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# **The Role of Data Revisions and Disagreement in Professional Forecasts**

Eva A. Arnold

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# The Role of Data Revisions and Disagreement in Professional Forecasts

Eva A. Arnold<sup>1</sup>

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## Abstract

This paper aims at evaluating individual expectation accuracy of professional forecasters for 57 U.S., European, and German macroeconomic indicators over the period 1999-2010. The empirical analysis shows that initial announcements are partly considerably revised, and that some revisions occur systematically. Taking into account whether announcements are revised systematically and whether economists (assumingly) aim at forecasting the initial release or the latest revision, significant differences can be observed with regard to forecasters' expectation errors. In general, forecasters that are (assumingly) aiming to predict the latest revisions of German indicators are able to form better forecasts if these indicators are revised systematically. Though to a lower extent, this relationship is also observable regarding U.S. indicators. Forecasters' disagreement about fundamentals is higher during recessions and when stock markets are volatile.

**JEL Classification Numbers: D81, D84, E17**

**Keywords:** Rational expectations; Macroeconomic indicators; Disagreement; Survey analysis; Real-time data

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<sup>1</sup>Eva A. Arnold, Universität Hamburg, School of Business, Economics and Social Sciences, Department of Socioeconomics, Welckerstr. 8, 20354 Hamburg, +49 40 42838-8686, [eva.arnold@wiso.uni-hamburg.de](mailto:eva.arnold@wiso.uni-hamburg.de)

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# 1 Introduction

It is important to know how accurate professional forecasters predict macroeconomic indicators, because many households, financial market participants, and policy makers base their expectations on professional forecasts (Carroll, 2003; Croushore, 1993). Thus, the evaluation of forecasters' misperception and disagreement gives additional information to decision makers about the relative accuracy and relevance of market expectations (Ciccarelli and Hubrich, 2010). However, forecast evaluation also depends on the relevant target, i.e. whether forecasters aim at predicting the initial announcement or the finally revised value. Taking the target into account becomes more important if initially released announcements substantially differ from last-available releases due to data revisions (Aruoba, 2008). Thus, accurate forecasts of latest-available figures may correspond to systematic misperceptions of initial announcements, if the latter are revised systematically, and vice versa. Therefore, when evaluating forecasts, data revisions should be taken into account (Croushore, 2011).

Market participants carefully watch scheduled announcements of both the main indicators for economic activity (fundamentals) and monetary policy, because they potentially contain new information that is not incorporated into expectations of market participants. The resulting forecast errors ("news") affect financial markets and through a number of channels also the real economy (e.g., Basistha and Kurov, 2008). A large body of literature examines responses of financial market prices to the surprise component of major macroeconomic announcements and monetary policy releases (Andersson, Overby, and Sebestyén, 2009). Several studies focus on the impact of monetary policy surprises on interest rates (Valente, 2009; Das, 2002; Ederington and Lee, 1993; Doukas and Melhem, 1986; Ulrich and Wachtel, 1984; Grossman, 1981) and more recently on global equity indexes (e.g., Wongswan, 2009), bond and stock markets (Basistha and Kurov, 2008; Andersson, 2007; Beber and Brandt, 2006; Deaves, 1990), and foreign exchange rates (Andersen, Bollerslev, Diebold, and Vega, 2007; Faust, Rogers, Wang, and Wright, 2007; Andersen, Bollerslev, Diebold, and Vega, 2003).

Unexpected announcements of macroeconomic indicators and their revisions can have significant effects on future activity. Oh and Waldman (1990) find that expectational shocks measured by revisions of leading economic indicators explain a substantial part of the volatility in the growth rate of industrial production. They also show that errors in initial announcements are an important source for expectational shocks which can affect aggregate activity although they do not reflect real movements in the fundamentals (Oh and Waldman, 2005). Faust, Rogers, and Wright (2005) examine the predictability of GDP revisions in G-7 countries and find that these are quite large and highly predictable in several countries. Aruoba (2008) documents that revisions of major US macroeconomic indicators are biased, which implies that initial announcements are not rational forecasts of revised figures.

The literature on forecast accuracy regarding different variables and using different data sets has so far presented very ambiguous results. Some authors find evidence for biased and inefficient forecasts (e.g., Isiklar, Lahiri, and Loungani, 2006; Gramlich, 1983; Friedman, 1980), other studies document rational expectations (e.g., Ager, Kappler, and Osterloh, 2009; Keane and Runkle, 1990; Grossman, 1981).<sup>1</sup>

When evaluating expectations formation, most studies focus on professional forecasters. In contrast, Carroll (2003) analyzes households' expectations and finds that

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<sup>1</sup>For an overview of evaluation methods for forecasts see Stekler and Petrei (2003).

households adjust their expectations probabilistically towards professional forecasts. The growing literature on evaluating expectations of professional forecasters either compares forecasters’ disagreements across indicators with respect to announcements (e.g., [Dovern, Fritsche, and Slacalek, 2012](#); [Fildes and Stekler, 2002](#)) or evaluates the impact of economists’ misperception on various variables ([Öller and Barot, 2000](#)).

This paper contributes to the literature by combining the analysis of expectation accuracy of professional forecasters regarding a wide set of U.S., European, and German macroeconomic and monetary policy indicators with an evaluation of data revisions. Examining both data revisions as well as the corresponding expectations allows a more comprehensive interpretation of forecast errors. Additional insights about revisions and surprises are gained by analyzing whether forecasters’ misperceptions are affected by economic conditions. Finally, the analysis is complemented by an assessment of the expectations formation process. For this study, a unique data set has been collected from *Bloomberg*, which contains the individual expectations of 509 professional forecasters for 57 major macroeconomic indicators for three of the world’s most important economies over the period 1999-2010. Since the data set also contains initially announced figures, as well as the first and the latest revisions of those figures the magnitude of data revisions and of expectation errors regarding both the initial announcement and the revised data is studied. Moreover, disagreement among forecasters can be observed over time.

The organization of the paper is as follows: A detailed description of the data is provided in Section 2. Data revisions and forecast accuracy are analyzed in Section 3. Section 4 and 5 assess the impact of economic conditions on revisions, surprises, and disagreement among forecasters. Expectations formation is discussed in Section 6. Finally, the findings are summarized in Section 7.

## 2 Data

This study uses real-time data on professional forecasts of macroeconomic indicators. The data set contains the initial releases as well as subsequent first and last available revisions of these official announcements. However, in contrast to a typical organization of real-time data sets, the revision date is not reported ([Croushore, 2011](#)). Nevertheless, tracking data revisions is possible to some extent<sup>2</sup>.

The data set consists of 57 macroeconomic indicators: 29 U.S. indicators, 16 indicators for the Eurozone and 12 German indicators for the period 1999-2010. For each release date the actually announced value (real-time), the first and the latest revision of the announcement, the release time<sup>3</sup>, and all individual forecasts can be observed. These releases cover five categories: Economic Activity & GDP; Employment Situation & Housing Market; Business Conditions & Consumer Confidence; Prices and Monetary Policy; and (macroeconomic) Balances. Thus, this is the broadest data set compared to other studies. Altogether, 6,443 announcements were released, and 442 different firms and 509 economists published 259,300 individual forecasts during the period 1999-2010. Most of the considered indicators are denoted in percentage changes, but there are also indices which are expressed as “Points”, e.g. *ZEW EU Expectations*,

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<sup>2</sup>Although data can be revised numerous times, the data set only contains the first and the last revision that were published before December, 2010.

<sup>3</sup>The description of all indicators, their sample periods, and an overview of official release times is available from the author.

or indicators which are denoted in “Billions \$”, e.g. *US Consumer Credit*. Following the literature (e.g. [Aruoba, 2008](#)), in cases where variables are in levels and benchmark revisions (changes of base years) occurred during the sample period, these variables have been transformed to growth rates.<sup>4</sup>

For most indicators, announcements for a given period are released sometime after that period has passed. For forward looking indicators, the release date and the the period that the release refers to (reporting period) coincide. However, most indicators in this study refer to the previous period, where periods range from one week (for Initial Jobless Claims) to one quarter (applies to GDP data predominantly). For these indicators there is a lag between the release time and the reporting period.

In order to capture the impact of economic conditions, dummy variables are constructed for recessions in the U.S., the Eurozone, and Germany, as well as for a high oil price and volatile stock markets. Following the NBER definition there were two recessions in the U.S. during the period 1999-2010: 01/2001-11/2001 and 12/2007-06/2009 ([NBER, 2008](#)). From the CEPR definition it follows that the Eurozone was in a recession from 01/2008 until 04/2009 ([CEPR, 2013](#)). Since there is no official definition for recessions in Germany, with the kind permission of the Deutsche Bundesbank, its internal definition is used. Therefore, Germany experienced two recessions during the considered period 1999-2010: 04/2000-06/2003 and 01/2008-03/2009. Data on the oil price and on volatility indices are from the Deutsche Bundesbank. Based on the respective equity market, three volatility indices are used for the USA, the Eurozone, and Germany.<sup>5</sup>

The pool of economists and institutions participating in surveys is clearly higher for U.S. indicators than for European and German indicators. In 1999, on average 27 economists<sup>6</sup> participated in U.S. surveys. Economists’ forecasts for European and German indicators are only available since 2002, starting on average with 14 (13) participating economists in European (German) surveys. In 2010, the pool of forecasters has almost doubled with on average 61 economists publishing their forecasts for U.S. indicators and 24 (25) forecasts on average for European (German) indicators.

Table 1 summarizes the number of announcements that were released for each indicator during the sample period, the official announcement frequency, the total number of forecasts, and the minimum, maximum and average number of forecasts as well as the standard deviation of participating economists per indicator. By far most announcements (618) were released for Initial Jobless Claims, since these figures are announced weekly. Therefore, although on average only 34 economists participate in this survey, the total number of forecasts for the whole period 1999-2010 is very high (20,865 estimates).

[Insert Table 1 about here.]

Since data is rarely available for European and German indicators for the period 1999-2002, the total number of announcements is much higher for U.S. indicators (3,988). Hence, the total number of released forecasts for U.S. indicators (198,791) is much

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<sup>4</sup>This applies to *EU Economic Confidence* and *US Non-farm Payroll*.

<sup>5</sup>Based on the DAX, the implied volatility of the German equity market is measured by VDAX-NEW. The Chicago Board Options Exchange Volatility Index (VIX) measures the implied volatility of S&P 500 index options, and VSTOXX assesses the implied volatility of the EuroStoxx50.

<sup>6</sup>In the following, institutions and economists are used interchangeably.

higher than the number of estimates for European and German indicators, both because of more U.S. announcements and because of the larger pool of economists that participate in U.S. surveys on average. With respect to U.S. indicators, on average the survey of the *Federal Funds Rate* has the most participants (80), but at the same time the standard deviation of participating economists during the period 1999-2010 is also very high ( $\sigma = 29.90$ ) for that indicator. On the other hand, only 17 economists participate in the survey for the indicator *US ISM Prices Paid* on average, though the number of participants fluctuates less ( $\sigma = 3.47$ ). In general, economists release more forecasts for U.S. indicators than for European and German indicators, but the number of participating forecasters (especially the maximum) is also more volatile for U.S. indicators.

### 3 The relationship between misperceptions and revisions

Croushore (2011) argues that data revisions matter for monetary policy, because overreacting to current data might lead a central bank to making mistakes. On the other hand, if signals from data revisions are optimally extracted, monetary policy may not be significantly affected by data revisions. However, it is in the nature of things that policy makers' decisions are based on preliminary and partially revised data that are unequally reliable. Against this background the following section analyzes data revisions, misperceptions, and the relation between the two. In the following, due to data availability and in order to have comparable results across indicators and countries, the analysis will be based on the period 2002-2010.

