOMC*	*FOMC_fr_cy*	*FOMC_ct_cy*	*FOMC_fr_ny*	*FOMC_ct_ny*
CF_cy	1						
CF_ny	0.50	1					
Publi_FOMC	0.05	0.02	1				
FOMC_fr_cy	-0.06	0.20	-0.11	1			
FOMC_ct_cy	-0.04	0.24	-0.22	0.65	1		
FOMC_fr_ny	-0.14	0.09	-0.02	0.83	0.46	1	
FOMC_ct_ny	-0.08	0.13	0.05	0.65	0.55	0.66	1

	Obs	**Mean**	**Std. Dev.**	**Min**	**Max**
CF_cy	57	0.47	0.10	0.33	0.92
CF_ny	57	0.65	0.13	0.43	1.10
Publi_FOMC	57	0.33	0.48	0	1
FOMC_fr_cy	57	0.90	0.25	0.3	1.34
FOMC_ct_cy	57	0.43	0.12	0.2	0.72
FOMC_fr_ny	57	1.08	0.51	0.28	1.90
FOMC_ct_ny	57	0.54	0.18	0.2	0.95
Fed rate	57	0.75	1.24	0.07	4.76
Cond_Volatility	57	0.30	0.27	0.03	1.39
Oil price	57	18.07	44.24	-58.93	98.47

SPF_t, SPF_t4, CF_cy and *CF_ny* are the dispersion of private inflation forecasts and refers to the interquantile range for SPF forecasts and to the standard deviation for CF forecasts. Publi_FOMC is the dummy taking the value 1 when the FOMC publishes its inflation forecasts. FOMC is the distance between the upper and lower bounds of either the full range or the central tendency. Cond_Volatility is the conditional volatility of inflation estimated with a GARCH(1,1) model.

Table 2: Effect of publishing FOMC Inflation Forecasts on the Dispersion of SPF Inflation Forecasts

Dependent variable: Interquantile range of SPF forecasts of CPI

1981Q3 - 2007Q3

	SPF_t						*SPF_t4*				
	Hyp. 1	**Hypothesis 2**		**Both together**			**Hyp. 1**	**Hypothesis 2**		**Both together**	
	[1]	[2]	[3]	[4]	[5]		[6]	[7]	[8]	[9]	[10]
Publi_FOMC	-0.258**			-0.257**	-0.245**	*Publi_FOMC*	-0.009			-0.008	-0.008
	[0.10]			[0.10]	[0.10]		[0.04]			[0.04]	[0.04]
FOMC_fr_cy		0.065		0.06		*FOMC_fr_cy*		0.09		0.09	
		[0.15]		[0.14]				[0.06]		[0.07]	
FOMC_ct_cy			0.66		0.621	*FOMC_ct_cy*			0.061		0.059
			[0.42]		[0.41]				[0.13]		[0.13]
Fed rate	0.007	0.001	-0.014	0.002	-0.012	*Fed rate*	0.045***	0.040***	0.044***	0.040***	0.043***
	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]		[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
L.SPF_t	0.208**	0.15	0.143	0.209**	0.200**	*L.SPF_t4*	0.205**	0.174	0.199*	0.175	0.200*
	[0.10]	[0.10]	[0.09]	[0.10]	[0.09]		[0.10]	[0.11]	[0.11]	[0.11]	[0.11]
Cond_Volatility	0.977***	1.088***	0.792*	0.973***	0.700*	*Cond_Volatility*	0.532***	0.548***	0.507***	0.548***	0.507***
	[0.34]	[0.33]	[0.42]	[0.34]	[0.41]		[0.19]	[0.19]	[0.17]	[0.19]	[0.17]
Oil price	0.001	0.001	0.002	0.001	0.002	*Oil price*	-0.001	0.000	0.000	0.000	0.000
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Constant	0.535***	0.387***	0.346***	0.494***	0.449***	*Constant*	0.219***	0.162***	0.208***	0.166**	0.212***
	[0.14]	[0.14]	[0.11]	[0.15]	[0.13]		[0.06]	[0.06]	[0.05]	[0.07]	[0.06]
N	104	104	104	104	104	*N*	104	104	104	104	104
R^2	0.29	0.25	0.28	0.29	0.32	R^2	0.66	0.67	0.66	0.67	0.66

Huber-White robust standard errors in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01. *L* is the lag operator.

