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DISENTANGLING QUALITATIVE AND QUANTITATIVE CENTRAL BANK INFLUENCE

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Abstract

We aim at investigating how two different types of central bank communication affect the private inflation expectations formation process. The effects of ECB inflation projections and Governing Council members' speeches on private inflation forecasts are identified through an Instrumental-Variables estimation using a Principal Component Analysis to generate valid instruments. We find that ECB projections have an effect on private current-year forecasts, while ECB speeches and the ECB rate impact next-year forecasts. When both communication types are interacted and go in the same direction, the inflation outlook signal tends to outweigh the policy path signal conveyed to private agents (and vice-versa).

JEL classification: E52, E58

Keywords: European Central Bank, Monetary Policy, Central Bank Communication, ECB Projections, Instrumental variables, Principal Component Analysis.

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1. Introduction

Expectations matter in determining current and future macroeconomic outcomes. Hence, the management of private expectations has become a central feature of monetary theory (Woodford, 2005). This raises to the forefront the communication of central banks to signal[1] their intentions, but does not diminish the importance of their actions because "*actions speak louder than words*" (Gürkaynak et al., 2005). This paper aims at establishing, in the context of the ECB, the effects of policy actions and two types of communication (macroeconomic projections and speeches) on private inflation expectations.

The question of whether central bank communication has been successful to affect financial markets or to help explain or predict interest rate decisions has given rise to an abundant empirical literature (see Blinder et al., 2008). The part of this literature focusing on the ECB communication has been surveyed by De Haan (2008). Many studies have already coded ECB communications and report evidence that they influence financial markets and improve the predictability of ECB interest rate decisions. Two ways have been followed: several authors[2] have relied on indicators based on coding words in the ECB Introductory Statement or the Monthly Bulletin, while Ehrmann and Fratzscher (2007) and Jansen and De Haan (2009) have coded indicators of the stance in all speeches and statements made by policymakers during and between Governing Council meetings. However, most of the literature assesses the impact of central bank communication on financial markets or on the predictability of interest rate decisions. Moreover, most of the literature has focused on the central bank qualitative communication: either formal statements and reports, or more informal speeches and interviews. Only few authors, Fujiwara (2005), Ehrmann, Eijffinger and Fratzscher (2012) and Hubert (2014), have focused on the effects of quantitative communication, i.e. central bank macroeconomic forecasts. However, they investigate these effects on the dispersion of private inflation expectations. The effects of qualitative and quantitative central bank communication on the level of private inflation forecasts and their comparison remain so far unexplored.

This paper extends the literature in two ways. First, it establishes whether ECB inflation projections and ECB Governing council members' speeches impact the *level* of private inflation expectations. This matters because there is no evidence on whether one type of communication is a proxy for the other, or at the opposite whether their effects are differentiated and respond to two different purposes. Second, it evaluates the interaction of these communication types together and with the ECB rate. One could expect that ECB projections have more impact on private inflation expectations if they are explained through speeches or consistent with the ECB rate decisions. Similarly, one could expect either that ECB qualitative communication (policymakers' speeches about the future policy stance) reduces private inflation forecasts because it signals future decisions, or that ECB qualitative communication increases private inflation forecasts because it signals inflationary pressures.

Based on a simple model of private inflation expectation formation, this paper aims at uncovering the interpretation made by private agents of both ECB communication types and actions. The closest paper to this study is Andersson et al. (2006) who assess how interest rate

[1] Two types of intertwined signals can be distinguished: policy signals conveying the future likely path of monetary policy and public signals about fundamentals of the economy providing a focal point for private agents to coordinate when prices are strategic complements and agents seek to coordinate (Morris and Shin, 2002).

[2] See Connolly and Kohler (2004), Musard-Gies (2006), Andersson et al. (2009), Ehrmann and Fratzscher (2009), Gerlach (2007), Heinemann and Ullrich (2007), Rosa and Verga (2007), Andersson (2010), Brand et al. (2010), Berger et al. (2011) and Sturm and De Haan (2011).

changes, inflation reports and speeches of the Swedish central bank affect the term structure of interest rates in Sweden. In contrast, the main contribution of this paper is to provide original empirical evidence on the individual and interacted effects of ECB rate, projections and qualitative communication on the level of private inflation expectations in the Eurozone. An intermediate contribution is to construct an original monthly index encompassing all speeches of the members of the ECB Governing Council by coding the stance of each qualitative communication between June 2004 and June 2011 following the methodology of Ehrmann and Fratzscher (2007).

The effects of both ECB communication types and the ECB rate on private inflation forecasts[3] are identified through an Instrumental Variables (IV) estimation to circumvent their endogeneity with private inflation forecasts. We use a Principal Components Analysis (PCA) of ECB variables and the most likely variables entering the central bank reaction function (core inflation, the output gap, credit growth and oil prices) to generate satisfying valid instruments according to Bai and Ng (2010) and Kapetanios and Marcellino (2010) and to overcome the weak identification issue. Both ECB projections and Consensus Forecasts (CF) used in this analysis are fixed-event forecasts for current and next years, and we extend the analysis to one-year-ahead forecasts following the fixed-horizon transformation of Dovern et al. (2012). In addition, we perform several other robustness tests related to, for instance, the timing structure, the consideration of non-standard policy measures through the use of an ECB shadow rate, or the frequency of the dataset.

The main findings of the paper are the following. A 1% increase in ECB inflation projections raises private *current year* inflation forecasts by 0.17% suggesting that the policy path signal conveyed outweighs almost entirely the inflation outlook signal. Neither the ECB qualitative communication nor the ECB rate appears significant. It is particularly interesting to analyse private current-year forecasts when the ECB rate has no control over inflation due to the transmission lags of monetary policy so as to assess the effect of communication as a tool to affect private expectations through signals. Concerning *next year* forecasts, we find that ECB speeches increase private inflation forecasts whereas the ECB rate reduces them. While ECB speeches capture both the future policy stance and risks to price stability, it appears to mainly signal inflationary pressures perceived by policymakers to private agents. Last, both types of communication are not substitutes.

Interacting both types of ECB communication together or with the ECB rate provides evidence of non-linearities whose main implications are the following. First, policymakers should pay particular attention to the interacted effects of their communications together or with the ECB rate as they produce different effects on private inflation expectations. Second, ECB speeches have a tendency to reinforce the effect of ECB projections (and vice-versa) when they point towards the same direction possibly by emphasising the inflation outlook signals at the expense of the policy path signal. At the opposite, the smaller effect of publishing ECB projections when speeches (and the ECB rate in the case of current-year forecasts) are neutral suggests that the policy path signal outweighs the inflation outlook signal. Third, the effects of the ECB rate also depend on ECB projections and both need to be set accordingly for the ECB rate to affect private inflation expectations.

These outcomes are consistent with Andersson et al. (2006) who find that Riksbank inflation forecasts affect interest rates with a maturity of one year or less while speeches are found to impact the longer end of the term structure. They also find that that the effects of speeches on

[3] We focus on private inflation forecasts as the dependent variable since price stability is the ECB main objective.

the Swedish term structure are higher for interest rate increases than decreases. They are also in line with the main findings of Gürkaynak, Sack and Swanson (2005) that policy actions and statements have different effects on asset prices.

The main results of this paper are that both communication types are a crucial part of the conduct of monetary policy (as stressed by Guthrie and Wright, 2000) as they affect private inflation expectation formation, with differentiated effects and with magnitudes that could in turn matter for the evolution of some macroeconomic variables such as consumption or investment, and that the optimal design of communication should take into account ECB policy decisions and both communication types altogether.

The rest of the paper is organized as follows. Section 2 presents the theoretical framework and section 3 the original index and data. Section 4 describes the empirical model and estimates. Section 5 concludes.

2. Theoretical Framework

This section describes the information frictions framework which motivates our empirical setup. In the sticky information model of Mankiw and Reis (2002), private agents do not update their expectations at each period as they face costs of absorbing and processing information. However, if private agents update their information set, they gain full information rational expectations (RE). In a similar vein, Carroll (2003) suggests that professional forecasts spread epidemiologically to other agents. Assuming homogeneous agents, both contributions can be described through these equations respectively:

$$E_t\pi_{t+h} = (1 - \lambda)\, E_{t-1}\pi_{t+h} + \lambda\, RE_t\pi_{t+h} \quad (1)$$
$$E_t\pi_{t+h} = (1 - \lambda)\, E_{t-1}\pi_{t+h} + \lambda\, SPF_t\pi_{t+h} \quad (2)$$

where $E_t\pi_{t+h}$ are private inflation expectations for horizon h, RE_t the RE forecast, and SPF_t the professional forecast. Private expectations are represented as a linear combination of lagged private expectations and either a rational or boundedly rational forecast.

Sims (2003) focuses on rational inattention: the observed inertial reaction of private agents arises from the inability to pay attention to all the noisy information available although people update continuously. It is an optimal choice for private agents – internalizing their information processing capacity constraints – to remain inattentive to a part of the available information because incorporating all signals is impossible (Moscarini, 2004). The average private inflation expectation is therefore given by:

$$E_t\pi_{t+h} = \alpha + \beta_1 E_{t-1}\pi_{t+h} + \beta_2 X_t + \varepsilon_t \quad (3)$$

where $E_t\pi_{t+h}$ is a linear combination of private agents that keep the past inflation expectations ($E_{t-1}\pi_{t+h}$) and of a fraction that updates inflation expectations based on up-to-date information about the current state of the economy summarized by the vector X_t. Another interpretation of this reduced-form equation is that private agents have an initial belief about the future inflation rate (their past inflation expectations) at the beginning of each period, and during each period, they incorporate some relevant - but potentially noisy - information about future inflation.