According to decision requirements (i.e. whether real-time announcements or revised figures are relevant in reaching a decision), the fact that some releases are subject to considerably large revisions should be considered both by forecasters and by policy-makers. This is important because if, for example, economists attempt to forecast the initial release, they will underestimate the latest revision the more the initial announcement is revised upwards, and vice versa. In contrast, if, ceteris paribus, economists are attempting to forecast the latest revision, they will overestimate the initial announcement. On that account, first of all it is investigated whether indicators are subject to significant revisions, implying that revised figures are significantly different from initial announcements on average. This is analyzed using the following regression:

$$(A_{i,t} - y_{i,t}) = \alpha_1 + \epsilon_{i,t}^1 \quad (1)$$

In a second step, the significance of economists' median forecast errors with respect to initial releases ( $A_{i,t}$ ), first revisions ( $R_{i,t}^F$ ) and latest-available figures ( $R_{i,t}^L$ ) are analyzed using the following specifications<sup>7</sup>:

$$(A_{i,t} - E_{i,t}) = \alpha_2 + \epsilon_{i,t}^2 \quad \text{or} \quad (y_{i,t} - E_{i,t}) = \alpha_2 + \epsilon_{i,t}^2, \quad (2)$$

where  $A_{i,t}$  is the initial announcement for indicator  $i$  at release date  $t$ ,  $E_{i,t}$  is the median expectation,  $\epsilon_t$  is the error term and  $y \in \{R_{i,t}^F, R_{i,t}^L\}$ .

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<sup>7</sup>All regressions were also run with average expectations, however results do not differ much (results are available upon request).

Table 2 displays all indicators where either revisions are significantly different from initial announcements or forecasters on average over- or underestimate initial or subsequent revisions. Regarding revisions, a positive coefficient indicates that revised figures are on average lower than initial announcements. With respect to economists' misperceptions, a positive coefficient implies that forecasters underestimate the respective release.

[Insert Table 2 about here.]

Following Croushore's methodology (Croushore, 2011), the left panel of Table 2 summarizes all statistically significant revisions and forecast errors for the period 2002-2010<sup>8</sup>. For each indicator three possible revisions are considered: the revision from the initial release at date  $t$  ( $A_{i,t}$ ) to the first revision of this release ( $R_{i,t}^F$ ), the revision from the first revision to the latest-available value ( $R_{i,t}^L$ )<sup>9</sup>, and the overall revision from the initial release to the latest-available value. The second column displays the number of observed releases, whereas columns 3-11 show, for each indicator and revision, the mean and standard deviation of revisions as well as the mean absolute revision. 28 indicators are on average significantly revised either between the initial release and the first revisions, thereafter, or both. In most cases, where revisions are on average significantly different from zero, initial announcements underestimate subsequent revised figures. Though the third GDP announcement for Europe is on average lower than its first revision, the overall mean revision does not differ from zero. In contrast, *US Initial Jobless Claims* announcements both significantly underestimate final values. To some extent, the revision process is also observable: The final release of *US Building Permits* is on average lower than the first revision, which again underestimates the final values. For other indicators (*EU Unemployment Rate*, *EU Economic Confidence*, *EU M3 3 month average*) it seems that the first revision "over-corrects" the initial release, leading to a subsequent revision in the opposite direction. Finally released figures, however, remain on average higher than the first announcements. Only for *US GDP (S)* and *ISM Manufacturing PMI* latest revisions adjust downward initial announcements. Eventually, there are indicators that are not subject to revisions at all (*Federal Funds Rate*, *University of Michigan Confidence*, *ZEW EU Expectations*, *ZEW DE Current Situation*, *ZEW DE Expectation*, and *ECB Announ. Interest Rates*). Overall, it is noticeable that revisions tend to be less pronounced both for European and for German indicators than revisions for U.S. indicators.

Analogously, the right panel in Table 2 refers to summary statistics for forecast errors regarding initial announcements (*Actual*, columns 12-14), first revisions ( $R^F$ , columns 15-17), and final values ( $R^L$ , columns 18-20). Professional forecasters on average underestimate the final values of 13 indicators and they overestimate 6 indicators. In most cases a significant mean upward (overall) revision corresponds to forecasters underestimating the final values and vice versa. This finding might indicate that professional forecasters aim at predicting initial announcements, possibly in face of significant revisions on average.

<sup>8</sup>For brevity only indicators with significant revisions and/or forecast errors are shown in Table 2. Summary statistics for the rest of the indicators are available from the author.

<sup>9</sup>The latest-available value reflects the value available at the time when the data was collected from Bloomberg (March, 2011).



## Testing for Systematic Revisions and Forecast Errors

To assess whether initial announcements are biased forecasts of subsequent revisions, the latter are classified into two categories (see [Croushore, 2011](#); [Aruoba, 2008](#); [Mankiw and Shapiro, 1986](#); [Mankiw, Runkle, and Shapiro, 1984](#)): Revisions are classified as *noise* if the initial release is an observation of the revised series, measured with error. This implies that the revision is correlated with the data available when the estimate is made but uncorrelated with the revised value. Classification as *news* means that the initial release is an efficient estimate that accounts for all available information. Subsequent estimates incorporate new information, thus reducing the forecast error. In such a setting, revised values are unpredictable with the information set that is available at the time the initial estimate is made. Hence, the revision is uncorrelated with the data available for the estimate but correlated with revised values. Please note that in the following the analysis will not consider first revisions, since they seem less relevant to decision makers.

The following regressions are considered to distinguish between revisions as noise or news:

$$A_{i,t} = \alpha_3 + \beta_3 R_{i,t}^L + \epsilon_{i,t}^3 \quad (3)$$

$$R_{i,t}^L = \alpha_4 + \beta_4 A_{i,t} + \epsilon_{i,t}^4 \quad (4)$$

where  $A_{i,t}$  is the initial release for indicator  $i$  at release date  $t$ ,  $R_{i,t}^L$  is the corresponding last-available revision, and  $\epsilon$  is a white noise error term. The noise hypothesis is tested by implementing a Wald test for the joint hypothesis  $H_0 : \alpha_3 = 0, \beta_3 = 1$ , and the news hypothesis by the joint hypothesis  $H_0 : \alpha_4 = 0, \beta_4 = 1$ .

Table 3 summarized the results for both regressions. The left panel refers to the noise hypothesis and the right panel presents the results for the news hypothesis. Each panel shows the estimated coefficients of the constant and the slope parameter (columns 1 & 2 and columns 5 & 6, respectively); the corresponding robust standard errors are denoted in brackets. Columns 3 and 7 display the p-values of the Wald test with plus signs indicating the usual significance levels. From this analysis it follows that the news hypothesis cannot be rejected for *US Business Inventories* and *US Non-farm Payroll*, whereas the noise hypothesis for these indicators are rejected at the 1% significance level. Hence, those revisions are best characterized as news and are therefore unpredictable in this framework. In contrast, the revisions of the *initial GDP announcement for Germany*, *US Housing Starts*, *US New Home Sales*, *US CPI*, and the Eurozone money supply (*M3 and M3 3mth average*) are best described as noise and are therefore predictable with the information set available at the time the initial release was announced. However, it must be noted that although most indicators fail both Wald tests, which means that initial announcements are biased forecasts of the true values, this framework provides no guidance if both hypotheses are rejected. This holds especially when the unconditional mean of revisions is not equal to zero ([Aruoba, 2008](#)).

[Insert Table 3 about here.]

Although the previous analysis has shown that data is partially significantly revised, it is not clear a priori whether economists are attempting to forecast the initial release or the latest-revised figures. Therefore, economists' misperceptions vis-à-vis the initial announcement as well as vis-à-vis the latest revision are to be examined next. The



empirical approach equals the common test of expectation unbiasedness (e.g. see [Urich and Wachtel, 1984](#); [Fildes and Stekler, 2002](#); [Ehrmann and Fratzscher, 2003](#)): The rational expectations hypothesis implies that the released and the expected values must be identical except for completely random disturbance, or that the expectations are unbiased ([Figlewski and Wachtel, 1981](#)). Following the terminology in the literature, expectations are biased<sup>10</sup> with respect to the initial release, if the joint null hypothesis  $H_0 : (\alpha, \beta) = (0, 1)$  has to be rejected for the regression

$$A_{i,t} = \alpha_5 + \beta_5 E_{i,t}^A + \epsilon_{i,t}^5, \quad (5)$$

where  $A_{i,t}$  is the initial announcement for indicator  $i$  at release date  $t$ ,  $E_{i,t}^A$  is the corresponding median expectation, and  $\epsilon_{i,t}$  is a white noise disturbance term. Accordingly, expectations regarding the latest revision  $E_{i,t}^{RL}$  are unbiased if the joint null hypothesis  $H_0 : (\alpha, \beta) = (0, 1)$  cannot be rejected for

$$R_{i,t}^L = \alpha_6 + \beta_6 E_{i,t}^{RL} + \epsilon_{i,t}^6. \quad (6)$$

Table 4 has two panels corresponding to the regressions in Equation 5 and Equation 6 for median expectations over the period 2002-2010. The first striking finding is that almost all unbiased forecasts refer to indicators that are not subject to (systematic) revisions; exceptions being *US Retail Sales (ex autos)*, *US New Home Sales*, and the *third GDP announcement for Germany*. In general, all results for GDP announcements have to be handled with care due to the small number of observations. Professional forecasters make systematic forecast errors regarding both the initial announcement and the final (“true”) value for 14 out of the 57 indicators, most of them belonging to the category “*Economic Activity & GDP*”. Among indicators for the *Employment Situation & Housing Market* forecasters’ consensus is rather an unbiased estimate of the initial release, whereas most final values are predicted with systematic forecast errors. The same finding can be observed for indicators concerning *Business Conditions & Consumer Confidence*. Regarding *Prices & Monetary Policy* indicators the opposite can be observed; forecasters rather misjudge initial announcements. With respect to macroeconomic *Balances* indicators the evidence is mixed.

[Insert Table 4 about here.]

The results of the forecast and revision analyses also point to some country-specific differences. For instance, the median forecast is biased regarding the final values for almost 70% of U.S. indicators. With three indicators out of 16, forecasts for European indicators are comparably rare in bias regarding initial announcements when testing the joint null hypothesis. In contrast, with the latest revisions, 50% of Eurozone median forecasts are biased according to the joint null hypothesis. The results of the *forecast analysis* of German indicators (see Table 4) differ from findings regarding U.S. and European indicators: Although most German indicators are systematically revised from the initial announcement to the latest revision (see Table 3), the evaluation of the corresponding forecasts with respect to the latest revisions suggests that forecasters that are (assumably) aiming to predict the latest revisions for certain indicators are able to form better forecasts if these indicators are revised systematically. Though to a

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<sup>10</sup>Unbiasedness is a necessary condition for partial rationality, which means that information is used efficiently ([Brown and Maital, 1981](#)).

lower extent, this relationship is also observable regarding U.S. indicators. Therefore, when evaluating forecast accuracy, decision makers should take into account whether announcements are revised systematically and whether economists aim at forecasting the initial release or the latest revision.

## 4 The Impact of Economic Conditions on Revisions and Surprises

The previous analysis has shown that some releases are revised systematically and that these revisions are also economically significant. The following specification investigates the impact of economic conditions (recessions, highly volatile stock markets, and a high oil price) on data revisions. Since announcements that are released at release date  $t$  refer to a reporting period ( $rp$ ) that for most indicators differs from the release date ( $t \neq rp$ ), economic conditions during the reporting period are presumed to impact later revisions. Hence, dummy variables are constructed for each country in the following manner:

Following the methodology in Bloom (2009) indicators are constructed to take a value of 1 if stock markets are highly volatile (the oil price is significantly high), and zero otherwise. Stock markets (the oil price) are defined to be highly volatile at release date  $t$  and reporting period  $rp$  respectively if the peak of the Hodrick-Prescott (HP) detrended ( $\lambda = 129,600$ ) implied volatility<sup>11</sup> (oil price) significantly exceeds the mean.<sup>12</sup>

Due to different units across the considered indicators, standardized revisions and forecast errors (revisions and surprises are divided by their respective sample standard deviations) are used to facilitate interpretation. Standardized revisions and surprises associated with indicator  $i$  at time  $t$  are defined as

$$R_{i,t}^{AL} = \frac{(A_{i,t} - R_{i,t}^L)}{\sigma_i^R} \quad \text{and} \quad S_{i,t}^y = \frac{(y_{i,t} - E_{i,t}^y)}{\sigma_i^{S^y}}, \quad (7)$$

where  $A_{i,t}$  is the initially announced value of indicator  $i$ ,  $R_{i,t}^L$  is the corresponding finally revised value. The median forecast  $E_{i,t}^y$ , where ( $y \in \{A, RL\}$ ), is associated either with the initial announcement  $A_{i,t}$  or the final revision ( $R_{i,t}^L$ ).  $\sigma_i^R$  and  $\sigma_i^S$  denote the sample standard deviation of  $(A_{i,t} - R_{i,t}^L)$  and  $(y_{i,t} - E_{i,t}^y)$ , respectively. Since  $\sigma_i^R$  and  $\sigma_i^S$  are constant for any indicator  $i$ , standardization has no effect neither on the statistical significance of the estimates nor on the fit of the regression.