Table 3: Robustness - CF forecasts and Smaller Sample

Dependent variable: Standard Deviation of CF forecasts of CPI

1989Q4 - 2007Q3

	CF_cy						*CF_ny*				
	Hyp. 1	**Hypothesis 2**		**Both together**			**Hyp. 1**	**Hypothesis 2**		**Both together**	
	[1]	[2]	[3]	[4]	[5]		[6]	[7]	[8]	[9]	[10]
Publi_FOMC	-0.022*			-0.022*	-0.021*	*Publi_FOMC*	0.01			0.01	0.01
	[0.01]			[0.01]	[0.01]		[0.01]			[0.01]	[0.01]
FOMC_fr_cy		0.017		0.014		*FOMC_fr_cy*		0.015		0.016	
		[0.02]		[0.02]				[0.03]		[0.03]	
FOMC_ct_cy			0.071		0.065	*FOMC_ct_cy*			0.053		0.053
			[0.05]		[0.05]				[0.04]		[0.04]
Fed rate	0.008**	0.007**	0.007**	0.007**	0.007**	*Fed rate*	0.005	0.004	0.004	0.004	0.004
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]		[0.00]	[0.01]	[0.00]	[0.01]	[0.00]
L.CF_cy	0.107	0.03	0.005	0.082	0.055	*L.CF_ny*	0.360***	0.339***	0.323**	0.342***	0.326***
	[0.15]	[0.16]	[0.16]	[0.16]	[0.16]		[0.12]	[0.12]	[0.12]	[0.12]	[0.12]
Cond_Volatility	0.200***	0.210***	0.197***	0.201***	0.189***	*Cond_Volatility*	0.196**	0.199**	0.193**	0.199**	0.192**
	[0.07]	[0.08]	[0.07]	[0.07]	[0.07]		[0.08]	[0.08]	[0.08]	[0.08]	[0.08]
Oil price	0	0	0	0	0	*Oil price*	0	0	0	0	0
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Constant	0.210***	0.208***	0.211***	0.208***	0.210***	*Constant*	0.215***	0.218***	0.223***	0.212***	0.217***
	[0.05]	[0.05]	[0.05]	[0.05]	[0.05]		[0.05]	[0.05]	[0.05]	[0.05]	[0.05]
N	71	71	71	71	71	*N*	71	71	71	71	71
R^2	0.32	0.30	0.31	0.33	0.35	R^2	0.40	0.40	0.40	0.40	0.41

Huber-White robust standard errors in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01. *L* is the lag operator.

Table 4: Robustness - Outliers, Seasonal effects, Dispersion of RGDP forecasts & Δ FOMC Dispersion