Taking equation (3) to the data requires an identifying assumption. Since the timing of information is specific and precisely defined (private expectations measured by CF are formed at the beginning of each month -see next section- and the underlying information set can by construction only comprise information up to that point), we assume that private agents form their expectations in t based on the information set X_{t-1}, so including variables up to the previous period $t-1$, so as to respect the timing of information publication and the data generating process of variables included in the forecasters' information set:

$$E_t\pi_{t+h} = \alpha + \beta_1 E_{t-1}\pi_{t+h} + \beta_2 X_{t-1} + \varepsilon_t \quad (4)$$

Because of the limited adjustment mechanism of the imperfect information framework where private agents stick to the same information set for a given period of time due to sticky information or rational inattention,[4] we expect the coefficient on lagged inflation expectations to be positive and significant. We include in the vector X_t our three variables of interest, the ECB rate and both ECB communication variables, together with the variables that we think are the most likely to affect future inflation and therefore to be used by private forecasters to predict future inflation. The hypotheses tested can be summarized as follows.

(H1) Because the central bank interest rate is supposed to have a negative effect on inflation – but after some transmission lags, we expect the ECB rate to have no effect on current-year inflation forecasts and a negative effect on next-year inflation forecasts.

(H2) Because ECB projections convey information about the future path of inflation, we would expect that an exogenous increase in ECB inflation projections of one percentage point raise private inflation forecasts by around the same amount. If we assume that ECB projections also convey signals about the future path of policy rates, we would expect the response of private inflation forecasts to be negative following an increase in ECB inflation projections. The sign and magnitude of the estimated coefficient should therefore shed light on the relative strength of both effects.

(H3) Because ECB qualitative communication captures the tone of policymakers about the stance of future policy decisions, we would expect that it has a negative effect on private inflation forecasts. At the opposite, a positive effect of the tone of ECB speeches would mean that the signal conveyed to private agents (or interpreted as such by them) is about the inflation outlook underlying the tone of communication.

[4] Adam (2005), Milani (2007) and Eusepi and Preston (2011) show that persistence in the economy may be due to learning as an expectation formation model. Including the output gap and the short-term interest rate in the vector Xt-1 would therefore enable to bridge with the learning literature in which the departure from rational expectations is due to model uncertainty: private agents know the correct model of the economy but do not know the model parameters. They are assumed to learn about the economy by re-estimating an econometric reduced-form forecasting model updated with incoming new data. Suppose a model with an IS Euler equation with habit formation, a New-Keynesian Phillips curve with indexation and a monetary feedback rule where policy depends on the observed past values of inflation, the output gap and the interest rate. Private agents' expectations formation model is an unrestricted VAR of the variables that appear in the minimum state variable (MSV) solution of the system under rational expectations and which nests the rational expectations equilibrium of the model. See e.g. Evans and Honkapohja (2001), Bullard and Mitra (2002) and Orphanides and Williams (2008). A more detailed model of the economy with more state variables would then call for a richer set of variables - the vector X_t in our case on which private agents base their inflation expectations.

3. Data

This section describes all variables used to estimate the effects of the ECB rate, ECB qualitative communication and ECB projections on private inflation forecasts.

3.1 The ECB Qualitative Communication Index

Speeches, interviews and testimonies related to monetary policy made by the individual committee members are measured by a monthly index in the vein of the one by Ehrmann and Fratzscher (2007). This index covers communications by the 6 Executive Board members of the ECB and the governors of the national central banks of the Eurosystem. It starts in June 2004 and ends in June 2011 to match the publication of ECB inflation projections. For this time period, *Reuters News*, a standard newswire service is used to gather all reports about forward-looking policy statements. The focus is specifically on the future monetary policy inclination and explanations or clarifications of past decisions are not taken into account. Following Kohn and Sack (2004) and Ehrmann and Fratzscher (2007), the classification is kept as straightforward and general as possible. The search commands used are governing council, member, president, or vice president along with interest rate or monetary policy. Moreover, only the first report in *Reuters News* which directly follows the statement and is rather descriptive is considered, the updates or analyses are not included. Each statement is then classified into three categories: those that give an inclination of tighter monetary policy, no change, or lower interest rates:

$$MP_t = \begin{cases} +1 & \text{tighter inclination} \\ 0 & \text{no change} \\ -1 & \text{easing inclination} \end{cases}$$

For each month between June 2004 and June 2011, four variables are computed. MP_NB_t is the number of statements during a given month. MP_ST_t provides the average inclination of all statements during a given month, in other words the policy stance of Governing council members' communication and is comprised between [-1; 1]. MP_INT_t displays the intensity of the communication which is the number of statements times the stance. Finally, MP_DISP_t measures the dispersion of statements and is computed as the standard deviation of the stance of all statements during a given month. Figure 1 plots the main ECB communication variables along with the ECB interest rate, while Table 1 provides some descriptive statistics.

Some interesting facts appear from the preceding figure and table. There are much more statements that have a tightening inclination than neutral or easing ones. 56.1% of the statements made between June 2004 and June 2011 have a hawkish inclination and this makes sense as interest rates were increasing or high for half of the sample period. It is nevertheless interesting to note that the ECB signals much more interest rate hikes than decreases. This is in line with Jansen and De Haan (2009) for the ECB or Hayo and Neuenkirch (2010) for the Federal Reserve who find that these central banks seem cautious about mentioning rate cuts too much. It can also be noted from Figure 1 that ECB projections, the ECB rate and ECB qualitative communication, either *MP_ST* or *KOF* (see below), are consistent with each other.

This classification methodology is usually referred to as "content analysis" because of the systematic analysis of the content of a message (Holsti, 1969) and it is worth noting that this work is by nature judgmental and subjective. In particular, the choice has been made to focus

on forward-looking conventional and unconventional monetary policy announcements with a possible effect on price stability and inflation, and not on policies providing liquidity to money markets and banks. We believe that it is important to differentiate policies aiming at price stability and financial stability following the usual segmentation of monetary policy mandates. Moreover, most of liquidity interventions were realized when announced and no forward-looking communication was made for them. Another possible caveat is that *Reuters News* may have not reported or misinterpreted some statements.

The present index is therefore compared to the KOF Monetary Policy Communicator for the Euro Area which provides a quantitative measure of the ECB communication with a special focus on forward-looking statements concerning price stability (see Conrad and Lamla (2010) or the KOF website[5] for more details) and is available on the same time span than the present index. It enables to assess the robustness and relevance of the latter. However, the KOF index translates the ECB president's statement concerning risks to price stability as made during the monthly press conference (and only this specific Governing council day) as well as ECB projections into a unique common index. In contrast, the index constructed in this paper encompasses all qualitative communication of each month and focuses specifically on speeches and statements in contrast with ECB projections. Table 1 shows the correlation matrix between the KOF index and all indices of this study.[6]

3.2 ECB Projections

The ECB/Eurosystem staff macroeconomic projections[7] for the euro area are produced biannually since December 2000, and quarterly since June 2004 with a special emphasis on their disclosure to the public. They are published during the first week of March, June, September and December and are presented as ranges for both HICP (the Harmonized Index for Consumer Prices) and real GDP. The ranges are based on twice the mean absolute projection error of historical projection errors to reflect uncertainty. As common for the FOMC (Federal Open Market Committee at the Federal Reserve) forecasts, the midpoint of the range is used to represent ECB projections. Until 2006Q1, the underlying scenarios for interest rates and commodity prices were that these variables remain constant over the projection horizon; since 2006Q2 they are based on market expectations derived from future rates[8]. These projections are published as average annual percentage changes and target current and next years, so are fixed-event projections.[9] They might have seasonal effects as

[5] http://www.kof.ethz.ch/en/indicators/monetary-policy-communicator/

[6] Table 1 also provides a comparison of mean forecast errors and mean absolute forecast errors of ECB projections and CF forecasts and exhibits first that except for private current year forecasts, all other forecasts have no significant bias, and second that the forecasting performance is quite similar. A vast literature has assessed the value of surveys. Kim, Lim and Shaw (2001) show that surveys do not completely capture the full set of new information available to the pool of individual forecasts and tend to reveal inefficiencies (see also Carroll, 2003, Capistran and Timmermann, 2009, Nunes, 2010 or Adam and Padula, 2011). At the opposite, one might argue that respondents of these surveys are generally the best informed agents through a selection bias. Ang et al. (2007) show that surveys produce more accurate inflation forecasts than asset markets or forecasting models. Armantier *et al.* (2011) show that inflation expectations surveys are informative and consistent with respondents' behavior.

[7] See ECB (2001, 2009) for more details. We acknowledge that ECB projections are produced by staff while ECB qualitative communication and rate are from policymakers. However, since ECB projections are released after Governing Council meetings and with its approval, we assume that they all represent the same body: the ECB.

[8] We check that these scenarios do not affect the main outcomes in columns 10 of the estimation tables of the next section. Although it should matter whether one assumes constant interest rates or market-expected interest rates, estimates on the whole sample and on the post-2006Q2 provide similar results.