In order to examine the impact of *current* economic conditions on revisions, the following specification is used for each indicator  $i$ :

$$R_{i,t}^{AL} = \alpha + \beta_1 resUS_t + \beta_2 volUS_t + \beta_3 resEU_t + \beta_4 volEU_t + \beta_5 resDE_t + \beta_6 volDE_t + \beta_7 hOil_t + \beta_8 date_t + \epsilon_{i,t}. \quad (8)$$

The regression in Equation 8 analyzes the impact of recessions ( $resUS_t$ ,  $resEU_t$ , and  $resDE_t$ ) and volatile stock markets ( $volUS_t$ ,  $volEU_t$ , and  $volDE_t$ ) in all countries as well as a high oil price  $hOil_t$  at release date  $t$  on the *standardized revision*  $R_{i,t}^{AL}$  for

<sup>11</sup>As measured by the respective volatility index, as described in section 2

<sup>12</sup>The threshold is 1.65 standard deviations above the mean, which corresponds to the 5% one-tailed significance level. Each month is treated as an independent observation. Calculation is based on the period 2002-2010.

indicator  $i$  at time  $t$ . A time trend, implemented by the respective release date  $date_t$ , is also included in these specifications. Standardized revisions are not affected by economic conditions, and do not have a time trend if  $H_0 : (\beta_1, \dots, \beta_8 = 0)$  is rejected.

The specification in Equation 8 is also used in order to assess the impact of economic conditions on forecasters' *standardized surprises* regarding the initial announcement ( $S_{i,t}^A$ ) and the latest revision ( $S_{i,t}^{RL}$ ) respectively, with regressands being changed to the respective standardized surprise.

In addition, the regressions in Equation 8 are also run with dummy variables referring to the reporting period relevant for indicator  $i$ . This is motivated by the hypothesis that both revisions and surprises are influenced by economic conditions during the corresponding reporting period rather than by the economic situation at the release time of the initial announcement.

With respect to revisions, in fact, the analysis shows that GDP revisions are affected by economic conditions during the reporting period. However, revisions for other indicators are also related to the economic situation at the time of the initial announcement. Regarding  $R_{i,t}^{AL}$ , a slightly positive significant time trend can be observed for *US Leading Indicators*, *US Consumer Credit*, *US Building Permits*, and *EU Business Climate*, whereas standardized revisions of *ISM Manufacturing PMI* decline over time.

As for surprises the overall evidence on the effects of the dummy variables is mixed and unclear regarding both initial announcements and final revisions. However, economic conditions can explain surprises about final values rather than about initial releases. Regarding initial announcements the economic situation during the reporting period is more often significant for *GDP indicators*. However, this is predominantly not true for the other indicators. Results are also ambiguous with respect to a time trend, since surprises about some indicators decline over time (surprises about final revisions of *US Leading Indicators*, *US Consumer Credit*, *US Building Permits*, *US Housing Starts*, *US New Home Sales*, and *EU M3*), while forecasters are more surprised about final values of *US Initial Jobless Claims* and *ISM Manufacturing PMI* (results not reported; see Figure 1 for an illustration).

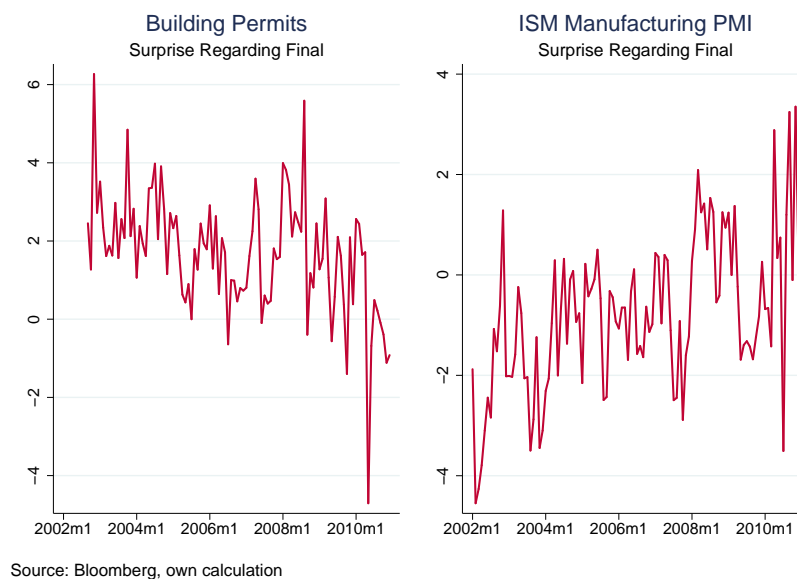


Figure 1: Significant Time Trend for Selected Indicators

In general, the hypothesis of economic conditions during reporting periods being better able to explain revisions or surprises is not confirmed; the economic situation at release time seems to have a stronger impact on experts' forecast errors and data revisions than economic condition during the reporting period. The analysis also points to a significant interlinkage between the economies. For instance, forecasters are less surprised about the initial announcement for *US GDP* if the S&P 500 has been volatile during the reporting period. At the same time, the corresponding median forecast error increases if the Eurozone economy has experienced a recession during that period.

## 5 Determinants of Disagreement

Disagreement among forecasters is measured by standard deviations of individual forecasts  $\sigma_{i,t}$  for indicator  $i$  at release date  $t$ . Expectations are assumed to be more volatile during recessions, when stock markets are volatile, or during high oil price periods. Furthermore, economic conditions during the reporting period are expected to have an impact on  $\sigma_{i,t}$ , rather than economic conditions that are valid when the official announcement is released. Moreover, in order to capture the relationship between the number of participating economists and disagreement about the outcome of the respective announcements, this variable is also included. Therefore, dummy variables are used for recessions in the USA, the Eurozone, and Germany during the reporting period ( $resUS_{rp}$ ,  $resEU_{rp}$ ,  $resDE_{rp}$ ) and during the month the announcement was released ( $resUS_t$ ,  $resEU_t$ ,  $resDE_t$ ); dummy variables for a high oil price during the reporting period ( $hOil_{rp}$ ) and during the month the announcement was released ( $hOil_t$ ), and the number of participating economists in the survey for indicator  $i$  at release date  $t$  ( $NumE_{i,t}$ ).

Previous results have shown that economic conditions both during the reporting period and at the time of the announcement have an impact on data revisions and on experts' forecast errors. Thus, the following analysis of disagreement among forecasters takes into account both influencing factors but concentrates on "domestic" factors only; e.g., dummy variables indicating U.S. recessions, a volatile S&P 500 and a high oil price both during the reporting period ( $rp$ ) and at release time ( $t$ ) enter the regressions for U.S. indicators. Therefore, for each indicator  $i$  for country  $C$  ( $C \in \{US, EU, DE\}$ ) the following regression is estimated:

$$\sigma_{i,t}^C = \alpha + \beta_1 resC_t + \beta_2 volC_t + \beta_3 resC_{rp} + \beta_4 volC_{rp} + \beta_5 hOil_t + \beta_6 hOil_{rp} + \beta_7 NumE_t + \epsilon_{i,t}, \quad (9)$$

where  $\sigma_{i,t}^C$  is the standard deviation of individual forecasts for indicator  $i$  for country  $C$  at release date  $t$ , and  $\epsilon_{i,t}$  is the error term.

Table 5 summarizes the results for the regression in Equation 9. Recessions in the domestic economy during the reporting period increase disagreement about the announced figures for 16 of the considered 42 indicators<sup>13</sup>, which mainly refer to *Economic Activity & GDP* and to *Prices & Monetary Policy*, respectively. If the respective economy experiences a recession when indicators are officially announced, forecasters disagree more about *DE Retail Sales*, *US PPI*, and *DE Trade Balance*; in contrast,

<sup>13</sup>Indicators for which the reporting period coincides with the release period are not considered in this specification due to collinearity.

they disagree less about the releases for *EU Retail Sales*, *DE Industrial Production*, and *EU M3 3month average*. Regarding the impact of volatile domestic stock market the evidence is mixed: Volatile stock markets during the reporting period are related to increased disagreement about 6 indicators and to less disagreement about 3 indicators. Experts' forecasts are more dispersed regarding *US Retail Sales*, *EU GDP (F)*, and *US Trade Balance*, if the respective stock markets are volatile at the time of the announcement. In contrast, forecasters agree more about *DE Retail Sales*, *DE GDP (A)*, and *US Building Permits*. However, for most indicators disagreement is not affected by volatile stock markets at all. A high oil price is not related to disagreement about *Employment Situation & Housing Markets* and *Balances* indicators. In case of a high oil price at release time, forecasters agree more about the releases for some indicators regarding *Economic Activity & GDP (US Business Inventories*, and both *US and EU Industrial Productions*) as well as regarding *Prices & Monetary Policy (US CPI, EU PPI, and EU M3 3month average)*, whereas forecasts regarding *EU Retail Sales* and *EU GDP (S)* are more dispersed. A significant negative<sup>14</sup> (positive) impact of a high oil price during the reporting period on forecasters' disagreement is found concerning the announcements for *US Retail Sales ex autos*, both the initial and the second release for *EU GDP*, as well as for *US ISM Manufacturing PMI (EU GDP (F))*. The more forecasters participate in the survey, the less (more) dispersed are their estimates for 7 (5) indicators.

[Insert Table 5 about here.]

In order to capture how foreign economic conditions are related to disagreement, two different specifications are used: First, the impact of economic conditions at the time when releases are published is analyzed using the following specification:

$$\sigma_{i,t} = \alpha + \beta_1 resUS_t + \beta_2 volUS_t + \beta_3 resEU_t + \beta_4 volEU_t + \beta_5 resDE_t + \beta_6 volDE_t + \beta_7 hOil_t + \beta_8 numE_t + \epsilon_{i,t}. \quad (10)$$

Second, the effect of the economic situation during the reporting period is assessed by estimating the following regression:

$$\sigma_{i,t} = \alpha + \beta_1 resUS_{rp} + \beta_2 volUS_{rp} + \beta_3 resEU_{rp} + \beta_4 volEU_{rp} + \beta_5 resDE_{rp} + \beta_6 volDE_{rp} + \beta_7 hOil_{rp} + \beta_8 numE_t + \epsilon_{i,t}, \quad (11)$$

where  $\sigma_{i,t}$  is the standard deviation of individual forecasts for indicator  $i$  and release time  $t$ .

Since results are similar for both regressions Table 6 only presents the estimation results for the specification in Equation 11 where dummy variables for economic conditions during the reporting period are applied.<sup>15</sup> For three indicators, these two estimations differ considerably: Firstly, disagreement about *German Industrial Production* is positively related to volatile U.S. stock markets during the reporting period. Using indicators about the economic situation when official figures are released, a positive impact on disagreement is also found for U.S. and Eurozone recessions, as well as for volatile U.S. and German stock markets; disagreement decreases if the EUROSTOXX is volatile and if Germany experiences a recession when official figures are announced.

<sup>14</sup>A negative coefficient implies reduced disagreement, and vice versa.

<sup>15</sup>Results for the estimation with dummy variables regarding the economic situation at the time of the release are available upon request.