Dependent variable: Interquantile range of SPF forecasts

1981Q3 - 2007Q3

Outliers			**Seasonal effects**					**Dispersion of SPF forecasts of RGDP**					**Δ FOMC Dispersion**				
	SPF_t corrected			*SPF_t*		*SPF_t4*			*SPF_t*		*SPF_t4*			*SPF_t*		*SPF_t4*	
	[1]	[2]		[3]	[4]	[5]	[6]		[7]	[8]	[9]	[10]		[11]	[12]	[13]	[14]
Publi_FOMC	-0.153**	-0.145**	*Publi_FOMC*	-0.357***	-0.349***	-0.001	-0.001	*Publi_FOMC*	-0.261**	-0.247**	-0.009	-0.011	*Publi_FOMC*	-0.255**	-0.253**	-0.007	-0.012
	[0.07]	[0.07]		[0.12]	[0.11]	[0.04]	[0.04]		[0.10]	[0.10]	[0.04]	[0.04]		[0.10]	[0.10]	[0.04]	[0.04]
FOMC_fr_cy	-0.029		*FOMC_fr_cy*	0.066		0.089		*FOMC_fr_cy*	0.022		0.062		*Δ FOMC_fr_cy*	0.235*		0.089	
	[0.09]			[0.14]		[0.07]			[0.15]		[0.06]			[0.13]		[0.10]	
FOMC_ct_cy		0.264	*FOMC_ct_cy*		0.643		0.057	*FOMC_ct_cy*		0.584		-0.022	*Δ FOMC_ct_cy*		0.314		-0.117
		[0.22]			[0.40]		[0.13]			[0.45]		[0.12]			[0.25]		[0.17]
Fed rate	0.001	-0.009	*Fed rate*	0.003	-0.012	0.040***	0.044***	*Fed rate*	-0.005	-0.015	0.037***	0.040***	*Fed rate*	0.008	0.007	0.045***	0.045***
	[0.02]	[0.02]		[0.02]	[0.02]	[0.01]	[0.01]		[0.02]	[0.02]	[0.01]	[0.01]		[0.02]	[0.02]	[0.01]	[0.01]
L.SPF_t	0.342***	0.319***	*L.SPF_t*	0.250**	0.242**			*L.SPF_t*	0.224**	0.207**			*L.SPF_t*	0.219**	0.220**		
	[0.09]	[0.09]		[0.11]	[0.10]				[0.10]	[0.10]				[0.09]	[0.09]		
			L.SPF_t4			0.176	0.201*	*L.SPF_t4*			0.135	0.144	*L.SPF_t4*			0.204*	0.205**
						[0.11]	[0.11]				[0.11]	[0.11]				[0.10]	[0.10]
Cond_Volatility	0.986***	0.898***	*Cond_Volatility*	0.902**	0.617	0.547***	0.507***	*Cond_Volatility*	0.905**	0.686	0.549***	0.548***	*Cond_Volatility*	0.968***	1.000***	0.536***	0.515***
	[0.26]	[0.26]		[0.35]	[0.41]	[0.19]	[0.17]		[0.36]	[0.41]	[0.19]	[0.17]		[0.33]	[0.33]	[0.18]	[0.18]
Oil price	0.002	0.002**	*Oil price*	0.001	0.002	0	0	*Oil price*	0.001	0.002	0	0	*Oil price*	0.001	0.001	-0.001	-0.001
	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]	[0.00]
			Seasonal	-0.091*	-0.095*	0.007	0.007	*SPF_RGDP_t*	0.133	0.058							
				[0.05]	[0.05]	[0.02]	[0.02]		[0.12]	[0.13]							
								SPF_RGDP_t4			0.103*	0.130**					
											[0.06]	[0.06]					
Constant	0.377***	0.328***	*Constant*	0.654***	0.619***	0.152**	0.198***	*Constant*	0.445***	0.422***	0.137*	0.164**	*Constant*	0.520***	0.520***	0.215***	0.223***
	[0.13]	[0.12]		[0.16]	[0.15]	[0.07]	[0.07]		[0.17]	[0.15]	[0.07]	[0.06]		[0.14]	[0.14]	[0.06]	[0.05]
N	104	104	*N*	104	104	104	104	*N*	104	104	104	104	*N*	104	104	104	104
R^2	0.50	0.51	R^2	0.31	0.35	0.67	0.66	R^2	0.30	0.33	0.68	0.67	R^2	0.30	0.30	0.67	0.66

Huber-White robust standard errors in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01. L is the lag operator. The *Seasonal* variable is a seasonal dummy while *Δ FOMC Dispersion* is the difference in the FOMC dispersion between t and t-1. For the sake of conciseness, we only present estimation outputs for the two hypotheses together for these robustness tests. Detailed estimates are available from the author upon request.