[9] We check in the next section (Table 5) that the decreasing forecast horizon does not introduce a bias in the estimates by transforming current- and next-year fixed-event forecasts into one-year-ahead fixed-horizon forecasts according to Dovern et al. (2012).

the forecasting horizon decreases quarter after quarter: one might suppose that the effects of ECB inflation projections on private ones are stronger in the beginning of each year and smaller at the end when more information is known on actual variables.[10] Finally, the sample considered here starts in June 2004 when ECB projections became quarterly so as to combine the need for high-frequency data to measure qualitative communication and the relative low-frequency of publication of ECB projections. In addition, we interpolate quarterly ECB projections to monthly frequency by filling the gaps of the two months following their disclosure to the public with the value of the last projection published.[11] This assumption seems reasonable as it respects the information structure and corresponds to the information set available to: private agents in the following 2 months of each quarter. However, this assumption introduces a bias against ECB projections which remain constant during two months whatever the macroeconomic or policy developments.

3.3 Private Forecasts

The private inflation forecasts come from Consensus Economics Inc. The Consensus Forecasts (CF) is a monthly survey of quantitative predictions of private professional forecasters, with an average of 30 institutional respondents, for about fifteen macroeconomic variables including the overall index for HICP for the euro area (with changing composition), as measured by Eurostat and forecasted by the ECB, and calculated as average annual percentage change for current and next years. Surveys are collected at the end of the first week or beginning of the second week of each month. The overall sample starts in June 2004, ends in June 2011 and is constituted of 85 monthly observations.

3.4 Other variables

The ECB interest rate considered is the Main Refinancing Operations interest rate. It enables to check whether ECB communication may be a proxy for ECB decisions or whether ECB communication adds some specific information to private inflation expectations' formation. Indeed, the ECB qualitative communication variable may measure the "procyclical" effect of the speech (e.g. when central bankers say they expect high future inflation, then private inflation expectations should increase) and in the meantime may capture the "countercyclical" effect of the same speech (e.g. when central bankers say they will increase interest rates, private inflation expectations should decrease). With the non-standard policy measures implemented after 2008, one may argue that the interest rate is not necessarily the main measure of the policy stance since the crisis started. We therefore also use the ECB shadow rate estimated by Wu and Xia (2014).

We use various controls for the macroeconomic environment that should in theory impact the private expectations formation. Core HICP (the Harmonised Index of Consumer Prices considering all-items excluding energy and unprocessed food), the output gap (the HP-filtered monthly interpolated real GDP), the credit growth rate (to euro area residents other than governments), the oil price growth rate (based on the Brent crude oil spot price) and a proxy for inflation uncertainty (the conditional volatility of inflation estimated through a GARCH(1,1) model with two lags to remove serial correlation) are included in the empirical model as control variables. M3 and wages (the indicator of negotiated wage rates published by the ECB) growth rates have also been tested without improving the regression fit.

[10] We assess this feature of fixed-event projections in the column 12 of Tables 3 and 4 of the next section.

[11] We check that the monthly interpolation does not drive our result by estimating our model at the quarterly frequency in the next section.

4. Do ECB Speeches and Projections influence Private Forecasts?

This section is divided in three parts. First, the econometric approach is described along with the construction of instruments needed to identify the causal effects of ECB projections, qualitative communication and interest rate on private inflation expectations. Second, the independent effects of each ECB variable are examined. Third, their interacted effects are analysed.

4.1 Empirical Model

Based on the framework described in section 2, we estimate the effects of ECB qualitative communication, projections and interest rate on private inflation forecasts beyond the effects of past private inflation forecasts and some macro controls. Because private inflation forecasts are formed, collected and published at the beginning of each month and so as to comply with the information timing structure, we coherently assume they are formed based on the information set from the previous month, the only information set consistently available to private agents and respecting the data generating process of macroeconomic variables. Private forecasts at date *t* are therefore regressed on all variables at date *t-1*. Alternatively, one can view the expectations formation process as an AR(1) process complemented with the relevant information set used by private agents to predict inflation. This information set includes the potentially appropriate variables for forecasting inflation, in addition to ECB qualitative and quantitative communication and the ECB rate, and beyond lagged inflation forecasts which explain approximately 85% of the variance of private inflation forecasts.

In addition to the three policy variables of interest, the potentially appropriate variables to predict future inflation include core HICP, the output gap, credit growth, the oil price and a measure of inflation uncertainty. Core HICP is supposed to affect positively inflation as its underlying fundamental driving force, the output gap similarly through a Phillips curve, credit growth is also supposed to have a positive effect via the Quantity Theory of Money, the oil price is supposed to capture the positive impact of commodity and volatile prices on inflation while the effect of inflation uncertainty may have different effect on inflation expectations: an inflation risk premium would increase inflation, while uncertainty may be associated to recessions and falling inflation. One would also want to include a macroeconomic news variable, but this seems impractical because of the format of private forecasts. Usually the news variable encompassing the information set released between *t-1* and *t* is computed as the difference between the forecast of a given variable (inflation) in *t-1* and the actual value of the given variable in *t*, and this is not possible with CF forecasts as the monthly forecasts are not for the next month horizon. One may nevertheless argue that the news component is small as the ECB qualitative communication variable encompasses all speeches during a given month and all macroeconomic variables are generated at the end of this given month, while private forecasts are formed at the early beginning of the following month. We therefore implicitly assume that price and monetary policy news, which affect expected future inflation (Beechey and Wright, 2009), are comprised in *t-1* variables and that no news is published between the end of a month and the early beginning of the following month when private agents form their forecasts.

Equation (4) can be rewritten by decomposing the vector X_{t-1} in two vectors, one comprising our variables of interest and the other the macroeconomic controls. The estimated equation where $y_{t,h}$ is the private forecast made in t for a given event date h is therefore:

$$y_{t,h} = \alpha + \beta_y \cdot y_{t-1,h} + \beta_\Pi \cdot \Pi_{t-1} + \beta_\Omega \cdot \Omega_{t-1} + \varepsilon_t \quad (5)$$

where Π_t contains the three policy variables: ECB projections, the ECB qualitative communication variable, either *MP_ST* or *MP_INT*, and the ECB rate, and Ω_t encompasses the macroeconomic controls: core HICP, the output gap, credit growth, the oil price and the proxy for inflation uncertainty.

With forward-looking behaviour and intertemporal smoothing, random shocks that affect private forecasts are likely to also affect ECB and macro variables, and all those variables are likely to be endogenous to private inflation forecasts (said differently, their correlation with the error term ε is not equal to zero). In order to solve the identification issue, we assume that only our three variables of interest – the vector Π_t – are endogenous and that the macro controls are exogenous. The equation (4) is estimated with instrumental variables (IV) using two-stages-least-squares (2SLS) to identify the causal effects of the three ECB variables.

Another issue arises. The IV estimator requires additional variables that are correlated with these endogenous regressors but not with the error term ε, and may be biased in the same direction as the ordinary least squares estimator, and Stock, Wright and Yogo (2002) call this problem 'weak identification' as instruments are only weakly correlated with the included endogenous variables. To overcome this issue, Bai and Ng (2010) and Kapetanios and Marcellino (2010) propose to use factor analysis to overcome weak identification in IV estimation since they show that the estimated factors can be more efficient instrumental variables than observed variables. Using a Principal Component Analysis, we estimate and generate three components as linear combinations maximizing the common variance of ECB current- and next-year projections, MP_ST, MP_INT, the ECB rate, the ECB shadow rate, core HICP, the output gap, credit growth, oil prices.[12] The first component captures most of the common variance and the following orthogonal components contain less and less information than the preceding components. The Kaiser-Meyer-Olkin measure of sampling adequacy provides a simple way to assess the relevance of applying principal component analysis on the selected variables by comparing the partial correlations and correlations between variables and is provided in Table 2 which summarizes the estimation and characteristics of these components. The first three components capture 87% of the cumulative variance of the underlying series, and we use them as instruments of the vector Π_t gathering the three endogenous policy variables.[13] From an economic point of view, we believe this set of instruments is relevant because it generates variables that encompass the information set of policymakers, their communications and actions, and the most likely economic indicators used in their reaction function.

The Anderson canonical correlations LM statistic informs whether the equation is identified - that the excluded instruments are correlated with the endogenous regressors. It confirms that the instrument set is relevant for identifying the causal effect of the 3 variables of interest. To

[12] Despite private inflation forecasts could in practice be included in the list of variables that policymakers watch and may include in their reaction function, we do not use them as an instrument or to construct the components that help identifying the causal effects of ECB rate, projections and communication on private forecasts since they are the left-hand side variable of our model.

[13] Our instrument set does not comprise any lags as they would enhance a potential omitted variables problem.

further ensure the validity of the set of instruments, the instrumental variables must also be uncorrelated with the error term from the second stage regression. We provide the adjusted R^2 of the regression of the structural IV equation residuals on the instruments (similar in spirit to the Sargan test which cannot be performed when the equation is exactly identified) which also confirms the relevance of the instrument set.