Secondly, in both regressions for *US New Home Sales*, forecasters disagree less during recessions in the U.S. and in Germany. Additionally, disagreement is lower if the European stock market is volatile during the reporting period, and it is higher in case of a recession in the Eurozone in that period. Thirdly, forecasts for *US Trade Balance* are more dispersed if the U.S. stock market is volatile during the reporting period, and if the Eurozone is experiencing a recession or the German stock market is volatile. A high number of participating economists reduces disagreement regarding the *German Industrial Production* and *US New Home Sales*, but increases disagreement about the *US Trade Balance*. In general, forecasters disagree more about releases if the economy to which the announcement refers to is in a recession or if the domestic stock market is volatile. The impact of a high oil price is ambiguous, although a negative effect is observed more often.

[Insert Table 6 about here.]

## 6 Expectations Formation

Section 3 has shown that professional forecasters on average under- or overestimate some indicators and that most estimates are biased. This section aims at analyzing the expectations formation process underlying professional forecasts.

[Dovern and Weisser \(2011\)](#) point out that forecast accuracy is assumed to be the only objective of forecasters and that only true expectations are published. Although forecasters might also e.g. want to gain maximal public attention, which would provide an incentive to over- or underestimate outcomes, such arguments have little weight due to the revealed identities of the panelists in the data set used for this analysis. [DeCanio \(1979\)](#) argues that “rational expectations” as defined by [Muth \(1961\)](#) require unreasonably high costs if a forecaster is to collect all necessary information. Recent models of expectations formation consider that after weighing costs and benefits, agents rationally decide to restrict their information set to information they are likely to acquire ([Demery and Duck, 2007](#)). Following [DeCanio \(1979\)](#), the operational significance of the rational expectations idea can be improved by specifying some methods of learning. For example, an error-learning model as in [Gramlich \(1983\)](#) could be applied. Since (adaptive) learning also implies more persistent data than models with rational expectations, the former is used in forward-looking models ([Chevillon, Massmann, and Mavroeidis, 2010](#)).

In this study two expectations formation hypotheses are tested that are mostly used in the literature on expectations formation (see e.g., [Hafer, 1983](#); [Tanzi, 1980](#); [Turnovsky, 1970](#); [Muth, 1961](#)): The *extrapolative* and the *adaptive* hypothesis. The *extrapolative hypothesis* is based on the estimation of

$$E_{i,t} = \alpha + \beta_1 A_{i,t-1} + \beta_2 (A_{i,t-1} - A_{i,t-2}) + \epsilon_{i,t}, \quad (12)$$

where  $E_{i,t}$  is the median forecast for indicator  $i$  at time  $t$  (which is formed between  $t - 1$  and  $t$ );  $A_{i,t-1}$  is the announced growth rate of indicator  $i$  in  $t - 1$ , the term  $(A_{i,t-1} - A_{i,t-2})$  corresponds to the trend in growth rates during the previous period, and  $\epsilon_{i,t}$  is a white noise error term. The original version of this hypothesis is consistent with the analysis in Section 3 and stipulates  $H_0 = (\alpha, \beta_1 = 0, 1)$ . In case  $H_0 : \beta_2 > 0$  is not rejected, forecasters are expecting the past trend to continue and hence are extrapolating the past trend. In contrast, not rejecting  $H_0 : \beta_2 < 0$  corresponds to

forecasters' expectations being regressive, i.e. they expect the past trend to reverse itself, whereas  $H_0 : (\alpha = \beta_2 = 0, \beta_1 = 1)$  is related to static expectations.

The *adaptive hypothesis* assumes that when forming expectations, forecasters add a fraction of their latest forecast error to their latest forecast (see also e.g. Figlewski and Wachtel, 1981; Carlson and Parkin, 1975):

$$E_{i,t} - E_{i,t-1} = \tau(A_{i,t-1} - E_{i,t-1}) \quad 0 \leq \tau \leq 1. \quad (13)$$

However, this formulation implies that if there is a trend in the announced growth rates, forecasters systematically underestimate the actual announcement in  $t$ . This is accounted for by estimating

$$E_{i,t} = \alpha + \beta_1 E_{i,t-1} + \beta_2 A_{i,t-1} + \epsilon_{i,t}, \quad (14)$$

which is equivalent to Equation 13 if  $H_0 : \beta_1 + \beta_2 = 0$  and  $\alpha = 0$  is not rejected. In case  $H_0 : \beta_1 + \beta_2 > 1$  cannot be rejected, forecasters would presume a maintained trend and thus continue elevating their expectations above their previous forecasts (even if last year forecasts have been realized and  $\alpha = 0$ ). The opposite is the case if  $H_0 : \beta_1 + \beta_2 < 1$  is not rejected.

Table 7 presents estimation results of Equation 12 and Equation 14. Concerning extrapolative expectations (left panel), the null hypothesis  $H_0 : \beta_2 < 0$  (see column 5) cannot be rejected for five (mainly for U.S.) out of 15 analyzed indicators, which implies regressive forecasts for these indicators. In particular, forecasters expect the latest trends of *US Business Inventories*, *US and German Industrial Production*, *US Retail Sales* (without autos), and *US Leading Indicators* to reverse itself. In contrast, forecasters extrapolate the latest trends of *ISM Prices Paid*, *German Retail Sales*, and *German and Eurozone Unemployment Rates* (see column 4). Moreover, forecasters' expectations about nearly all indicators are biased as to  $H_0 : (\alpha, \beta_1 = 0, 1)$  is rejected for almost all indicators (see columns 1 and 2), and forecasters never expect trends to be static (see column 6). Column 12 in the right hand side panel of Table 7 shows the results for adaptive expectations. For all indicators, apart from the Eurozone unemployment rate, forecasters expect reversed trends in the announced growth rates so that they lower their forecasts.

[Insert Table 7 about here.]

The same analysis is also done for expectations concerning latest-available releases (results not reported). In general, the formation process of expectations for the latest revision does not differ from expectations formation concerning the initial announcement. However, forecasters seem to change their expectations formation about the European unemployment rate when forecasting the latest revisions. While forecasters extrapolate the trend in initial announcements, they expect a regressing trend in the latest revisions. Similarly, when testing the adaptive hypothesis, the analysis using the latest revisions shows that, in contrast to the initial announcement, forecasters expect the latest revision to follow the previous trend and therefore they raise their expectations.

## 7 Concluding Remarks

For this paper a unique data set has been used to analyze economists' forecasts regarding a broad set of major macroeconomic indicators.



The empirical analysis of data revisions has shown that announcements are partly considerably revised and that some revisions occur systematically. At the same time, forecasters' expectation errors are also systematic for a number of indicators. The comparison of forecast accuracy across countries and indicators displays that, in general, forecasts for U.S. and Eurozone indicators are rather biased with respect to final revisions. However, U.S. indicators concerning *Prices and Monetary Policy* are unbiased with respect to final values. Expectations about German indicators are rather biased regarding initial announcements. In addition, the analysis shows that forecasters are able to form better forecasts of the latest revisions of German indicators if these occur systematically. Though to a lower extent, this relationship is also observable regarding U.S. indicators.

The overall evidence on the effects of economic conditions on standardized revisions and surprises is mixed and unclear. The hypothesis of economic condition during the reporting period having a stronger impact on revisions and surprises than the economic situation at the time of the release has to be rejected. A positive impact of recessions and volatile stock markets (predominantly during the reporting period) is observed regarding forecasters' disagreement, i.e. economists disagree more during recessions and when stock markets are volatile.

Expectations formation regarding latest revisions is generally found not to differ from expectations formation concerning initial announcements. Further research, using this data set as a panel, would allow investigating whether the assumption is reliable that forecast accuracy is the only objective of forecasters and that only true expectations are published. Moreover, the information transmission process could be investigated.

Table 1: Descriptive Statistics for the Period 1999-2010

Indicator	N releases	Frequency	Lag	Estimates				Sum
				Min	Max	Average	STD	
Economic Activity & GDP								
US Business Inventories	133	monthly	-2	18	61	47	10.64	6,226
US Chicago Purchasing Mgrs.	143	monthly	0	7	65	46	14.54	6,565
US Durable Goods Orders	132	monthly	-1	27	81	61	13.54	8,094
US Factory Orders	134	monthly	-2	19	71	54	13.24	7,265
US Retail Sales	100	monthly	-1	50	83	71	7.18	7,119
US Retail Sales less Autos	98	monthly	-1	52	78	68	5.93	6,660
US Industrial Production	126	monthly	-1	11	82	62	15.17	7,867
US Leading Indicators	124	monthly	-1	25	63	49	11.17	6,084
US Consumer Credit	140	monthly	-2	6	46	33	6.26	4,689
US GDP QoQ (A)*	46	quarterly	-1	12	86	66	17.34	3,056
US GDP QoQ (F)*	47	quarterly	-1	33	81	61	14.10	2,850
US GDP QoQ (S)*	47	quarterly	-1	27	81	63	15.52	2,977
EU Ind. Prod.	94	monthly	-2	5	43	29	8.98	2,697
EU Retail Sales	87	monthly	-2	3	29	17	6.37	1,495
EU GDP (A)*	32	quarterly	-1	10	42	31	8.70	991
EU GDP (F)*	27	quarterly	-1	4	38	25	10.13	669
EU GDP (S)*	38	quarterly	-1	5	39	27	9.63	1,021
DE Industrial Production	78	monthly	-2	21	46	36	5.61	2,837
DE Retail Sales	96	monthly	-2	3	36	18	9.33	1,757
DE GDP QOQ (A)*	29	quarterly	-1	24	45	37	4.63	1,066
DE GDP QOQ (F)*	26	quarterly	-1	15	40	33	4.74	861
Employment Situation & Housing Markets								
US Initial Jobless Claims	618	weekly	-1	5	51	34	9.18	20,865
US Non-farm Payroll	137	monthly	-1	11	88	65	17.82	8,952
US Building Permits	100	monthly	-1	22	58	38	11.45	3,754
US Housing Starts	141	monthly	-1	28	80	59	13.93	8,373
US New Home Sales	143	monthly	-1	9	78	56	14.68	8,040
EU Unemployment Rate	125	monthly	-1	7	36	24	7.95	3,021
DE Unemployment Rate	105	monthly	0	5	37	27	7.93	2,836
Business Conditions & Consumer Confidence								
US ISM Manufacturing PMI	142	monthly	-1	11	83	60	16.15	8,565
US Philadelphia Fed Index	141	monthly	0	8	62	44	14.35	6,266
US U. of Michigan Confidence	274	2 weeks	0	2	74	48	16.21	13,252
US Consumer Confidence	143	monthly	0	9	78	55	15.26	7,905
EU Business Climate	90	monthly	0	2	19	10	3.97	934
EU Indust. Confidence	89	monthly	0	12	38	28	6.17	2,489
EU Economic Confidence	93	monthly	0	9	33	23	5.77	2,119
ZEW EU Expectations	78	monthly	0	3	12	6	1.78	462
EU Consumer Confidence	104	monthly	0	12	40	27	7.06	2,849
IFO DE Business Climate	82	monthly	0	20	46	40	4.24	3,246
ZEW DE Current Situation	83	monthly	0	8	25	18	3.95	1,512
ZEW DE Expectation	104	monthly	0	8	44	34	8.47	3,525
Prices & Monetary Policy								
US CPI	123	monthly	-1	11	82	62	16.72	7,639
US PPI	119	monthly	-1	21	81	62	14.88	7,396
US ISM Prices Paid	108	monthly	-1	9	25	17	3.47	1,879
US Import Price Index	115	monthly	-1	7	58	39	13.47	4,448
Federal Funds Rate	96	irregular	0	10	157	80	29.90	7,713
EU CPI	106	monthly	-1	6	37	26	8.01	2,772
EU PPI	101	monthly	-2	6	31	21	6.88	2,110
ECB Announ. Interest Rates	123	2 weeks	0	14	68	39	14.81	4,851
EU M3	108	monthly	-1	10	39	27	7.08	2,942
EU M3 3mth avg	105	quarterly	-1	5	27	19	4.21	2,003
DE CPI	132	monthly	-1	11	39	27	6.11	3,610
DE PPI	114	monthly	-1	6	37	25	6.98	2,836
Balances								
US Gov't Budget Balance	138	monthly	-1	8	42	31	5.34	4,230
US Nominal Current Account	37	quarterly	-1	26	53	42	5.82	1,560
US Trade Balance	143	monthly	-2	11	79	59	15.03	8,502
DE Current Account	100	monthly	-2	6	18	11	2.90	1,080
DE Trade Balance	106	monthly	-2	3	25	18	4.19	1,918
Total	6,443							259,300

Source: Bloomberg, own calculations.