Table 5: Robustness - News, NBER, CPI & (Δ Fed rate)²

Dependent variable: Interquantile range of SPF forecasts of CPI

1981Q3 - 2007Q3

	News				NBER				CPI				(Δ Fed rate)²				All variables			
	SPF_t		*SPF_t4*		*SPF_t*		*SPF_t4*		*SPF_t*		*SPF_t4*		*SPF_t*		*SPF_t4*		*SPF_t*		*SPF_t4*	
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
Publi_FOMC	-0.251**	-0.239**	-0.013	-0.014	-0.237**	-0.236**	-0.01	-0.012	-0.257**	-0.244**	-0.009	-0.009	-0.251**	-0.244**	-0.009	-0.009	-0.215**	-0.211**	-0.017	-0.018
	[0.11]	[0.11]	[0.04]	[0.04]	[0.11]	[0.10]	[0.04]	[0.04]	[0.10]	[0.10]	[0.04]	[0.04]	[0.10]	[0.10]	[0.04]	[0.04]	[0.10]	[0.10]	[0.04]	[0.04]
FOMC_fr_cy	0.074		0.078		0.119		0.077		0.06		0.087		0.061		0.09		0.134		0.065	
	[0.14]		[0.06]		[0.15]		[0.06]		[0.14]		[0.06]		[0.14]		[0.07]		[0.14]		[0.06]	
FOMC_ct_cy		0.624		0.059		0.524		0.123		0.643		0.081		0.513		0.116		0.544		0.111
		[0.41]		[0.13]		[0.48]		[0.15]		[0.44]		[0.15]		[0.50]		[0.18]		[0.54]		[0.18]
Fed rate	0.003	-0.01	0.040**	0.043**	-0.007	-0.011	0.041**	0.043**	0.002	-0.005	0.046**	0.051**	-0.003	-0.011	0.040**	0.043**	0.035	0.035	0.034**	0.035**
	[0.02]	[0.02]	[0.01]	[0.01]	[0.02]	[0.02]	[0.01]	[0.01]	[0.03]	[0.02]	[0.01]	[0.01]	[0.02]	[0.02]	[0.01]	[0.01]	[0.03]	[0.03]	[0.01]	[0.01]
L.SPF_t	0.209**	0.200**			0.180*	0.184**			0.209**	0.193**			0.217**	0.205**			0.149	0.144		
	[0.10]	[0.09]			[0.09]	[0.09]			[0.10]	[0.09]			[0.10]	[0.09]			[0.10]	[0.09]		
L.SPF_t4			0.158	0.176			0.181	0.199*			0.167	0.187			0.176	0.197*			0.168	0.182
			[0.12]	[0.12]			[0.11]	[0.11]			[0.12]	[0.12]			[0.11]	[0.11]			[0.12]	[0.12]
Cond_Volatility	0.942**	0.672	0.588**	0.555**	0.838**	0.671*	0.583**	0.544**	0.969**	0.767*	0.602**	0.569**	0.804**	0.666	0.568**	0.521**	1.060**	0.944**	0.573**	0.540**
	[0.35]	[0.41]	[0.22]	[0.20]	[0.33]	[0.40]	[0.20]	[0.18]	[0.37]	[0.39]	[0.25]	[0.23]	[0.35]	[0.40]	[0.20]	[0.18]	[0.35]	[0.38]	[0.23]	[0.21]
Oil price	0.000	0.001	0.001	0.000	0.001	0.002	0.000	0.000	0.001	0.002	0.000	0.000	0.001	0.002	0.000	0.000	0.001	0.002	0.000	0.000
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
News	0.053	0.047	-0.051	-0.058													0.151	0.172	-0.068	-0.069
	[0.09]	[0.09]	[0.05]	[0.05]													[0.10]	[0.11]	[0.06]	[0.05]
NBER					0.361**	0.202	-0.075	-0.129									0.396**	0.279*	-0.071	-0.112
					[0.14]	[0.18]	[0.07]	[0.10]									[0.14]	[0.16]	[0.08]	[0.09]
CPI									0.002	-0.028	-0.021	-0.028					-0.169*	-0.176*	0.025	0.028
									[0.08]	[0.08]	[0.03]	[0.04]					[0.09]	[0.10]	[0.03]	[0.03]
(Δ Fed rate)²													0.048*	0.023	-0.007	-0.012	0.037*	0.018	-0.001	-0.004
													[0.02]	[0.03]	[0.01]	[0.02]	[0.02]	[0.03]	[0.01]	[0.02]
Constant	0.490**	0.454**	0.173**	0.212**	0.505**	0.491**	0.165**	0.189**	0.492**	0.476**	0.191**	0.240**	0.539**	0.487**	0.159**	0.192**	0.733**	0.725**	0.143*	0.158*
	[0.16]	[0.13]	[0.07]	[0.06]	[0.15]	[0.14]	[0.07]	[0.07]	[0.20]	[0.17]	[0.07]	[0.06]	[0.15]	[0.14]	[0.07]	[0.07]	[0.22]	[0.21]	[0.08]	[0.08]
N	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104	104
R^2	0.29	0.33	0.68	0.67	0.31	0.33	0.67	0.67	0.29	0.33	0.67	0.67	0.31	0.33	0.67	0.66	0.34	0.35	0.68	0.68

Huber-White robust standard errors in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01. *L* is the lag operator. For the sake of conciseness, we only present estimation outputs for the two hypotheses together for these robustness tests. Detailed estimates are available from the author upon request.