4.2 Linear Estimates

Table 3 displays estimates of the effect of the ECB rate, the qualitative and the quantitative ECB communication variables on current-year private forecasts. The first column presents the baseline model tested. Current-year ECB inflation projections have a positive effect (0.17), whereas ECB qualitative communication, measured by *MP_ST* the stance of overall communications, and the ECB rate are not significant. Lagged private inflation forecasts are positively significant together with oil prices, while inflation uncertainty has a significant negative effect on private inflation forecasts. In the second column, the baseline model is estimated with robust standard errors using heteroskedastic and autocorrelation-consistent (HAC) robust variance estimates.[14] The third estimation replaces the ECB rate by the ECB shadow rate estimated by Wu and Xia (2014) in order to take into account the non-standard policy measures implemented after 2008. In the fourth and fifth columns, ECB qualitative communication and ECB projections are respectively removed from the estimated model to test for the potential substitutability of the ECB communication types. In column 6, the GMM generalization of the LIML estimator to the case of possibly heteroskedastic and autocorrelated disturbances -the continuously updated GMM estimator or CUE- is used. In column 7, the ECB qualitative communication variable *MP_ST* is replaced by the intensity of the qualitative communication *MP_INT*. In columns 8 and 9, ECB projections are replaced by the quarter-over-quarter difference in ECB projections and the difference between ECB projections and CF forecasts respectively. In column 10, the sample starts in 2006m4 after the ECB changed the way its projections are formed. The ECB used a constant interest rate scenario before 2006m4 and has used a market interest rate assumption since then. In column 11, the ECB projections and the ECB rate are introduced contemporaneously to the dependent variable. ECB policy decisions are taken the first Thursday of each month during ECB Governing Council meetings and ECB projections published along with the ECB statement released the same day, so respondents may have this information when they form their forecasts (beginning of the second week of each month) and we control that this does not affect the baseline estimates. In column 12, the ECB projections are decomposed into two variables for ECB projections published during the first semester and the second one. Because ECB projections are fixed-event forecasts, we expect projections in the first semester to have more effect than those published in the second semester. In column 13, ECB next-year projections replace the ECB current-year ones in order to assess whether longer-horizon projections have a different effect on current-year private forecasts. In column 14, the frequency of the dataset is quarterly as ECB projections are published on a quarterly basis but interpolated to monthly frequency in the baseline model. We assess the impact of this data transformation on our results by estimating our empirical model at quarterly frequency. We regress CF forecasts of March, June, September and December on the ECB rate and ECB projections of March, June, September and December, available to private forecasts since the first week of these months, and lagged CF forecasts and controls of February, May, August

[14] The Breusch-Pagan test and White test produce opposite results in detecting the presence of heteroskedasticity in the baseline equation estimated.

and November.[15] In column 15, the dispersion of the ECB qualitative communication is added to the vector Π_t of endogenous policy variables.

All these robustness tests confirm that current-year ECB inflation projections have a positive effect on current-year private inflation forecasts whereas ECB qualitative communication and the ECB rate are not significant. It is interesting to note that increasing ECB projections and ECB projections higher than private forecasts also positively affect private inflation forecasts. Moreover, lagged private forecasts, oil prices and the conditional volatility of inflation appear to be additional determinants of private inflation forecasts. Two interpretations of the main result and the positive coefficient associated to ECB projections are possible: A. the ECB somewhat creates inflationary pressures by publishing its forecasts, whereas B. by communicating on an 1% inflation increase that is going to happen (the inflation outlook signal), and therefore signalling its intention to counter it –under the assumption of an inflation adverse and credible central bank– (the policy path signal), private agents only increase their inflation expectations by 0.17% and the ECB has succeeded to dampen inflationary pressures. Neither the ECB qualitative communication nor the ECB rate appears significant. One may argue for the latter that the forecasting horizon being inferior to the delays of transmission of monetary policy, it is consistent that the ECB rate has no effect on current-year inflation forecasts. Concerning the effect of qualitative communication, the same argument may apply to this variable which captures the future orientation of monetary policy by focusing on all forward-looking statements referring to policymaking. Last, it is worth stressing that the two communication types are not substitutes (see columns 4 and 5).

Table 4 follows the same pattern than Table 3 and displays estimates of the effects on private next-year inflation forecasts. ECB projections are not significant, whereas ECB qualitative communication variables have a significant positive effect (0.07), and the ECB rate has a significant negative effect (-0.09). Moreover, lagged private forecasts, the output gap and credit growth and oil prices appear to be additional determinants of private next-year inflation forecasts. The fact that the tone of ECB speeches has a positive effect on inflation expectations suggests that the ECB qualitative communication index measures risks to price stability as perceived by policymakers and therefore signals inflationary pressures to private agents rather than the future policy path. Once again, it appears that the two communication types are not substitutes. A first reason for which ECB projections should be less important in determining private next year forecasts is that the ECB rate is supposed to impact next year inflation and so, private agents are more prone to focus on the policy instrument when forming their expectations at this horizon, as confirmed by the significant effect of the ECB rate. On that point, it is interesting to note that when considering the first difference of ECB projections which supposedly gives information on the direction of future policy decisions, then the associated coefficient becomes negative and its standard errors decrease (though the coefficient is still not significant at conventional levels) and the ECB rate is not significant anymore. The estimation at the quarterly frequency shows a positive significant coefficient for ECB projections, together with the usual coefficients for ECB qualitative communication and the ECB rate, but this result is not confirmed by the next estimation set with fixed-horizon forecasts (Table 5).

[15] Taking one monthly observation per quarter enable to respect precisely the timing structure, while constructing a quarterly average of the three monthly observations would certainly biased the estimation in favor of the null hypothesis that ECB projections affect private forecasts because the effects of other regressors would be diluted over 3 months. Since we aim at presenting the lower bound of the effect of ECB projections on private forecasts in the baseline estimation, we do not aim at presenting the upper bound in robustness tests.

Table 5 follows the same pattern than Tables 3 and 4 and presents estimates of the effects on private 1-year-ahead inflation forecasts. We construct one-year-ahead fixed-horizon forecasts as a weighted average of fixed-event forecasts based on the number of quarters forecasted in both the current and next years following Dovern et al. (2012).[16] These results are to be compared with Table 4 for next-year forecasts since for each month of a given year, the one-year-ahead forecast falls on the next calendar year. This transformation does not alter the estimated results shown in Table 4, except for the coefficient of ECB projections at the quarterly frequency. ECB projections are not significant whereas ECB qualitative communication variables have a significant positive effect and the ECB rate has a significant negative effect.

It seems from those estimates that ECB projections are rather a short-term communication tool to affect private inflation forecasts which may help taming private inflation expectations by signaling policymakers are aware of forthcoming inflationary pressures (the policy path signal almost outweighs the inflation outlook signal) while the ECB qualitative communication affects private inflation forecasts on a longer-term perspective and seems more to signal inflationary pressures as perceived by policymakers than the future policy path. This interpretation suggests that the signaling content of both types of communication is different and reinforces the result that both types of communication are not substitutes.

4.3 Interacted Effects

After having estimated the individual effects of both communication types and the ECB rate on private inflation forecasts, the objective of this section is to assess the interacted effects of these three variables. Based on the previous results, one would for instance expect that qualitative communication affect the way ECB projections are interpreted and thus that hawkish speeches conveying a signal about the future inflation outlook reinforce the positive effect of ECB projections on private current year inflation forecasts (the policy path signal being weaker). At the opposite, neutral (or dovish) speeches would suggest that the policy stance is appropriate and therefore reduce the effect of ECB projections (the policy path signal being stronger).

Starting from the baseline model described by the equation (4) for both current and next year forecasts; an interaction term is added to the vector Π_t and therefore considered as endogenous. Since all interacted variables are continuous, the interaction is analysed in terms of the multiplication of a predictor and a moderator variable to simplify the interpretation of the results. The additional instrument is generated as the product of the multiplication of the predictor variable with the component most correlated to the moderator variable. In addition to the value of each coefficient, Table 6 presents the effect of the predictor variable on private forecasts for low and high values of the moderator variable. Low and high values of the moderator variable are defined as the *mean - 1 S.D.* and *mean + 1 S.D.* of the relevant variable (Table 1 provides these descriptive statistics for all variables).

The upper panel of Table 6 shows that the interaction of ECB projections with ECB qualitative communication and with the ECB rate has a significant effect on private current-year forecasts. The effect of ECB projections is stronger with high rather than low values of

[16] An advantage of these fixed-horizon forecasts is that there is a break in the fixed-event forecast series as the current year Q1 forecast estimates the underlying variable for the subsequent year compared to the preceding Q4 forecast. One argument against the potential effect of this break is that we are interested in the signaling content of the projections which is not calendar-year based, and not in their actual accuracy. In other words, if the ECB decides to disclose a policy signal, it should move both current and next year projections in the same direction.

MP_ST (or *MP_INT*) and confirmed when replacing the level of ECB projections by their first differences or their difference to CF forecasts. One may interpret this non-linearity in the light of the signals conveyed in these two types of communication. More hawkish speeches convey stronger signals about inflationary pressures and increase the relative strength of the inflation outlook signal of ECB projections. A similar pattern emerges from the interaction of ECB projections and the ECB rate. The effect of ECB projections on private forecasts is positive and stronger with a high than a low interest rate. Last, the effect of the tone or the dispersion of ECB qualitative communication is found not to be non-linear and remains non-significant.

The lower panel of Table 6 focuses on private next-year forecasts and shows that the interaction of the ECB qualitative communication and of the ECB rate with ECB projections is significant. The effect of *MP_ST* is positive and significant when ECB projections are high whereas null when ECB projections are low. This can be linked to the similar results for private current-year forecasts and to the interpretation that the conjunction of the two types of communication reinforces the inflation outlook signal rather than the policy path signal. The ECB rate is also linked to ECB projections in that its effect is negative and significant when ECB projections are high and null when ECB projections are low. ECB projections should be set consistently with the ECB rate so as to explain the underlying reasons for policy decisions (*a given decision has been taken because of a given projection*). When the policy signal is consistent with the inflation outlook signal, then the policy strategy seems to appear appropriate and credible to private agents. At the opposite, under this interpretation, private agents would not understand the interaction of an increase in the ECB rate and low ECB projections as policy and inflation outlook signals would be opposed and policymaking would appear internally inconsistent. Last, the effect of ECB qualitative communication on private expectations seems to depend on the dispersion of speeches: their effect is higher when the dispersion of views conveyed to the public is low.