Note: The lag indicates the reporting period an announcement refers to.

\* For GDP preliminary values (A) are released first, then a second release (S) follows; "final" figures (F) are announced in the third release. All three GDP releases (A, S, F) refer to the same reporting period (in Germany only two releases are announced: A and F).

Table 2: Significant Mean Revisions and Forecast Errors (2002-2010)

		Significant Revisions between									Significant Forecast Errors regarding								
		$A$ and $R^L$			$R^F$ and $R^L$			$A$ and $R^L$			Actual			$R^F$			$R^L$		
Indicator	N	Mean	STD	Abs.	Mean	STD	Abs.	Mean	STD	Abs.	Mean	STD	Abs.	Mean	STD	Abs.	Mean	STD	Abs.
Economic Activity & GDP																			
Chicago Purch. Mgrs.	107	0.104 [0.113]	1.168	0.324	0.231 [0.445]	4.598	3.193	0.335 [0.454]	4.698	3.419	0.978** [0.417]	4.314	3.529	0.874** [0.408]	4.220	3.414	0.643*** [0.239]	2.470	1.948
US Retail ex Autos	98	-0.105 [0.101]	1.004	0.715	0.102** [0.041]	0.406	0.276	-0.003 [0.109]	1.078	0.811	0.025 [0.053]	0.524	0.388	0.130* [0.076]	0.755	0.538	0.028 [0.083]	0.822	0.614
US Ind. Production	98	0.053 [0.084]	0.834	0.543	0.039 [0.044]	0.435	0.282	0.092 [0.092]	0.915	0.651	-0.061 [0.041]	0.401	0.295	-0.114* [0.065]	0.647	0.428	-0.153** [0.074]	0.732	0.489
US Leading Indic.	99	-0.037 [0.055]	0.542	0.373	-0.090*** [0.034]	0.333	0.258	-0.127** [0.061]	0.604	0.503	0.005 [0.018]	0.176	0.122	0.042 [0.048]	0.477	0.348	0.132** [0.054]	0.533	0.441
US Cons. Credit	106	-0.722 [0.808]	8.315	0.373	-1.855*** [0.429]	4.414	3.735	-2.577*** [0.799]	8.224	6.794	-0.33 [0.612]	6.295	4.893	0.392 [0.515]	5.304	4.037	2.247*** [0.502]	5.170	4.532
US GDP QoQ S	36	0.014 [0.014]	0.083	0.014	0.589*** [0.202]	1.212	1.017	0.603*** [0.206]	1.234	1.031	0.042 [0.050]	0.297	0.225	0.028 [0.047]	0.281	0.211	-0.561*** [0.201]	1.204	1.022
EU Retail Sales	83	-0.04 [0.120]	1.094	0.859	0.059 [0.044]	0.405	0.324	0.019 [0.116]	1.059	0.807	-0.102* [0.058]	0.525	0.412	-0.063 [0.097]	0.883	0.706	-0.122 [0.096]	0.874	0.693
EU GDP F	27	-0.033* [0.019]	0.100	0.048	0.026 [0.020]	0.106	0.041	-0.007 [0.026]	0.136	0.067	-0.004 [0.010]	0.052	0.026	0.030 [0.021]	0.110	0.067	0.004 [0.027]	0.140	0.085
DE Retail Sales	79	-0.197 [0.284]	2.522	1.944	0.272* [0.146]	1.297	0.981	0.075 [0.301]	2.674	2.178	-0.664*** [0.162]	1.441	1.294	-0.466** [0.205]	1.819	1.410	-0.739*** [0.227]	2.017	1.744
Employment Situation & Housing Market																			
US In. Jobless Claims	468	-2.222** [0.950]	20.547	15.389	0.011 [0.541]	11.695	7.767	-2.212** [0.911]	19.700	14.994	1.453* [0.878]	19.002	14.098	3.675*** [0.629]	13.597	10.263	3.665*** [0.515]	11.142	9.006
US Non-farm Payroll	103	-1.961 [12.542]	127.284	87.981	15.136* [8.509]	86.357	65.893	13.175 [14.002]	142.106	111.311	-18.699** [7.829]	79.450	61.786	-16.738 [10.574]	107.317	73.010	-31.874*** [12.028]	122.068	95.311
US Building Permits	100	-23.450*** [6.905]	69.049	57.570	-26.670*** [2.877]	28.766	30.270	-50.120*** [6.498]	64.975	64.420	1.115 [5.875]	58.746	46.855	24.565*** [3.537]	35.366	32.235	51.235*** [4.432]	44.318	54.635
US Housing Starts	108	-17.213 [10.691]	111.106	85.731	-0.343 [2.619]	27.217	18.731	-17.556 [10.827]	112.521	87.537	6.713 [8.872]	92.201	71.509	23.926*** [5.421]	56.341	44.944	24.269*** [5.453]	56.667	46.333
US New Home Sales	106	-0.009 [6.825]	70.267	51.500	7.726** [3.824]	39.375	29.821	7.717 [7.253]	74.673	57.415	4.642 [6.984]	71.901	52.953	4.651 [3.706]	38.159	28.038	-3.075 [4.268]	43.945	34.236
EU Unempl. Rate	107	-0.165*** [0.025]	0.261	0.220	0.061*** [0.016]	0.167	0.076	-0.105*** [0.023]	0.238	0.166	-0.002 [0.009]	0.096	0.059	0.163*** [0.025]	0.255	0.227	0.102*** [0.023]	0.242	0.183
DE Unempl. Rate	98	-0.033** [0.013]	0.129	0.076	0.001 [0.002]	0.018	0.003	-0.032** [0.013]	0.124	0.072	-0.027** [0.011]	0.113	0.086	0.006 [0.011]	0.111	0.084	0.005 [0.011]	0.111	0.083
Business Conditions & Consumer Confidence																			
ISM Manuf. PMI	107	0.037 [0.041]	0.422	0.093	0.988*** [0.239]	2.469	1.904	1.025*** [0.241]	2.495	1.958	0.263 [0.202]	2.087	1.583	0.225 [0.199]	2.056	1.557	-0.763*** [0.147]	1.519	1.348
Phil. Fed Index	107	0.29 [0.341]	3.529	0.798	-0.039 [0.840]	8.684	6.049	0.25 [0.903]	9.343	6.746	-0.642 [0.812]	8.400	6.552	-0.932 [0.778]	8.044	6.167	-0.893* [0.470]	4.858	3.669
US Cons. Conf.	107	-0.808 [0.656]	6.781	5.051	-0.041 [0.031]	0.324	0.041	-0.850 [0.655]	6.778	5.035	-0.167 [0.495]	5.115	3.923	0.641** [0.313]	3.238	2.513	0.682** [0.309]	3.200	2.496
EU Econ. Conf.	93	-1.218*** [0.328]	3.159	2.278	0.686*** [0.217]	2.095	1.252	-0.532** [0.245]	2.365	1.483	0.061 [0.163]	1.568	1.067	1.279*** [0.270]	2.599	2.148	0.593*** [0.185]	1.781	1.207

Table 2: Significant Mean Revisions and Forecast Errors (2002-2010) (Continued)

Indicator	N	Significant Revisions between									Significant Forecast Errors regarding								
		$A$ and $R^F$			$R^F$ and $R^L$			$A$ and $R^L$			Actual			$R^F$			$R^L$		
		Mean	STD	Abs.	Mean	STD	Abs.	Mean	STD	Abs.	Mean	STD	Abs.	Mean	STD	Abs.	Mean	STD	Abs.
IFO Business Cl.	82	0.18 [0.164]	1.486	1.134	0.027 [0.034]	0.311	0.124	0.207 [0.171]	1.545	1.180	0.366** [0.149]	1.350	1.115	0.186** [0.075]	0.681	0.579	0.159* [0.081]	0.733	0.609
Prices & Monetary Policy																			
US PPI	92	0.048* [0.026]	0.245	0.054	0.015 [0.112]	1.078	0.707	0.063 [0.115]	1.106	0.754	0.058 [0.057]	0.548	0.411	0.01 [0.058]	0.555	0.425	-0.005 [0.084]	0.804	0.617
EU M3	104	-0.059 [0.043]	0.442	0.330	0.008 [0.008]	0.077	0.037	-0.051 [0.043]	0.439	0.326	0.059 [0.043]	0.443	0.364	0.118*** [0.032]	0.328	0.272	0.110*** [0.031]	0.320	0.266
EU M3 3mth avg	103	-0.100** [0.039]	0.400	0.323	0.019** [0.008]	0.085	0.029	-0.081** [0.037]	0.376	0.300	0.024 [0.017]	0.169	0.132	0.124*** [0.037]	0.373	0.318	0.104*** [0.035]	0.357	0.299
DE PPI	88	0.017 [0.047]	0.442	0.226	0 [.]	0.000	0.000	0.017 [0.047]	0.442	0.226	0.076** [0.037]	0.346	0.258	0.059 [0.046]	0.432	0.296	0.059 [0.046]	0.432	0.296
Balances																			
US Current Account	36	-0.678 [2.945]	17.668	11.867	-7.694*** [1.196]	7.173	8.244	-8.372*** [2.990]	17.940	15.911	0.811 [1.086]	6.516	5.236	1.489 [3.002]	18.013	11.664	9.183*** [3.005]	18.028	16.528
DE Current Account	100	-0.494 [0.481]	4.807	3.670	0.462*** [0.120]	1.201	0.736	-0.032 [0.482]	4.816	3.742	0.462 [0.316]	3.161	2.442	0.955*** [0.312]	3.121	2.615	0.494 [0.304]	3.035	2.404
DE Trade Balance	106	0.012 [0.283]	2.910	2.144	0.033 [0.058]	0.597	0.258	0.045 [0.286]	2.949	2.238	0.35 [0.233]	2.400	1.891	0.338* [0.172]	1.775	1.409	0.305* [0.165]	1.695	1.352

Source: Bloomberg, own calculations.

Note: OLS standard errors are displayed in brackets. Coefficients significantly different from zero at 1%, 5%, and 10% significance level are distinguished with \*\*\*, \*\*, and \*.

A refers to the actual (initial) announcement,  $R^F$  and  $R^L$  denote the first and last revision, respectively.

Results are only shown for indicators with significant mean revisions and/or forecast errors. Estimation results for other indicators are available from the author.