Table 6: Robustness - Interacting the FOMC Publication Dummy

Dependent variable: Interquantile range of SPF forecasts of CPI

1981Q3 - 2007Q3

	SPF_t				*SPF_t4*			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
*Publi_FOMC*level*	-0.062*	-0.058*			-0.002	-0.002		
	[0.03]	[0.03]			[0.02]	[0.02]		
*Publi_FOMC*disp*			-0.205**	-0.179**			0.004	0.018
			[0.10]	[0.08]			[0.04]	[0.04]
FOMC_fr_cy	0.066		0.165		0.09		0.088	
	[0.14]		[0.17]		[0.07]		[0.06]	
FOMC_ct_cy		0.632		0.673		0.06		0.06
		[0.42]		[0.42]		[0.13]		[0.13]
Fed rate	0.012	-0.003	0.002	-0.007	0.040***	0.044***	0.040***	0.043***
	[0.02]	[0.02]	[0.02]	[0.02]	[0.01]	[0.01]	[0.01]	[0.01]
L.SPF_t	0.185*	0.176*	0.203**	0.187**				
	[0.10]	[0.09]	[0.10]	[0.08]				
L.SPF_t4					0.176	0.201*	0.174	0.196*
					[0.11]	[0.11]	[0.11]	[0.11]
Cond_Volatility	1.031***	0.751*	0.977***	0.695*	0.548***	0.507***	0.548***	0.510***
	[0.34]	[0.41]	[0.36]	[0.42]	[0.19]	[0.17]	[0.19]	[0.17]
Oil price	0.001	0.002	0.001	0.001	0.000	0.000	0.000	0.000
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Constant	0.401***	0.363***	0.367***	0.387***	0.163**	0.209***	0.162**	0.202***
	[0.14]	[0.12]	[0.13]	[0.12]	[0.06]	[0.06]	[0.06]	[0.06]
N	104	104	104	104	104	104	104	104
R^2	0.28	0.31	0.29	0.32	0.67	0.66	0.67	0.66

Huber-White robust standard errors in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. L is the lag operator. For the sake of conciseness, we only present estimation outputs for the two hypotheses together for these robustness tests. Detailed estimates are available from the author upon request.

Table 7: Effect of publishing FOMC Inflation Forecasts on the Level of SPF Inflation Forecasts

Dependent variable: Absolute value of the gap in *t* between the FOMC forecast and the SPF forecast
1981Q3 - 2007Q3

	GAP_ct_cy					*GAP_ct_ny*					
	Hyp. 1	Hypothesis 2		Both together			Hyp. 1	Hypothesis 2		Both together	
	[1]	[2]	[3]	[4]	[5]		[6]	[7]	[8]	[9]	[10]
Publi_FOMC	-0.254***			-0.253***	-0.240***	*Publi_FOMC*	-0.054			-0.053	-0.053
	[0.07]			[0.07]	[0.07]		[0.05]			[0.05]	[0.05]
FOMC_fr_cy		0.033		0.018		*FOMC_fr_cy*		0.035		0.031	
		[0.13]		[0.12]				[0.08]		[0.08]	
FOMC_ct_cy			0.571**		0.527**	*FOMC_ct_cy*			0.048		0.038
			[0.28]		[0.26]				[0.17]		[0.17]
Fed rate	-0.025	-0.03	-0.045**	-0.027	-0.042**	*Fed rate*	0.022*	0.019	0.021	0.019	0.02
	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]		[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
L.GAP_ct_cy	0.334**	0.251*	0.239*	0.334**	0.319**	*L.GAP_ct_ny*	0.470***	0.457***	0.459***	0.464***	0.467***
	[0.13]	[0.14]	[0.13]	[0.14]	[0.13]		[0.10]	[0.10]	[0.10]	[0.10]	[0.10]
Cond_Volatility	0.568**	0.659**	0.406	0.567**	0.337	*Cond_Volatility*	0.212	0.216	0.195	0.213	0.196
	[0.23]	[0.26]	[0.30]	[0.23]	[0.28]		[0.19]	[0.20]	[0.21]	[0.19]	[0.21]
Oil price	-0.001	-0.001	0	-0.001	0	*Oil price*	0	0	0	0	0
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
News	0.164*	0.200**	0.200**	0.166*	0.169**	*News*	0.118**	0.128***	0.124***	0.122**	0.119**
	[0.08]	[0.09]	[0.09]	[0.09]	[0.08]		[0.05]	[0.05]	[0.05]	[0.05]	[0.05]
Constant	0.464***	0.348***	0.298**	0.453***	0.393***	*Constant*	0.096	0.049	0.065	0.076	0.091
	[0.13]	[0.12]	[0.11]	[0.11]	[0.11]		[0.07]	[0.07]	[0.06]	[0.08]	[0.07]
N	104	104	104	104	104	*N*	104	104	104	104	104
R^2	0.37	0.30	0.35	0.37	0.41	R^2	0.45	0.45	0.45	0.45	0.45