The policy implications are the following. First, policymakers should pay particular attention to the interacted effects of their quantitative communication with the ECB rate and their qualitative communication. Second, ECB speeches have a tendency to reinforce the effect of ECB projections (and vice-versa) when they point towards the same direction possibly by emphasising the inflation outlook signals at the expense of the policy path signal. At the opposite, the effect of publishing ECB projections is smaller when speeches (and the ECB rate in the case of current-year forecasts) are neutral supposedly because private agents interpret the neutral policy stance as appropriate to tame the inflationary pressures acknowledged by ECB projections. The policy path signal therefore outweighs the inflation outlook signal. Third, the effects of the ECB rate also depend on ECB projections and both need to be set accordingly for the ECB rate to affect private inflation expectations.

5. Conclusion

This paper aims at establishing whether ECB projections and ECB Governing council members' speeches impact private inflation expectations. The main results are first that ECB inflation projections positively affect private *current year* inflation forecasts, and neither the ECB qualitative communication nor the ECB rate is significant. Second, ECB speeches increase and the ECB rate decreases private *next year* inflation expectations, whereas ECB projections no longer have an impact.

Interacting both types of ECB communication and the ECB rate shows some non-linearity whose main implications are the following. First, policymakers should pay particular attention to the interacted effects of their communications together or with the ECB rate as they produce different effects on private inflation expectations. Second, ECB speeches have a tendency to reinforce the effect of ECB projections (and vice-versa) when they point towards the same direction possibly by emphasising the inflation outlook signals at the expense of the policy path signal. At the opposite, the smaller effect of publishing ECB projections when speeches (and the ECB rate in the case of current-year forecasts) are neutral suggests that the policy path signal outweighs the inflation outlook signal. Third, the effects of the ECB rate also depend on ECB projections and both need to be set accordingly for the ECB rate to affect private inflation expectations.

The main result of this paper is that both communication types are a crucial part of the conduct of monetary policy as they affect private inflation expectation formation, with differentiated effects, and that the optimal design of communication should take into account ECB policy decisions and both communication types altogether.

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Figure 1 – Main ECB variables and the KOF index

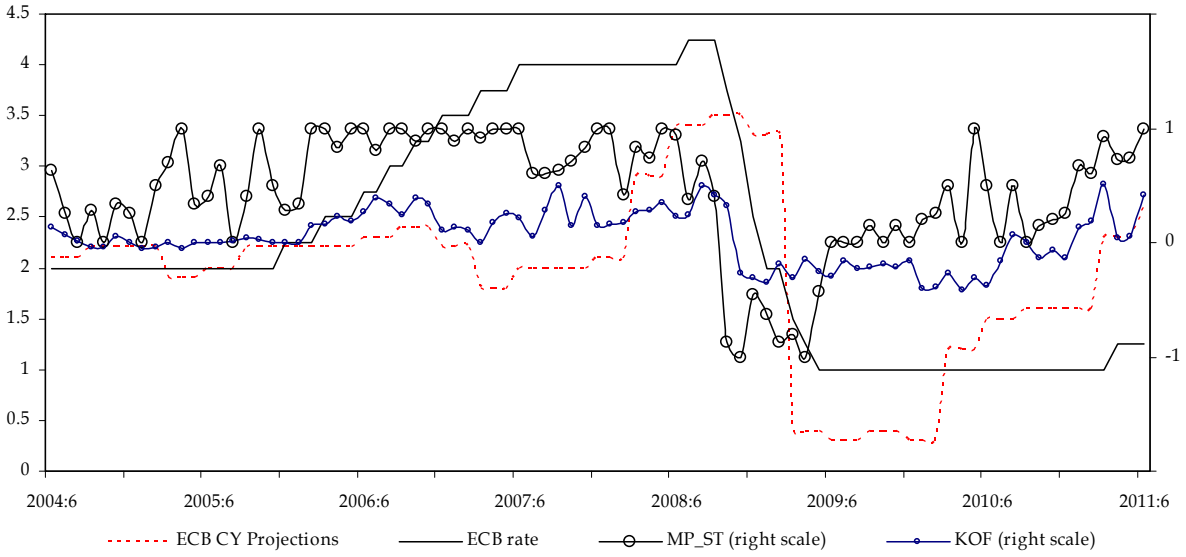

Table 1 - Introductory Statistics

Communication on Monetary Policy Inclination

Tightening	Neutral	Easing	Total
331	184	75	590
56.1%	31.2%	12.7%	100%

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
CF_CY	85	1.90	0.80	0.27	3.61
CF_NY	85	1.80	0.32	1.13	2.53
ECB_CY	85	1.95	0.84	0.30	3.50
ECB_NY	85	1.83	0.42	1.00	2.60
ΔECB_CY	82	0.01	0.64	-2.90	0.90
ΔECB_NY	82	0.00	0.33	-1.20	0.50
(ECB-CF)_CY	85	0.06	0.42	-0.92	2.52
(ECB-CF)_NY	85	0.03	0.19	-0.46	0.79
MP_ST	85	0.44	0.53	-1	1
ΔMP_ST	82	0.02	0.44	-1.71	1
MP_INT	85	3.01	5.41	-13.01	15.01
MP_NB	85	6.94	3.55	1	16
ECB rate	85	2.33	1.15	1.00	4.25
ECB shadow rate	85	2.13	1.49	-0.54	4.38
Core HICP	85	1.65	0.48	0.70	2.70
Output Gap	85	-0.02	1.17	-2.49	2.26
Credit	85	7.32	4.45	0.10	13.20
Oil price	85	24.43	37.05	-54.63	86.56

Correlation between ECB Communication, Projections, rate and the KOF index

	ECB_CY	ECB_NY	MP_ST	MP_INT	MP_DISP	KOF	ECB rate
ECB_CY	1						
ECB_NY	0.74	1					
MP_ST	0.19	0.47	1				
MP_INT	0.15	0.42	0.91	1			
MP_DISP	0.08	-0.09	-0.14	-0.14	1		
KOF	0.56	0.71	0.60	0.56	-0.07	1	
ECB rate	0.63	0.77	0.38	0.32	-0.06	0.66	1

Documenting Bias: Mean Forecast Errors

	Obs	MFE	Std. Dev.	Min	Max
ECB_CY	85	-0.07	0.59	-1.32	3.01
CF_CY	85	-0.12**	0.26	-0.94	0.75
ECB_NY	79	-0.22	1.07	-1.42	2.31
CF_NY	79	-0.26	1.00	-1.4	2.24

Documenting Forecasting Performance: Mean Absolute Forecast Errors

	Obs	MAFE	Std. Dev.	Min	Max
ECB_CY	85	0.29***	0.52	0.01	3.01
CF_CY	85	0.21***	0.20	0	0.94
ECB_NY	79	0.86***	0.66	0.04	2.31
CF_NY	79	0.81***	0.63	0	2.24

,* means forecast errors are significantly different from zero at 5% and 1% levels respectively. This is estimated with Newey-West procedure (and maximum lag = 4) to correct for serial correlation. CY and NY stand for current year and next year forecasts.

Table 2 - Factors as Instruments

Principal components/correlation			Obs = 85	
Rotation: (unrotated=principal)			Rho = 0.87	
	Eigenvalue	Difference	Proportion	Cumulative
Comp1	5.95	4.03	0.60	0.60
Comp2	1.92	1.15	0.19	0.79
Comp3	0.78	0.35	0.08	0.87
Principal components (eigenvectors)				
Variable	Comp1	Comp2	Comp3	Unexplained
ECB_CY	0.30	-0.25	0.35	0.24
ECB_NY	0.36	-0.05	0.11	0.20
MP_ST	0.25	0.51	-0.30	0.06
MP_INT	0.24	0.53	-0.26	0.08
ECB rate	0.37	-0.21	-0.19	0.07
Shadow	0.39	-0.11	-0.14	0.05
Core	0.31	-0.32	0.18	0.20
Output Gap	0.34	0.17	0.20	0.24
Credit	0.36	-0.19	-0.32	0.10
Oil	0.16	0.43	0.69	0.12
Kaiser-Meyer-Olkin measure of sampling adequacy: 0.81				

Table 3 - IV 2SLS estimation of the effects of ECB forecasts and ECB Qualitative Communication on private current-year inflation forecasts