Table 3: Revision Analysis

Dependent Variable:		Initial Announcement				Last Revision			
Explanatory Variable:		Last Revision				Initial Announcement			
		(Noise Hypothesis)				(News Hypothesis)			
Indicator	N	$\alpha_3$	$\beta_3$	$p$	$R^2$	$\alpha_4$	$\beta_4$	$p$	$R^2$
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Economic Activity &amp; GDP</b>									
US Business Inventories	103	0.064* [0.035]	0.646*** [0.047]	0.000 (+++)	0.663	0.003 [0.045]	1.027*** [0.080]	0.919	0.663
Chicago Purch. Mgrs.	107	7.721** [3.052]	0.864*** [0.055]	0.043 (++)	0.687	10.919*** [3.360]	0.795*** [0.058]	0.000 (+++)	0.687
US Durable Goods Orders	103	0.169 [0.311]	-0.212** [0.092]	0.000 (+++)	0.053	0.222 [0.342]	-0.251** [0.117]	0.000 (+++)	0.053
US Factory Orders	102	0.138 [0.210]	0.059 [0.122]	0.000 (+++)	0.004	0.269 [0.225]	0.064 [0.140]	0.000 (+++)	0.004
US Retail Sales	100	0.256** [0.114]	0.003 [0.123]	0.000 (+++)	0.000	0.259* [0.137]	0.004 [0.166]	0.000 (+++)	0.000
US Retail ex Autos	98	0.279** [0.109]	0.139 [0.160]	0.000 (+++)	0.028	0.262* [0.134]	0.203 [0.214]	0.001 (+++)	0.028
US Ind. Prod.	98	0.112 [0.072]	0.233 [0.180]	0.000 (+++)	0.067	-0.008 [0.075]	0.289* [0.158]	0.000 (+++)	0.067
US Leading Ind.	99	0.055 [0.050]	0.299*** [0.072]	0.000 (+++)	0.123	0.205*** [0.053]	0.411*** [0.101]	0.000 (+++)	0.123
US Cons. Credit	106	0.559 [0.921]	0.455*** [0.101]	0.000 (+++)	0.234	4.122*** [0.873]	0.515*** [0.087]	0.000 (+++)	0.234
US GDP (A)	35	0.613 [0.410]	0.801*** [0.127]	0.309	0.849	-0.331 [0.363]	1.059*** [0.088]	0.608	0.849
US GDP (F)	35	0.023 [0.024]	1.002*** [0.003]	0.619	0.996	-0.014 [0.015]	0.994*** [0.006]	0.617	0.996
US GDP (S)	36	0.750** [0.297]	0.920*** [0.090]	0.021 (++)	0.808	-0.306 [0.291]	0.878*** [0.064]	0.001 (+++)	0.808
EU Ind. Prod.	90	-0.042 [0.099]	0.156 [0.150]	0.000 (+++)	0.027	-0.011 [0.102]	0.171 [0.158]	0.000 (+++)	0.027
EU Retail Sales	83	0.062 [0.077]	-0.310** [0.127]	0.000 (+++)	0.068	0.044 [0.064]	-0.218*** [0.081]	0.000 (+++)	0.068
EU GDP (A)	30	0.004 [0.027]	0.983*** [0.022]	0.647	0.964	0.004 [0.026]	0.980*** [0.018]	0.505	0.964
EU GDP (F)	27	-0.002 [0.027]	0.963*** [0.028]	0.412	0.968	0.007 [0.025]	1.005*** [0.018]	0.959	0.968
EU GDP (S)	36	-0.003 [0.029]	0.914*** [0.048]	0.124	0.943	0.018 [0.031]	1.032*** [0.041]	0.391	0.943
DE Ind. Prod.	78	0.007 [0.218]	0.161 [0.178]	0.000 (+++)	0.021	-0.033 [0.197]	0.129 [0.139]	0.000 (+++)	0.021
DE Retail Sales	79	-0.369** [0.179]	-0.454*** [0.130]	0.000 (+++)	0.160	-0.386** [0.153]	-0.352*** [0.083]	0.000 (+++)	0.160
DE GDP (A)	29	0.108 [0.204]	0.543* [0.305]	0.196	0.339	0.054 [0.173]	0.624*** [0.111]	0.008 (+++)	0.339
DE GDP (F)	26	-0.067 [0.056]	0.933*** [0.061]	0.468	0.899	0.097 [0.083]	0.963*** [0.055]	0.435	0.899
<b>Employment Situation &amp; Housing Markets</b>									
US In. Jobless Claims	468	4.039 [4.580]	0.984*** [0.012]	0.039 (++)	0.948	16.529*** [3.897]	0.964*** [0.010]	0.000 (+++)	0.948
US Non-farm Payroll	103	11.433 [11.362]	0.676*** [0.051]	0.000 (+++)	0.705	-13.503 [14.142]	1.042*** [0.065]	0.574	0.705
US Building Permits	100	-15.763 [12.520]	0.977*** [0.009]	0.000 (+++)	0.989	32.272** [13.553]	1.013*** [0.010]	0.000 (+++)	0.989
US Housing Starts	108	3.155 [20.111]	0.986*** [0.017]	0.270	0.961	52.767*** [19.862]	0.975*** [0.017]	0.006 (+++)	0.961
US New Home Sales	106	1.781 [14.966]	1.007*** [0.021]	0.538	0.955	36.410*** [13.581]	0.949*** [0.018]	0.022 (++)	0.955
EU Unempl. Rate	107	-0.731*** [0.199]	1.073*** [0.022]	0.000 (+++)	0.933	1.214*** [0.182]	0.869*** [0.020]	0.000 (+++)	0.933
DE Unempl. Rate	98	-0.010 [0.072]	0.998*** [0.008]	0.030 (++)	0.992	0.085 [0.078]	0.994*** [0.009]	0.010 (++)	0.992
<b>Business Conditions &amp; Consumer Confidence</b>									
ISM Manuf. PMI	107	1.306 [2.314]	0.995*** [0.043]	0.000 (+++)	0.841	7.126*** [2.372]	0.846*** [0.044]	0.000 (+++)	0.841
Phil. Fed Index	107	0.970 [1.018]	0.878*** [0.051]	0.057 (+)	0.720	0.849 [1.020]	0.821*** [0.059]	0.006 (+++)	0.720
US Cons. Conf.	107	2.025 [2.509]	0.965*** [0.027]	0.107	0.922	4.550* [2.647]	0.955*** [0.029]	0.208	0.922
EU Business Cl.	88	0.001 [0.026]	1.010*** [0.024]	0.881	0.965	-0.005 [0.025]	0.955*** [0.028]	0.135	0.965
EU Ind. Conf.	89	-0.103 [0.103]	0.996*** [0.010]	0.601	0.991	0.030 [0.102]	0.994*** [0.010]	0.782	0.991
EU Econ. Conf.	93	-2.565 [3.232]	1.021*** [0.031]	0.056 (+)	0.956	6.713* [3.888]	0.936*** [0.038]	0.082 (+)	0.956
EU Cons. Conf.	104	0.034 [0.223]	1.000*** [0.017]	0.957	0.972	-0.439* [0.242]	0.972*** [0.019]	0.186	0.972

Table 3: Revision Analysis (Continued)

Dependent Variable:		Initial Announcement				Last Revision			
Explanatory Variable:		Last Revision				Initial Announcement			
		(Noise Hypothesis)				(News Hypothesis)			
Indicator	N	$\alpha_3$	$\beta_3$	$p$	$R^2$	$\alpha_4$	$\beta_4$	$p$	$R^2$
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I/O Business Cl.	82	1.281 [2.143]	0.989*** [0.021]	0.470	0.957	2.962 [2.360]	0.968*** [0.024]	0.134	0.957
Prices & Monetary Policy									
US CPI	89	0.076* [0.045]	0.735*** [0.137]	0.156	0.535	0.025 [0.045]	0.727*** [0.116]	0.006 (+++)	0.535
US PPI	92	0.208* [0.105]	0.308** [0.146]	0.000 (+++)	0.072	0.146 [0.102]	0.233* [0.127]	0.000 (+++)	0.072
US ISM Prices Paid	108	1.206 [0.982]	0.982*** [0.014]	0.307	0.993	-0.801 [0.740]	1.012*** [0.010]	0.280	0.993
US Imp. Price Index	95	0.120 [0.141]	0.590*** [0.105]	0.001 (+++)	0.388	0.144 [0.166]	0.657*** [0.136]	0.020 (++)	0.388
EU CPI	99	0.018 [0.012]	0.946*** [0.022]	0.057 (+)	0.900	0.001 [0.010]	0.951*** [0.022]	0.097 (+)	0.900
EU PPI	93	0.075 [0.047]	0.549*** [0.091]	0.000 (+++)	0.373	0.074 [0.061]	0.679*** [0.119]	0.019 (++)	0.373
EU M3	104	-0.050 [0.082]	1.000*** [0.012]	0.454	0.980	0.192** [0.090]	0.980*** [0.013]	0.083 (+)	0.980
EU M3 3mth avg	103	-0.076 [0.067]	0.999*** [0.008]	0.101	0.985	0.180** [0.076]	0.986*** [0.009]	0.037 (++)	0.985
DE CPI	132	0.009 [0.009]	0.979*** [0.021]	0.606	0.961	-0.004 [0.004]	0.982*** [0.018]	0.607	0.961
DE PPI	88	0.099** [0.041]	0.636*** [0.154]	0.019 (++)	0.430	0.061 [0.061]	0.676*** [0.122]	0.011 (++)	0.430
Balances									
US Gov't Budget Balance	105	-48.744*** [7.942]	0.009 [0.106]	0.000 (+++)	0.000	-46.078*** [6.966]	0.008 [0.099]	0.000 (+++)	0.000
US Current Account	36	-23.424** [8.698]	0.899*** [0.064]	0.001 (+++)	0.795	-9.673 [14.075]	0.889*** [0.083]	0.004 (+++)	0.795
US Trade Balance	108	-2.741* [1.401]	0.948*** [0.029]	0.139	0.897	-2.407 [1.569]	0.946*** [0.030]	0.130	0.897
DE Current Account	100	4.296*** [0.789]	0.501*** [0.085]	0.000 (+++)	0.269	4.033*** [0.819]	0.537*** [0.086]	0.000 (+++)	0.269
DE Trade Balance	106	6.253*** [1.030]	0.519*** [0.083]	0.000 (+++)	0.268	6.199*** [1.065]	0.518*** [0.079]	0.000 (+++)	0.268

Source: Bloomberg, own calculation.

Note: \*, \*\*, and \*\*\* indicate that the null hypothesis  $H_0 : \alpha = 0$  OR  $H_0 : \beta = 1$  have to be rejected at a 10%, 5%, and 1% significance level, respectively. If the Wald test of the joint hypothesis  $H_0 : (\alpha, \beta = 0, 1)$  has to be rejected is visualized by (+), (++) and (+++) which corresponds to 10%, 5%, and 1% significance levels. Brackets denote heteroskedasticity-robust standard errors.

Table 4: Unbiasedness Test for the Median Estimate

Dependent Variable:		Initial Announcement				Last Revision			
Explanatory Variable:		Median Estimate				Median Estimate			
Indicator	N	$\alpha_3$	$\beta_3$	$p$	$R^2$	$\alpha_4$	$\beta_4$	$p$	$R^2$
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Economic Activity & GDP									
US Business Inventories	103	-0.010 [0.025]	1.102*** [0.049]	0.098 (+)	0.836	-0.054* [0.032]	1.384*** [0.073]	0.000 (+++)	0.829
Chicago Purch. Mgrs.	107	0.808 [3.028]	1.003*** [0.057]	0.068 (+)	0.721	-3.524** [1.650]	1.077*** [0.030]	0.001 (+++)	0.905
US Durable Goods Orders	103	-0.238 [0.246]	1.360*** [0.163]	0.088 (+)	0.462	0.303 [0.376]	-0.421 [0.280]	0.000 (+++)	0.037
US Factory Orders	102	-0.006 [0.073]	1.032*** [0.048]	0.801	0.878	0.278 [0.225]	0.001 [0.142]	0.000 (+++)	0.000
US Retail Sales	100	0.008 [0.066]	1.069*** [0.092]	0.654	0.657	0.204 [0.148]	0.242 [0.233]	0.003 (+++)	0.025
US Retail ex Autos	98	-0.086 [0.090]	1.370*** [0.203]	0.115	0.556	0.044 [0.155]	0.948*** [0.318]	0.945	0.183
US Ind. Prod.	98	-0.121** [0.050]	1.331*** [0.113]	0.016 (++)	0.725	-0.101 [0.083]	0.711*** [0.207]	0.041 (++)	0.167
US Leading Ind.	99	-0.018 [0.017]	1.181*** [0.045]	0.001 (+++)	0.889	0.179*** [0.050]	0.633*** [0.131]	0.000 (+++)	0.185
US Cons. Credit	106	-0.130 [0.853]	0.943*** [0.130]	0.725	0.356	0.957 [0.638]	1.367*** [0.114]	0.000 (+++)	0.663
US GDP (A)	35	0.006 [0.278]	0.958*** [0.088]	0.602	0.907	-0.395 [0.472]	1.044*** [0.133]	0.362	0.815
US GDP (F)	35	0.052 [0.044]	0.972*** [0.011]	0.052 (+)	0.991	0.037 [0.046]	0.966*** [0.013]	0.042 (++)	0.989
US GDP (S)	36	-0.007 [0.089]	1.020*** [0.027]	0.457	0.989	-0.330 [0.313]	0.903*** [0.077]	0.003 (+++)	0.811
EU Ind. Prod.	90	-0.069 [0.050]	0.866*** [0.037]	0.002 (+++)	0.748	-0.025 [0.105]	0.206 [0.156]	0.000 (+++)	0.038