Dependent variable: Difference in the absolute value of the gap between the SPF forecast in *t-1* and the FOMC forecast in *t* and the absolute value of the gap between the SPF forecast in *t* and the FOMC forecast in *t*
1981Q3 - 2007Q3

	DIFF_ct_cy					*DIFF_ct_ny*					
	Hyp. 1	Hypothesis 2		Both together			Hyp. 1	Hypothesis 2		Both together	
	[11]	[12]	[13]	[14]	[15]		[16]	[17]	[18]	[19]	[20]
Publi_FOMC	0.348***			0.337***	0.336***	*Publi_FOMC*	0.014			0.014	0.016
	[0.10]			[0.10]	[0.10]		[0.05]			[0.06]	[0.05]
FOMC_fr_cy		-0.198		-0.164		*FOMC_fr_cy*		0.018		0.019	
		[0.27]		[0.26]				[0.08]		[0.08]	
FOMC_ct_cy			-0.562		-0.507	*FOMC_ct_cy*			0.206		0.207
			[0.45]		[0.43]				[0.21]		[0.21]
Fed rate	0.007	0.024	0.023	0.02	0.02	*Fed rate*	-0.033***	-0.034**	-0.038***	-0.034**	-0.038***
	[0.03]	[0.04]	[0.03]	[0.04]	[0.03]		[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
L.DIFF_ct_cy	-0.179	-0.303**	-0.302**	-0.192	-0.192	*L.DIFF_ct_ny*	-0.144	-0.144	-0.125	-0.143	-0.123
	[0.14]	[0.15]	[0.14]	[0.15]	[0.14]		[0.12]	[0.12]	[0.12]	[0.12]	[0.12]
Cond_Volatility	0.575	0.66	0.882	0.595	0.796	*Cond_Volatility*	0.124	0.123	0.037	0.122	0.035
	[0.48]	[0.52]	[0.58]	[0.50]	[0.56]		[0.20]	[0.20]	[0.18]	[0.20]	[0.18]
Oil price	0.001	0	0	0	0	*Oil price*	-0.001	-0.001	-0.001	-0.001	-0.001
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
News	-0.093	-0.112	-0.109	-0.11	-0.109	*News*	-0.056	-0.055	-0.049	-0.054	-0.048
	[0.12]	[0.11]	[0.12]	[0.11]	[0.11]		[0.05]	[0.05]	[0.05]	[0.06]	[0.05]
Constant	-0.373	-0.096	-0.135	-0.261	-0.287	*Constant*	0.113	0.108	0.085	0.101	0.076
	[0.23]	[0.16]	[0.20]	[0.16]	[0.21]		[0.07]	[0.07]	[0.08]	[0.07]	[0.08]
N	103	103	103	103	103	*N*	103	103	103	103	103
R^2	0.20	0.15	0.16	0.21	0.22	R^2	0.11	0.11	0.13	0.11	0.13

Huber-White robust standard errors in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. L is the lag operator. The level of the FOMC forecast is the midpoint of the central tendency published, while the level for SPF forecasts is the median of individual responses. If SPF forecasts move toward FOMC forecasts in quarters in which the latter are published, we expect the variable GAP to be smaller in those quarters. Similarly, we expect the variable DIFF to be positive in those quarters: the distance between the SPF forecast and the FOMC one should be smaller after the publication than before so the difference between the two distances should be positive.