	Dependent variable: CF current-year inflation forecasts at date *t*														
	All regressors are considered at date *t-1*														
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Baseline	Robust	Shadow	*w/o* Qual.	*w/o* Quant.	LIML	MP_INT	ΔComVar	(ECB-CF)	Post2006	ECB^F in *t*	Semester	ECB_NY	Quarterly	MP_DISP
ECB forecasts	0.176**	0.176*	0.177**	0.169**	.	0.176**	0.177**	0.184**	0.174**	0.210**	0.486*	.	0.431**	0.540***	0.159**
	[0.08]	[0.09]	[0.08]	[0.07]		[0.08]	[0.08]	[0.09]	[0.08]	[0.08]	[0.25]		[0.17]	[0.07]	[0.07]
MP_ST	0.028	0.028	0.003	.	-0.03	0.028	0.002	-0.082	0.025	0.072	-0.004	-0.022	-0.03	0.008	0.001
	[0.09]	[0.05]	[0.08]		[0.08]	[0.09]	[0.01]	[0.09]	[0.09]	[0.12]	[0.10]	[0.10]	[0.08]	[0.02]	[0.09]
ECB rate	0.098	0.098	0.09	0.087	0.033	0.098	0.102	-0.128	0.096	0.118	0.200	0.141	-0.035	-0.045	0.077
	[0.09]	[0.16]	[0.09]	[0.09]	[0.09]	[0.09]	[0.10]	[0.11]	[0.09]	[0.11]	[0.14]	[0.10]	[0.08]	[0.03]	[0.09]
CF forecasts	0.518***	0.518***	0.510***	0.521***	0.669***	0.518***	0.517***	0.564***	0.694***	0.468***	0.235	0.616***	0.564***	0.436***	0.540***
	[0.09]	[0.10]	[0.09]	[0.09]	[0.05]	[0.09]	[0.09]	[0.08]	[0.06]	[0.10]	[0.23]	[0.11]	[0.06]	[0.07]	[0.08]
Core HICP	0.084	0.084	0.07	0.071	0.111	0.084	0.078	0.311**	0.082	0.320*	0.078	0.058	0.196*	0.077**	0.103
	[0.11]	[0.14]	[0.11]	[0.10]	[0.10]	[0.11]	[0.10]	[0.13]	[0.12]	[0.18]	[0.13]	[0.12]	[0.10]	[0.04]	[0.11]
Output Gap	0.043	0.043	0.057	0.054	0.062	0.043	0.042	0.067	0.044	-0.063	-0.005	0.016	0.051	0.028*	0.048
	[0.06]	[0.08]	[0.05]	[0.05]	[0.06]	[0.06]	[0.06]	[0.06]	[0.06]	[0.08]	[0.08]	[0.07]	[0.05]	[0.02]	[0.06]
Credit	-0.028	-0.028	-0.029	-0.024	-0.009	-0.028	-0.029	0.021	-0.028	-0.049*	-0.051	-0.035	-0.013	0.002	-0.026
	[0.02]	[0.04]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.03]	[0.02]	[0.03]	[0.03]	[0.02]	[0.02]	[0.01]	[0.02]
Oil price	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***	0.003***	0.004***	0.005***	0.004***	0.004***	0.004***	0	0.004***
	[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]
Cond.Vol.	-0.137***	-0.137	-0.113***	-0.136***	-0.130***	-0.137***	-0.139***	-0.128**	-0.137***	-0.211***	-0.152***	-0.155***	-0.096**	-0.005	-0.142***
	[0.04]	[0.10]	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]	[0.05]	[0.04]	[0.06]	[0.05]	[0.05]	[0.04]	[0.01]	[0.04]
1^{st} half ECB^F	.	.	.	.	.	.	.	.	.	.	.	0.141*	.	.	.
												[0.08]			
2^{nd} half ECB^F	.	.	.	.	.	.	.	.	.	.	.	0.079	.	.	.
												[0.10]			
MP_DISP	.	.	.	.	.	.	.	.	.	.	.	.	.	.	-0.194
															[0.12]
Constant	0.708***	0.708***	0.729***	0.740***	0.742***	0.708***	0.721***	0.773***	0.710***	0.660***	0.637***	0.722***	0.098	0.004	0.770***
	[0.19]	[0.26]	[0.19]	[0.16]	[0.18]	[0.19]	[0.17]	[0.18]	[0.19]	[0.23]	[0.23]	[0.19]	[0.30]	[0.05]	[0.19]
Nb. of obs	84	84	84	84	84	84	84	81	83	62	84	83	84	27	84
R^2	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.92	0.93	0.93	0.90	0.93	0.94	0.99	0.93
	Regression of IV residuals on Instruments														
Adj. R^2	-0.12	-0.12	-0.12	-0.12	-0.05	-0.12	-0.12	-0.13	-0.14	0.01	-0.12	-0.11	-0.12	-0.59	-0.14

*,**,*** means coefficients are significant at 10%, 5% and 1% respectively. Standard errors in brackets. The dependent variable is private inflation forecasts at date *t* , while all regressors are from date *t-1* . Instruments are the *t-1* first 3 components of a Principal Component Analysis of ECB_CY, ECB_NY, MP_ST, MP_INT, ECB rate, ECB shadow rate, core HICP, Output gap, Credit growth, Oil prices. Our main variables of interest -the three policy variables- are considered endogenous and instrumented. The equation is therefore exactly identified. In column, 2, robust standard errors are estimated using heteroskedastic and autocorrelation-consistent (HAC) robust variance estimates. In column 3, the ECB rate is replaced by the ECB shadow rate estimated by Wu and Xia (2014). In column 6, the GMM generalization of the LIML estimator to the case of possibly heteroskedastic and autocorrelated disturbances -the continuously updated GMM estimator or CUE- is used. In column 7, the ECB qualitative communication variable MP_ST is replaced by MP_INT. In columns 8 and 9, it is the ECB quantitative communication -the ECB projections- which is replaced by the quarter-over-quarter difference in ECB projections and the difference between ECB projections and CF forecasts respectively. In column 10, the sample starts in 2006m4. In column 11, the ECB projections and the ECB rate are contemporaneous to the dependent variable. In column 12, the ECB projections are split into 2 variables for ECB projections published during the first semester and the second one. In column 13, the ECB next year projections replace the ECB current year ones. In column 14, the frequency is quarterly. In column 15, the dispersion of the ECB qualitative communication is added.

Table 4 - IV 2SLS estimation of the effects of ECB forecasts and ECB Qualitative Communication on private next-year forecasts

	Dependent variable: CF next-year inflation forecasts at date *t*														
	All regressors are considered at date *t-1*														
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Baseline	Robust	Shadow	*w/o* Qual.	*w/o* Quant.	LIML	MP_INT	ΔComVar	(ECB-CF)	Post2006	ECB^F in *t*	Semester	ECB_CY	Quarterly	MP_DISP
ECB forecasts	0.039	0.039	0.052	-0.007	.	0.039	0.035	-0.07	0.06	0.096	0.032	.	0.011	0.210***	0.049
	[0.09]	[0.08]	[0.10]	[0.09]		[0.09]	[0.09]	[0.05]	[0.09]	[0.12]	[0.36]		[0.02]	[0.07]	[0.09]
MP_ST	0.074**	0.074*	0.097***	.	0.070**	0.074**	0.006**	0.051*	0.073*	0.120**	0.095***	0.074*	0.077**	0.156***	0.083**
	[0.04]	[0.04]	[0.04]		[0.03]	[0.04]	[0.00]	[0.03]	[0.04]	[0.05]	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]
ECB rate	-0.092**	-0.092*	-0.087**	-0.111***	-0.090**	-0.092**	-0.082**	-0.034	-0.097***	-0.083*	-0.099**	-0.093**	-0.083**	-0.081**	-0.087**
	[0.04]	[0.05]	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]	[0.05]	[0.04]	[0.04]	[0.04]	[0.04]
CF forecasts	0.676***	0.676***	0.678***	0.720***	0.710***	0.676***	0.682***	0.726***	0.718***	0.601***	0.675*	0.683***	0.687***	0.496***	0.663***
	[0.11]	[0.09]	[0.11]	[0.10]	[0.07]	[0.11]	[0.10]	[0.07]	[0.07]	[0.13]	[0.35]	[0.10]	[0.08]	[0.09]	[0.11]
Core HICP	0.016	0.016	0.035	-0.035	0.012	0.016	-0.001	-0.061	0.017	0.082	0.014	0.015	0.006	0.077	0.01
	[0.04]	[0.03]	[0.05]	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]	[0.05]	[0.08]	[0.06]	[0.05]	[0.04]	[0.06]	[0.04]
Output Gap	0.050**	0.050*	0.037	0.081***	0.053**	0.050**	0.049**	0.055***	0.051**	0.018	0.051*	0.052**	0.050**	0.008	0.048**
	[0.02]	[0.03]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.03]	[0.04]	[0.03]	[0.03]	[0.02]	[0.02]	[0.02]
Credit	0.027***	0.027**	0.028***	0.036***	0.028***	0.027***	0.027***	0.021**	0.028***	0.021*	0.029***	0.028***	0.026***	0.021***	0.027***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Oil price	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001**	0.001*	0.001***	0.001***	0	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]	[0.00]
Cond.Vol.	0.032*	0.032	0.008	0.034*	0.030*	0.032*	0.027	0.012	0.034*	0.023	0.032*	0.032*	0.029	0.002	0.034*
	[0.02]	[0.04]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.03]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]
1st half ECB^F	.	.	.	.	.	.	.	.	.	.	.	0.025	.	.	.
												[0.09]			
2nd half ECB^F	.	.	.	.	.	.	.	.	.	.	.	0.028	.	.	.
												[0.08]			
MP_DISP	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0.074
															[0.05]
Constant	0.354**	0.354*	0.317**	0.443***	0.372***	0.354**	0.385***	0.451***	0.346**	0.308	0.366**	0.364**	0.392***	0.345***	0.328**
	[0.14]	[0.19]	[0.15]	[0.13]	[0.13]	[0.14]	[0.13]	[0.13]	[0.14]	[0.19]	[0.15]	[0.14]	[0.14]	[0.12]	[0.14]
Nb. of obs	84	84	84	84	84	84	84	81	83	62	84	83	84	27	84
R^2	0.92	0.92	0.91	0.92	0.93	0.92	0.93	0.93	0.92	0.93	0.92	0.93	0.93	0.98	0.93
	Regression of IV residuals on Instruments														
Adj. R^2	-0.12	-0.12	-0.12	-0.07	-0.12	-0.12	-0.12	-0.13	-0.13	0.08	-0.12	-0.15	-0.12	0.08	-0.14