Table 4: Unbiasedness Test for the Median Estimate (Continued)

Dependent Variable:		Initial Announcement				Last Revision			
Explanatory Variable:		Median Estimate				Median Estimate			
Indicator	N	$\alpha_3$	$\beta_3$	$p$	$R^2$	$\alpha_4$	$\beta_4$	$p$	$R^2$
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EU Retail Sales	83	-0.108* [0.061]	1.038*** [0.129]	0.207	0.474	0.088 [0.062]	-0.358*** [0.122]	0.000 (+++)	0.080
EU GDP (A)	30	-0.046** [0.021]	1.169*** [0.036]	0.000 (+++)	0.972	-0.039 [0.039]	1.136*** [0.054]	0.059 (+)	0.921
EU GDP (F)	27	-0.006 [0.010]	1.018*** [0.016]	0.479	0.995	0.000 [0.026]	1.025*** [0.023]	0.523	0.966
EU GDP (S)	36	0.005 [0.005]	1.004*** [0.004]	0.481	0.997	0.022 [0.031]	1.037*** [0.041]	0.267	0.943
DE Ind. Prod.	78	-0.335* [0.184]	1.208*** [0.207]	0.183	0.391	-0.168 [0.234]	0.483 [0.303]	0.018 (++)	0.078
DE Retail Sales	79	-0.811*** [0.197]	1.340*** [0.265]	0.000 (+++)	0.300	0.301* [0.152]	-1.398*** [0.180]	0.000 (+++)	0.421
DE GDP (A)	29	-0.012 [0.054]	1.220*** [0.059]	0.003 (+++)	0.922	0.024 [0.180]	0.883*** [0.175]	0.764	0.420
DE GDP (F)	26	0.000 [0.000]	1.000*** [0.000]	.	1.000	0.097 [0.083]	0.963*** [0.055]	0.435	0.899
Employment Situation & Housing Markets									
US In. Jobless Claims	468	2.969 [4.512]	0.996*** [0.012]	0.177	0.952	2.987 [2.539]	1.002*** [0.007]	0.000 (+++)	0.983
US Non-farm Payroll	103	-17.121** [7.884]	0.940*** [0.038]	0.016 (++)	0.861	-35.018*** [12.112]	1.119*** [0.056]	0.007 (+++)	0.790
US Building Permits	100	-25.238** [12.059]	1.019*** [0.009]	0.108	0.991	-5.512 [9.047]	1.040*** [0.006]	0.000 (+++)	0.996
US Housing Starts	108	-13.237 [17.544]	1.014*** [0.015]	0.619	0.974	0.010 [10.156]	1.017*** [0.009]	0.000 (+++)	0.990
US New Home Sales	106	-14.672 [13.875]	1.023*** [0.020]	0.519	0.959	-7.521 [8.060]	1.005*** [0.011]	0.436	0.984
EU Unempl. Rate	107	0.128 [0.100]	0.985*** [0.012]	0.382	0.989	1.283*** [0.177]	0.861*** [0.020]	0.000 (+++)	0.933
DE Unempl. Rate	98	-0.092 [0.078]	1.007*** [0.008]	0.030 (++)	0.994	-0.045 [0.075]	1.005*** [0.008]	0.748	0.994
Business Conditions & Consumer Confidence									
ISM Manuf. PMI	107	1.188 [1.736]	0.982*** [0.033]	0.391	0.889	2.942** [1.168]	0.930*** [0.022]	0.000 (+++)	0.936
Phil. Fed Index	107	-0.528 [0.963]	0.983*** [0.054]	0.648	0.763	-1.178** [0.523]	1.042*** [0.027]	0.073 (+)	0.917
Uni Michigan Conf.	215	2.631** [1.333]	0.965*** [0.016]	0.046 (++)	0.940	2.631** [1.333]	0.965*** [0.016]	0.046 (++)	0.940
US Cons. Conf.	107	-1.099 [2.134]	1.011*** [0.023]	0.874	0.955	-0.986 [0.971]	1.020*** [0.011]	0.023 (++)	0.982
EU Business Cl.	88	0.016 [0.020]	1.012*** [0.018]	0.481	0.979	0.013 [0.013]	0.989*** [0.016]	0.591	0.990
EU Ind. Conf.	89	0.201 [0.160]	1.024*** [0.014]	0.195	0.983	0.276* [0.149]	1.024*** [0.013]	0.094 (+)	0.985
EU Econ. Conf.	93	-0.373 [2.165]	1.004*** [0.021]	0.831	0.980	4.574* [2.638]	0.959*** [0.026]	0.005 (+++)	0.974
ZEW EU Expect.	78	0.928 [0.991]	0.951*** [0.023]	0.119	0.954	0.928 [0.991]	0.951*** [0.023]	0.119	0.954
EU Cons. Conf.	104	-0.362 [0.347]	0.981*** [0.027]	0.391	0.961	-0.548* [0.286]	0.970*** [0.019]	0.140	0.967
IFO Business Cl.	82	-1.488 [1.874]	1.019*** [0.019]	0.030 (++)	0.968	-1.779 [1.434]	1.020*** [0.014]	0.004 (+++)	0.991
ZEW DE Curr. Situation	83	1.407* [0.832]	1.022*** [0.010]	0.085 (+)	0.987	1.407* [0.832]	1.022*** [0.010]	0.085 (+)	0.987
ZEW DE Expect.	104	0.413 [1.018]	0.964*** [0.021]	0.194	0.947	0.413 [1.018]	0.964*** [0.021]	0.194	0.947
Prices & Monetary Policy									
US CPI	89	-0.046** [0.021]	1.221*** [0.067]	0.005 (+++)	0.904	-0.029 [0.048]	0.990*** [0.155]	0.446	0.600
US PPI	92	-0.049 [0.060]	1.499*** [0.131]	0.000 (+++)	0.768	0.079 [0.107]	0.608*** [0.216]	0.147	0.167
US ISM Prices Paid	108	3.218 [2.505]	0.963*** [0.038]	0.195	0.858	2.042 [2.476]	0.980*** [0.038]	0.299	0.864
US Imp. Price Index	95	0.005 [0.076]	1.198*** [0.094]	0.015 (++)	0.865	0.101 [0.143]	0.957*** [0.133]	0.774	0.496
Federal Funds Rate	72	-0.005 [0.011]	0.999*** [0.004]	0.344	0.999	-0.005 [0.011]	0.999*** [0.004]	0.344	0.999
EU CPI	99	-0.006 [0.008]	1.034*** [0.018]	0.174	0.953	-0.009 [0.011]	1.005*** [0.027]	0.719	0.895
EU PPI	93	-0.061** [0.024]	1.170*** [0.061]	0.023 (++)	0.924	0.038 [0.073]	0.770*** [0.156]	0.189	0.323
ECB Interest Rates	106	0.013 [0.011]	0.996*** [0.003]	0.422	0.998	0.013 [0.011]	0.996*** [0.003]	0.422	0.998
EU M3	104	-0.063 [0.104]	1.018*** [0.014]	0.209	0.980	0.026 [0.094]	1.012*** [0.012]	0.001 (+++)	0.989



Table 4: Unbiasedness Test for the Median Estimate (**Continued**)

Dependent Variable:		Initial Announcement				Last Revision			
Explanatory Variable:		Median Estimate				Median Estimate			
Indicator	N	$\alpha_3$	$\beta_3$	$p$	$R^2$	$\alpha_4$	$\beta_4$	$p$	$R^2$
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EU M3 3mth avg	103	0.012 [0.035]	1.002*** [0.005]	0.360	0.997	0.176** [0.071]	0.990*** [0.009]	0.009 (+++)	0.987
DE CPI	132	-0.011 [0.013]	1.036*** [0.037]	0.522	0.825	-0.014 [0.014]	1.013*** [0.043]	0.594	0.786
DE PPI	88	0.041 [0.047]	1.211*** [0.151]	0.030 (++)	0.583	0.062 [0.072]	0.985*** [0.218]	0.356	0.363
<b>Balances</b>									
US Gov't Budget Balance	105	2.907* [1.488]	1.034*** [0.016]	0.044 (++)	0.963	-44.888*** [7.077]	0.032 [0.106]	0.000 (+++)	0.001
US Current Account	36	-5.530 [5.264]	0.960*** [0.033]	0.360	0.973	-12.367 [17.397]	0.863*** [0.099]	0.000 (+++)	0.800
US Trade Balance	108	-1.333 [1.253]	0.973*** [0.024]	0.535	0.928	-0.296 [0.842]	0.989*** [0.017]	0.556	0.962
DE Current Account	100	1.313** [0.586]	0.896*** [0.080]	0.036 (++)	0.578	0.747 [0.647]	0.969*** [0.080]	0.198	0.631
DE Trade Balance	106	3.672*** [1.054]	0.736*** [0.089]	0.000 (+++)	0.416	1.024 [0.885]	0.943*** [0.070]	0.122	0.684

Source: Bloomberg, own calculation. Note: \*, \*\*, and \*\*\* indicate that the null hypothesis  $H_0 : \alpha = 0$  OR  $H_0 : \beta = 1$  have to be rejected at a 10%, 5%, a 10%, 5%, and 1% significance level, respectively. If the Wald test of the joint hypothesis  $H_0 : (\alpha, \beta = 0, 1)$  has to be rejected is visualized by (+), (++), and (+++) which corresponds to 10%, 5%, and 1% significance levels. Brackets denote heteroskedasticity-robust standard errors.

Table 5: The impact of domestic economic conditions on forecasters' disagreement about domestic announcements