Table 8: Replacing the Dispersion of FOMC Forecasts by their Precision

Dependent variable: Interquantile range of SPF forecasts of CPI 1981Q3 - 2007Q4					
	SPF_t			SPF_t4	
	[1]	[2]		[3]	[4]
Publi_FOMC	-0.252**	-0.253**	*Publi_FOMC*	-0.014	-0.014
	[0.11]	[0.11]		[0.04]	[0.04]
FA_fr_cy	-0.026		FA_fr_ny	0.048	
	[0.12]			[0.03]	
FA_ct_cy		0.018	FA_ct_ny		0.039
		[0.12]			[0.03]
Fed rate	0.008	0.009	*Fed rate*	0.046***	0.046***
	[0.02]	[0.02]		[0.01]	[0.01]
L.SPF_t	0.204**	0.209**	*L.SPF_t4*	0.143	0.161
	[0.10]	[0.10]		[0.12]	[0.12]
Cond_Volatility	0.983**	0.931**	*Cond_Volatility*	0.512***	0.512**
	[0.39]	[0.40]		[0.19]	[0.20]
Oil price	0	0	*Oil price*	0	0
	[0.00]	[0.00]		[0.00]	[0.00]
News	0.044	0.044	*News*	-0.043	-0.044
	[0.09]	[0.09]		[0.05]	[0.05]
Constant	0.553***	0.532***	*Constant*	0.211***	0.210***
	[0.14]	[0.14]		[0.05]	[0.06]
N	104	104	*N*	104	104
R^2	0.29	0.29	R^2	0.68	0.68

Huber-White robust standard errors in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01. L is the lag operator. The *FA* variable is the forecast accuracy of current (next) year forecasts one (two)-year ago and is computed as the difference between FOMC fore--casts and the corresponding realized values across time, i.e. the GNP price deflator, CPI, PCE and core PCE. For the sake of conciseness, we only present estimation outputs for the two hypotheses together for these robustness tests. Detailed estimates are available from the author upon request.

Table 9: Post-2007 sample with a higher frequency of publication of FOMC forecasts

Dependent variable: Standard Deviation of CF forecasts

2007M10 - 2012M06

	CF_cy						*CF_ny*				
	Hyp. 1	**Hypothesis 2**		**Both together**			**Hyp. 1**	**Hypothesis 2**		**Both together**	
	[1]	[2]	[3]	[4]	[5]		[6]	[7]	[8]	[9]	[10]
Publi_FOMC	0.015			0.014	0.011	*Publi_FOMC*	-0.003			-0.005	-0.002
	[0.02]			[0.02]	[0.02]		[0.02]			[0.02]	[0.02]
FOMC_fr_cy		-0.017		-0.012		*FOMC_fr_ny*		-0.029		-0.03	
		[0.04]		[0.05]				[0.03]		[0.03]	
FOMC_ct_cy			-0.075		-0.064	*FOMC_ct_ny*			-0.075		-0.074
			[0.06]		[0.06]				[0.10]		[0.10]
Fed rate	0.009	0.006	0.005	0.007	0.006	*Fed rate*	-0.004	-0.014	-0.013	-0.014	-0.013
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]		[0.01]	[0.02]	[0.01]	[0.02]	[0.01]
L.CF_cy	0.453***	0.446***	0.445***	0.454***	0.452***	*L.CF_ny*	0.501**	0.472**	0.496**	0.471**	0.496**
	[0.11]	[0.11]	[0.11]	[0.11]	[0.11]		[0.19]	[0.18]	[0.19]	[0.18]	[0.19]
Cond_Volatility	0.126*	0.129*	0.134*	0.126*	0.131*	*Cond_Volatility*	0.124	0.142	0.131	0.143	0.131
	[0.07]	[0.07]	[0.07]	[0.07]	[0.07]		[0.08]	[0.09]	[0.08]	[0.09]	[0.08]
Oil price	0.000	0.000	0.000	0.000	0.000	*Oil price*	0.000	0.000	0.000	0.000	0.000
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]		[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Constant	0.211***	0.235***	0.251***	0.222***	0.240***	*Constant*	0.294***	0.344***	0.339***	0.347***	0.340***
	[0.04]	[0.07]	[0.05]	[0.07]	[0.06]		[0.11]	[0.10]	[0.10]	[0.10]	[0.10]
N	56	56	56	56	56	*N*	56	56	56	56	56
R^2	0.54	0.54	0.55	0.54	0.55	R^2	0.55	0.55	0.55	0.55	0.55

Huber-White robust standard errors in brackets. * p < 0.10, ** p < 0.05, *** p < 0.01. *L* is the lag operator.