*,**,*** means coefficients are significant at 10%, 5% and 1% respectively. Standard errors in brackets. The dependent variable is private inflation forecasts at date *t* , while all regressors are from date *t-1* . Instruments are the *t-1* first 3 components of a Principal Component Analysis of ECB_CY, ECB_NY, MP_ST, MP_INT, ECB rate, ECB shadow rate, core HICP, Output gap, Credit growth, Oil prices. Our main variables of interest -the three policy variables- are considered endogenous and instrumented. The equation is therefore exactly identified. In column, 2, robust standard errors are estimated using heteroskedastic and autocorrelation-consistent (HAC) robust variance estimates. In column 3, the ECB rate is replaced by the ECB shadow rate estimated by Wu and Xia (2014). In column 6, the GMM generalization of the LIML estimator to the case of possibly heteroskedastic and autocorrelated disturbances -the continuously updated GMM estimator or CUE- is used. In column 7, the ECB qualitative communication variable MP_ST is replaced by MP_INT. In columns 8 and 9, it is the ECB quantitative communication -the ECB projections- which is replaced by the quarter-over-quarter difference in ECB projections and the difference between ECB projections and CF forecasts respectively. In column 10, the sample starts in 2006m4. In column 11, the ECB projections and the ECB rate are contemporaneous to the dependent variable. In column 12, the ECB projections are split into 2 variables for ECB projections published during the first semester and the second one. In column 13, the ECB current-year projections replace the ECB next-year ones. In column 14, the frequency is quarterly. In column 15, The dispersion of the ECB qualitative communication is added.

Table 5 - IV 2SLS estimation of the effects of ECB forecasts and Qualitative Communication on private 1y-ahead forecasts

	Dependent variable: CF 1y-ahead inflation forecasts at date *t*												
	All regressors are considered at date *t-1*												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Baseline	Robust	Shadow	*w/o* Qual.	*w/o* Quant.	LIML	MP_INT	ΔComVar	(ECB-CF)	Post2006	ECB^F in *t*	Quarterly	MP_DISP
ECB forecasts	-0.013	-0.013	-0.024	-0.028	.	-0.013	-0.01	-0.006	-0.013	-0.007	-0.04	0.102	-0.013
	[0.02]	[0.01]	[0.02]	[0.02]		[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.08]	[0.19]	[0.02]
MP_ST	0.091***	0.091**	0.122***	.	0.095***	0.091***	0.008***	0.100***	0.092***	0.122***	0.137***	0.105**	0.091***
	[0.03]	[0.04]	[0.03]		[0.03]	[0.03]	[0.00]	[0.02]	[0.03]	[0.03]	[0.03]	[0.04]	[0.03]
ECB rate	-0.147***	-0.147***	-0.137***	-0.174***	-0.145***	-0.147***	-0.131***	-0.108***	-0.147***	-0.141***	-0.169***	-0.189***	-0.147***
	[0.03]	[0.03]	[0.03]	[0.03]	[0.03]	[0.03]	[0.03]	[0.03]	[0.03]	[0.03]	[0.04]	[0.06]	[0.03]
CF forecasts	0.721***	0.721***	0.771***	0.732***	0.707***	0.721***	0.713***	0.754***	0.707***	0.707***	0.729***	0.715***	0.721***
	[0.04]	[0.04]	[0.05]	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]	[0.04]	[0.05]	[0.10]	[0.16]	[0.04]
Core HICP	0.028	0.028	0.044	-0.028	0.027	0.028	0.009	-0.033	0.03	0.076	0.032	0.046	0.029
	[0.03]	[0.03]	[0.04]	[0.03]	[0.03]	[0.03]	[0.03]	[0.03]	[0.04]	[0.06]	[0.04]	[0.06]	[0.03]
Output Gap	0.116***	0.116***	0.091***	0.150***	0.116***	0.116***	0.113***	0.120***	0.116***	0.093***	0.122***	0.114***	0.116***
	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.04]	[0.02]
Credit	0.034***	0.034***	0.035***	0.046***	0.033***	0.034***	0.033***	0.030***	0.034***	0.029***	0.038***	0.039***	0.034***
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]
Oil price	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.001**	0.002***
	[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]
Cond.Vol.	0.022*	0.022**	-0.013	0.027*	0.022	0.022*	0.015	0.009	0.022	0.012	0.028	0.032*	0.022
	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.02]	[0.02]	[0.02]	[0.01]
MP_DISP	.	.	.	.	.	.	.	.	.	.	.	.	-0.004
													[0.04]
Constant	0.445***	0.445***	0.374***	0.544***	0.446***	0.445***	0.494***	0.476***	0.445***	0.416***	0.453***	0.325**	0.447***
	[0.07]	[0.08]	[0.08]	[0.07]	[0.08]	[0.07]	[0.07]	[0.07]	[0.08]	[0.09]	[0.09]	[0.13]	[0.08]
Nb. of obs	84	84	84	84	84	84	84	81	83	62	84	27	84
R^2	0.99	0.99	0.98	0.98	0.99	0.99	0.99	0.99	0.99	0.99	0.98	0.99	0.99
	Regression of IV residuals on Instruments												
Adj. R^2	-0.12	-0.12	-0.12	0.02	-0.12	-0.12	-0.12	-0.13	-0.14	-0.07	-0.12	-0.6	-0.14

*,**,*** means coefficients are significant at 10%, 5% and 1% respectively. Standard errors in brackets. The dependent variable is private inflation forecasts at date *t*, while all regressors are from date *t-1*. Instruments are the *t-1* first 3 components of a Principal Component Analysis of ECB_CY, ECB_NY, MP_ST, MP_INT, ECB rate, ECB shadow rate, core HICP, Output gap, Credit growth, Oil prices. Our main variables of interest -the three policy variables- are considered endogenous and instrumented. The equation is therefore exactly identified. In column, 2, robust standard errors are estimated using heteroskedastic and autocorrelation-consistent (HAC) robust variance estimates. In column 3, the ECB rate is replaced by the ECB shadow rate estimated by Wu and Xia (2014). In column 6, the GMM generalization of the LIML estimator to the case of possibly heteroskedastic and autocorrelated disturbances -the continuously updated GMM estimator or CUE- is used. In column 7, the ECB qualitative communication variable MP_ST is replaced by MP_INT. In columns 8 and 9, it is the ECB quantitative communication -the ECB projections- which is replaced by the quarter-over-quarter difference in ECB projections and the difference between ECB projections and CF forecasts respectively. In column 10, the sample starts in 2006m4. In column 11, the ECB projections and the ECB rate are contemporaneous to the dependent variable. In column 12, the ECB projections are split into 2 variables for ECB projections published during the first semester and the second one. In column 13, the ECB next year projections replace the ECB current year ones. In column 14, the frequency is quarterly. In column 15, The dispersion of the ECB qualitative communication is added.

Table 6 - Interacting ECB communications and action

Dependant variable: CF inflation forecasts made at date *t*

Current-year forecasts

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Predictor	ECB^F	ECB^F	ΔECB^F	(ECB-CF)	ECB^F	ΔECB^F	(ECB-CF)	MP_ST	MP_DISP	MP_ST
Moderator	MP_ST	MP_INT	MP_ST	MP_ST	ECB rate	ECB rate	ECB rate	ECB rate	ECB rate	MP_DISP
Interaction	**0.170****	**0.016****	**0.275****	**0.323****	**0.276*****	**0.483*****	**0.522***	0.124	0.09	1.118**
	[0.08]	[0.01]	[0.11]	[0.16]	[0.04]	[0.14]	[0.30]	[0.09]	[0.11]	[0.49]
ECB forecasts	0.256***	0.265***	0.322***	0.328**	-0.314***	-0.483***	-0.810	0.206**	0.149*	0.132
	[0.09]	[0.10]	[0.12]	[0.13]	[0.07]	[0.15]	[0.53]	[0.09]	[0.08]	[0.10]
ECB Qual. Com.	-0.358*	-0.035*	-0.088	-0.045	0.020	-0.071	0.009	-0.270	-0.55	-0.187
	[0.19]	[0.02]	[0.14]	[0.09]	[0.07]	[0.16]	[0.10]	[0.24]	[0.64]	[0.12]
ECB rate	0.175	0.176	0.013	0.085	-0.763***	0.021	0.059	0.055	0.037	0.017
	[0.11]	[0.11]	[0.10]	[0.09]	[0.12]	[0.11]	[0.10]	[0.10]	[0.10]	[0.12]
CF	0.471***	0.464***	0.559***	0.694***	0.280***	0.531***	0.670***	0.565***	0.555***	0.617***
	[0.09]	[0.09]	[0.08]	[0.06]	[0.08]	[0.09]	[0.06]	[0.10]	[0.10]	[0.11]
Core HICP	-(0.02)	(0.00)	(0.16)	(0.05)	0.210**	(0.05)	(0.15)	(0.06)	(0.13)	0.145
	[0.12]	[0.11]	[0.15]	[0.11]	[0.08]	[0.16]	[0.13]	[0.11]	[0.14]	[0.13]
Output Gap	0.031	0.027	0.022	0.084	0.132***	0.008	0.090	0.019	0.046	0.035
	[0.06]	[0.06]	[0.07]	[0.06]	[0.04]	[0.08]	[0.07]	[0.06]	[0.05]	[0.07]
Credit	-0.048*	-0.047*	(0.01)	-(0.03)	(0.03)	-0.012	-0.018	-0.039	-(0.03)	-0.015
	[0.03]	[0.03]	[0.03]	[0.02]	[0.02]	[0.03]	[0.03]	[0.03]	[0.02]	[0.03]
Oil price	0.004***	0.004***	0.002**	0.004***	0.003***	0.000	0.004***	0.004***	0.004***	0.004***
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Cond.Vol.	-0.168***	-0.173***	-0.190***	-0.111**	-0.306***	-0.282***	-0.105**	-0.164***	-0.151***	-0.123**
	[0.05]	[0.05]	[0.05]	[0.05]	[0.04]	[0.07]	[0.05]	[0.05]	[0.05]	[0.05]
MP_DISP	.	.	.	.	.	.	.	.	.	-1.321***
										[0.46]
Constant	0.875***	0.851***	0.982***	0.724***	2.598***	1.635***	0.544**	0.837***	0.877***	0.874***
	[0.20]	[0.18]	[0.26]	[0.19]	[0.27]	[0.38]	[0.24]	[0.22]	[0.21]	[0.27]
Nb. of obs	84	84	81	84	84	81	84	84	84	84
R^2	0.93	0.93	0.92	0.92	0.96	0.90	0.91	0.92	0.93	0.91
Predictor coef.	**0.420*****	**0.398*****	**0.588*****	**0.640****	**0.647*****	**1.198*****	**1.007****	0.159	-0.232	0.322
with High Moderator	[0.15]	[0.15]	[0.22]	[0.27]	[0.10]	[0.35]	[0.51]	[0.15]	[0.64]	[0.23]
Predictor coef.	**0.241*****	**0.227*****	**0.299****	**0.301****	0.010	0.084	-0.197	-0.125	-0.443	-0.153
with Low Moderator	[0.09]	[0.09]	[0.12]	[0.12]	[0.06]	[0.08]	[0.20]	[0.14]	[0.62]	[0.12]

Next-year forecasts

Predictor	MP_ST	MP_INT	MP_ST	MP_ST	ECB rate	ECB rate	ECB rate	MP_ST	MP_DISP	MP_ST
Moderator	ECB^F	ECB^F	ΔECB^F	(ECB-CF)	ECB^F	ΔECB^F	(ECB-CF)	ECB rate	ECB rate	MP_DISP
Interaction	**0.461*****	**0.031*****	**0.163****	0.029	**-0.087****	0.011	0.054	0.015	0.023	**-0.497****
	[0.17]	[0.01]	[0.08]	[0.09]	[0.04]	[0.05]	[0.39]	[0.04]	[0.08]	[0.24]
ECB forecasts	0.384*	0.221	-0.092**	0.034	0.175	-0.107	-0.07	0.069	-0.041	0.053
	[0.22]	[0.14]	[0.04]	[0.08]	[0.12]	[0.13]	[0.66]	[0.12]	[0.16]	[0.13]
ECB Qual. Com.	-0.790**	-0.052***	0.090*	0.069*	0.072**	0.084*	0.078*	0.037	-0.65	0.185***
	[0.32]	[0.02]	[0.05]	[0.04]	[0.03]	[0.05]	[0.04]	[0.09]	[0.48]	[0.07]
ECB rate	-0.011	-0.014	-0.008	-0.085**	0.111	-0.044	-0.081**	-0.103**	-0.145**	-0.048
	[0.06]	[0.05]	[0.04]	[0.04]	[0.09]	[0.04]	[0.04]	[0.05]	[0.07]	[0.06]
CF	0.218	0.456***	0.657***	0.709***	0.763***	0.723***	0.681***	0.660***	0.771***	0.607***
	[0.26]	[0.16]	[0.08]	[0.07]	[0.09]	[0.07]	[0.16]	[0.11]	[0.19]	[0.16]
Core HICP	0.089	0.049	-0.017	0.008	-0.003	-0.017	0.018	0.022	0.071	-0.029
	[0.07]	[0.05]	[0.05]	[0.04]	[0.04]	[0.05]	[0.06]	[0.05]	[0.10]	[0.06]
Output Gap	-0.015	0.004	0.03	0.055**	0.052**	0.037	0.056	0.048*	0.069*	0.047
	[0.05]	[0.03]	[0.03]	[0.02]	[0.02]	[0.03]	[0.03]	[0.03]	[0.04]	[0.04]
Credit	-0.01	-0.001	0.011	0.026***	0.020**	0.018*	0.026***	0.027***	0.030**	0.022*
	[0.02]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.01]	[0.02]	[0.01]
Oil price	0.001***	0.001***	0.001***	0.001***	0.001***	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]
Cond.Vol.	-0.057	-0.042	-0.009	0.031	0.054***	0.019	0.029	0.029	0.008	0.031
	[0.04]	[0.03]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.02]	[0.04]	[0.03]
MP_DISP	.	.	.	.	.	.	.	.	.	0.686***
										[0.27]
Constant	0.716***	0.593***	0.531***	0.375***	-0.106	0.378***	0.398**	0.351**	0.581**	0.290
	[0.23]	[0.17]	[0.15]	[0.13]	[0.24]	[0.14]	[0.16]	[0.14]	[0.26]	[0.22]
Nb. of obs	84	84	81	84	84	81	84	84	84	84
R^2	0.83	0.89	0.93	0.93	0.94	0.93	0.93	0.92	0.76	0.85
Predictor coef.	**0.245*****	**0.017*****	**0.143****	**0.083***	**-0.085****	-0.040	-0.055	0.088*	-0.569	-0.041
with High Moderator	[0.09]	[0.00]	[0.06]	[0.05]	[0.03]	[0.05]	[0.21]	[0.05]	[0.47]	[0.10]
Predictor coef.	-0.140	-0.009	0.036	0.059	-0.012	-0.047	-0.100	0.054	-0.622	**0.170*****
with Low Moderator	[0.09]	[0.01]	[0.05]	[0.06]	[0.04]	[0.04]	[0.13]	[0.06]	[0.45]	[0.06]

All regressors are considered at date t-1. *,**,*** means coefficients are significant at 10%, 5% and 1% respectively. Standard errors in brackets. The dependent variable is private inflation forecasts at date *t*, while all regressors are from date *t-1*. The interaction variable is generated from the multiplication of the predictor and the moderator variables. Instruments are the *t-1* first 3 components of a Principal Component Analysis of ECB_CY, ECB_NY, MP_ST, MP_INT, ECB rate, ECB shadow rate, core HICP, Output gap, Credit growth, Oil prices, and a fourth instrument generated from the interaction of the predictor variable and the most correlated component with the moderator variable. Our main variables of interest -the three policy variables and the interaction term- are considered endogenous and instrumented. The equation is therefore exactly identified. For sake of simplicity, we compute the predictor coefficient while fixing the value of the moderator variable at either a high value (mean + 1 S.D.) or a low value (mean - 1 S.D.).

APPENDIX

Examples of Reuters reports and their associated coding

June 23, 2008: "ECB's Liebscher: inflation alarming, needs action"
News agency Market News International said Liebscher declined to comment specifically on whether one interest rate rise in July would be enough to contain inflation expectations. "We will have to see what the future will bring. But we have to be tough," he was quoted as saying at a weekend event in Innsbruck. "This inflation we have now, which obviously is much more protracted than we thought, is alarming". "The most important thing is, on the one hand, to bring down the inflation rate itself and, on the other, to anchor firmly inflation expectations according to our understanding of price stability so that nothing happens in that respect," Liebscher said.
Coded: ***MP*** = 1.

November 14, 2008: "Further rates cuts not unlikely - ECB's Orphanides"
"As president Trichet has said, we cannot rule it out and indeed I do not think that a further easing of monetary policy under the circumstances should be considered unlikely," Orphanides said in an interview with Reuters television. He added that ECB staff forecasts to be published at the start of December would be far more pessimistic on euro zone growth than the previous set, but that the outlook for inflation had improved. "Today's data indeed reflect what we already knew in the last few months, a deterioration in the real economy. I expect that the forecasts we will see by Eurosystem staff at the beginning of next month... will be much more pessimistic than the previous forecasts," Orphanides said.
Coded: ***MP*** = -1.

March 23, 2009: "ECB could cut rates, take unconventional moves-Orphanides"
"Right now the base rate is 1.5 percent, and at 1.5 percent, yes, there is room for a further decline of rates," Orphanides said. "There is room for a monetary policy easing right now with conventional means, which is through interest rate reductions, but also with unconventional means." Orphanides, who is also the Cypriot central bank governor, added to concerns about plunging inflation in the 16-country bloc. "We need to keep inflation close to, or under 2.0 percent. That is the criteria we look at to see if further easing is needed or not," he said. "We have noted, that some forecasts for inflation are deviating off the 2.0 percent (target) which means that further easing may be warranted to keep our target."
Coded: ***MP*** **=** -1.

October 17, 2010: "ECB's Trichet rejects Weber view on bond buying"
In an interview with Italian daily La Stampa on Sunday, Trichet said the governing council as a whole did not agree with Weber's remark last week that the ECB's government bond-buying programme had not worked and should be scrapped. "That is not the position of the governing council, in an overwhelming majority," he said. He also struck a less hawkish note on interest rate policy than Weber, an influential member of the governing council, repeating the statement he made at the ECB's most recent press conference that current interest rates were appropriate.
Coded: ***MP*** **=** 0.