Indicator	<i>constant</i>	<i>resC<sub>t</sub></i>	<i>volC<sub>t</sub></i>	<i>resC<sub>rp</sub></i>	<i>volC<sub>rp</sub></i>	<i>hOil<sub>t</sub></i>	<i>hOil<sub>rp</sub></i>	<i>numE<sub>t</sub></i>	<i>R<sup>2</sup></i>	<i>N</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
<b>Economic Activity &amp; GDP</b>										
US Business Inventories	0.152** [0.070]	-0.007 [0.028]	-0.025 [0.023]	0.122*** [0.026]	0.011 [0.023]	-0.081** [0.035]	-0.031 [0.032]	0.000 [0.001]	0.35	103
US Durable Goods Orders	1.141*** [0.335]	0.211 [0.246]	0.124 [0.164]	-0.158 [0.248]	0.036 [0.166]	0.166 [0.277]	-0.322 [0.268]	-0.001 [0.005]	0.05	103
US Factory Orders	0.612*** [0.216]	-0.044 [0.132]	0.108 [0.092]	0.351*** [0.108]	0.048 [0.095]	-0.180 [0.141]	-0.194 [0.128]	-0.002 [0.004]	0.31	102
US Retail Sales	0.502*** [0.128]	-0.009 [0.090]	0.152** [0.059]	0.086 [0.088]	0.036 [0.062]	0.062 [0.100]	-0.136 [0.094]	-0.003* [0.002]	0.29	100
US Retail ex Autos	0.140* [0.078]	0.035 [0.047]	0.034 [0.036]	0.108** [0.047]	0.089** [0.040]	-0.034 [0.053]	-0.093* [0.051]	0.001 [0.001]	0.54	98
US Ind. Prod.	0.134* [0.075]	0.017 [0.053]	0.037 [0.035]	0.138** [0.052]	0.058 [0.035]	-0.131** [0.059]	-0.040 [0.058]	0.001 [0.001]	0.52	98
US Leading Ind.	0.082 [0.081]	0.003 [0.055]	-0.011 [0.044]	0.086 [0.055]	-0.004 [0.045]	-0.065 [0.063]	-0.017 [0.061]	0.001 [0.001]	0.13	99
US Cons. Credit	3.739*** [0.648]	-0.042 [0.383]	-0.187 [0.323]	0.329 [0.360]	-0.006 [0.327]	-0.586 [0.478]	-0.563 [0.444]	-0.041** [0.018]	0.14	106
US GDP (A)	0.634** [0.235]	-0.218 [0.162]	-0.086 [0.100]	0.284** [0.131]	0.230* [0.130]	0.041 [0.162]	.	-0.003 [0.003]	0.37	35
US GDP (F)	-0.046 [0.063]	-0.014 [0.030]	0.027 [0.026]	0.022 [0.031]	0.006 [0.029]	0.021 [0.040]	-0.052 [0.035]	0.002** [0.001]	0.30	35
US GDP (S)	0.149 [0.157]	-0.032 [0.144]	0.074 [0.096]	-0.021 [0.080]	0.085 [0.091]	-0.012 [0.144]	0.006 [0.096]	0.001 [0.002]	0.19	36
EU Ind. Prod.	0.285*** [0.074]	0.077 [0.116]	-0.058 [0.081]	0.353*** [0.112]	0.117 [0.089]	-0.202* [0.117]	-0.184 [0.117]	0.001 [0.002]	0.44	90
EU Retail Sales	0.384*** [0.056]	-0.205* [0.106]	0.127 [0.085]	-0.146 [0.105]	0.289*** [0.081]	0.251** [0.108]	0.183 [0.110]	-0.002 [0.003]	0.23	83
EU GDP (A)	-0.002 [0.040]	.	-0.074 [0.057]	0.157*** [0.047]	.	-0.008 [0.047]	-0.135* [0.074]	0.002* [0.001]	0.46	30
EU GDP (F)	0.024 [0.014]	0.001 [0.020]	0.036* [0.020]	0.000 [0.022]	-0.030 [0.022]	-0.043 [0.027]	0.088*** [0.030]	0.000 [0.001]	0.64	27
EU GDP (S)	0.009 [0.014]	0.005 [0.027]	0.020 [0.014]	0.004 [0.020]	-0.014 [0.022]	0.067** [0.026]	-0.054* [0.028]	0.000 [0.000]	0.36	36
DE Ind. Prod.	1.017*** [0.180]	-0.366** [0.146]	0.131 [0.162]	0.167 [0.116]	0.623*** [0.151]	0.151 [0.164]	0.114 [0.147]	-0.011** [0.005]	0.44	78
DE Retail Sales	0.603*** [0.067]	0.258** [0.104]	-0.196* [0.105]	0.100 [0.110]	-0.015 [0.104]	-0.203 [0.161]	-0.073 [0.153]	-0.001 [0.003]	0.27	79
DE GDP (A)	0.096 [0.133]	.	-0.166* [0.095]	0.158** [0.061]	0.150 [0.102]	-0.065 [0.075]	-0.068 [0.112]	0.001 [0.004]	0.37	29
DE GDP (F)	0.021 [0.027]	-0.004 [0.027]	.	0.038* [0.019]	-0.051* [0.027]	-0.012 [0.033]	-0.038 [0.030]	0.000 [0.001]	0.36	26
<b>Employment Situation &amp; Housing Markets</b>										
US In. Jobless Claims	9.080*** [2.298]	3.830 [6.713]	0.528 [3.894]	-0.352 [6.609]	2.614 [4.022]	-2.016 [7.768]	-0.456 [7.776]	-0.030 [0.060]	0.07	468
US Non-farm Payroll	48.050*** [11.549]	-9.268 [9.738]	-4.425 [6.883]	19.381** [9.713]	3.962 [7.491]	-7.405 [10.822]	-12.878 [10.583]	-0.180 [0.155]	0.13	103

Table 5: The impact of domestic economic conditions on forecasters' disagreement about domestic announcements (**Continued**)

Indicator	<i>constant</i>	<i>resC<sub>t</sub></i>	<i>volC<sub>t</sub></i>	<i>resC<sub>rp</sub></i>	<i>volC<sub>rp</sub></i>	<i>hOil<sub>t</sub></i>	<i>hOil<sub>rp</sub></i>	<i>numE<sub>t</sub></i>	<i>R</i> <sup>2</sup>	<i>N</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
US Building Permits	57.218*** [3.264]	6.933 [6.514]	-9.249** [4.338]	-1.812 [6.592]	-1.826 [4.373]	-3.961 [7.240]	0.077 [6.944]	-0.750*** [0.088]	0.52	100
US Housing Starts	92.603*** [9.273]	2.808 [7.475]	-6.212 [4.963]	-3.896 [7.521]	-1.201 [5.037]	-0.533 [8.296]	-0.204 [7.966]	-0.893*** [0.142]	0.37	108
US New Home Sales	52.245*** [7.039]	-1.506 [6.986]	1.375 [4.615]	-6.568 [6.948]	-4.996 [4.720]	0.181 [7.712]	-2.569 [7.430]	-0.424*** [0.112]	0.33	106
EU Unempl. Rate	0.000 [0.052]	-0.004 [0.077]	-0.003 [0.070]	0.000 [0.085]	-0.004 [0.067]	-0.010 [0.107]	-0.014 [0.103]	0.002 [0.002]	0.02	107
<b>Business Conditions &amp; Consumer Confidence</b>										
US ISM Manuf. PMI	1.355*** [0.168]	-0.212 [0.154]	-0.125 [0.106]	0.352** [0.154]	0.229** [0.104]	0.074 [0.172]	-0.295* [0.165]	-0.005** [0.002]	0.22	107
<b>Prices &amp; Monetary Policy</b>										
US CPI	0.046 [0.033]	0.009 [0.023]	-0.010 [0.015]	0.076*** [0.022]	0.010 [0.016]	-0.073*** [0.026]	-0.008 [0.023]	0.001 [0.000]	0.49	89
US PPI	0.074 [0.070]	0.135** [0.060]	-0.043 [0.043]	0.049 [0.059]	0.022 [0.043]	-0.094 [0.068]	-0.037 [0.064]	0.002* [0.001]	0.35	92
US ISM Prices Paid	1.563 [0.952]	0.350 [1.151]	0.300 [0.756]	-0.261 [1.126]	0.160 [0.771]	-0.937 [1.254]	0.813 [1.212]	0.067 [0.051]	0.04	108
US Imp. Price Index	0.155 [0.101]	0.079 [0.132]	0.088 [0.090]	0.254* [0.131]	0.091 [0.092]	-0.198 [0.211]	-0.025 [0.205]	0.005** [0.002]	0.49	95
EU CPI	0.057* [0.030]	-0.020 [0.052]	0.004 [0.030]	-0.014 [0.052]	0.006 [0.031]	-0.001 [0.057]	0.009 [0.054]	0.000 [0.001]	0.02	99
EU PPI	0.150*** [0.033]	0.049 [0.053]	0.025 [0.043]	0.214*** [0.046]	-0.047 [0.042]	-0.170*** [0.057]	-0.056 [0.057]	-0.001 [0.001]	0.46	93
EU M3	0.232*** [0.030]	0.017 [0.040]	-0.028 [0.028]	0.093** [0.044]	-0.037 [0.029]	-0.049 [0.054]	-0.032 [0.052]	-0.001 [0.001]	0.11	104
EU M3 3mth avg	0.106** [0.050]	-0.283*** [0.062]	-0.048 [0.050]	0.510*** [0.067]	-0.110** [0.050]	-0.271*** [0.085]	0.058 [0.082]	0.001 [0.003]	0.40	103
DE CPI	-0.102*** [0.026]	-0.003 [0.046]	-0.025 [0.047]	0.069 [0.046]	-0.012 [0.047]	0.026 [0.064]	-0.095 [0.067]	0.006*** [0.001]	0.30	132
DE PPI	0.229*** [0.042]	-0.071 [0.054]	-0.032 [0.039]	0.089 [0.055]	0.101** [0.039]	-0.047 [0.056]	0.082 [0.056]	-0.001 [0.001]	0.23	88
<b>Balances</b>										
US Gov't Budget Balance	20.199*** [7.154]	4.206 [6.075]	-1.244 [4.053]	2.250 [6.092]	3.918 [4.092]	0.675 [6.863]	1.487 [6.484]	-0.355 [0.217]	0.17	105
US Current Account	0.315 [2.391]	0.512 [1.313]	-0.574 [1.146]	1.680 [1.321]	1.259 [1.243]	-0.998 [1.729]	-0.950 [1.601]	0.070 [0.055]	0.28	36
US Trade Balance	-0.163 [0.292]	-0.095 [0.165]	0.285** [0.130]	0.128 [0.144]	0.721*** [0.136]	-0.055 [0.197]	0.092 [0.180]	0.019*** [0.004]	0.51	108
DE Current Account	2.320*** [0.353]	0.252 [0.410]	0.098 [0.384]	-0.345 [0.377]	-0.062 [0.379]	0.340 [0.505]	-0.129 [0.496]	-0.052* [0.030]	0.05	100
DE Trade Balance	1.163*** [0.237]	0.372* [0.193]	0.223 [0.166]	-0.126 [0.182]	-0.301* [0.163]	-0.018 [0.246]	-0.221 [0.234]	0.005 [0.012]	0.10	106

Source: Bloomberg, own calculations. Note: OLS std. errors are displayed in brackets. Coefficients significantly different from 0 at 1%, 5%, and 10% level are distinguished with \*\*\*, \*\*, and \*. Indicators for which the reporting and release period coincide are not considered due to collinearity.

Table 6: The impact of international economic conditions on forecasters' disagreement

Indicator	<i>constant</i>	<i>resUS<sub>rp</sub></i>	<i>volUS<sub>rp</sub></i>	<i>resEU<sub>rp</sub></i>	<i>volEU<sub>rp</sub></i>	<i>resDE<sub>rp</sub></i>	<i>volDE<sub>rp</sub></i>	<i>hOil<sub>rp</sub></i>	<i>numE<sub>t</sub></i>	<i>R</i> <sup>2</sup>	<i>N</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
<b>Economic Activity &amp; GDP</b>											
US Business Inventories	0.202*** [0.075]	0.081*** [0.027]	0.054 [0.039]	0.021 [0.037]	-0.052 [0.035]	-0.011 [0.018]	0.009 [0.026]	-0.074** [0.035]	-0.001 [0.001]	0.33	103
US Chicago Purch. Mgrs.	2.220*** [0.402]	0.135 [0.207]	0.161 [0.265]	0.441 [0.277]	-0.037 [0.228]	-0.478*** [0.129]	0.156 [0.168]	-0.471** [0.237]	-0.012* [0.007]	0.27	107
US Durable Goods Orders	1.918*** [0.481]	-0.018 [0.193]	0.024 [0.244]	0.307 [0.262]	0.041 [0.214]	-0.317** [0.136]	0.193 [0.157]	-0.062 [0.232]	-0.012* [0.007]	0.09	103
US Factory Orders	0.947*** [0.279]	0.344*** [0.107]	-0.070 [0.153]	-0.010 [0.151]	0.219 [0.134]	-0.164** [0.082]	0.119 [0.104]	-0.165 [0.137]	-0.007 [0.004]	0.32	102
US Retail Sales	0.610*** [0.170]	0.067 [0.082]	-0.021 [0.089]	0.161 [0.111]	-0.034 [0.074]	-0.060 [0.047]	0.179*** [0.056]	-0.143* [0.082]	-0.005** [0.002]	0.33	100
US Retail ex Autos	0.180* [0.091]	0.076** [0.036]	0.092 [0.080]	0.118** [0.051]	-0.054 [0.065]	-0.011 [0.024]	0.053 [0.037]	-0.156*** [0.043]	0.000 [0.001]	0.57	98
US Ind. Prod.	0.247*** [0.088]	0.082* [0.042]	0.029 [0.063]	0.121** [0.055]	0.076 [0.054]	-0.057** [0.025]	-0.002 [0.037]	-0.139*** [0.049]	-0.001 [0.001]	0.52	98
US Leading Ind.	0.074 [0.101]	0.047 [0.044]	-0.035 [0.058]	0.052 [0.060]	0.049 [0.049]	0.001 [0.029]	-0.039 [0.039]	-0.084 [0.055]	0.001 [0.002]	0.14	99
US Cons. Credit	3.733*** [0.664]	0.252 [0.379]	0.118 [0.539]	-0.121 [0.514]	-0.207 [0.479]	-0.275 [0.217]	0.389 [0.372]	-0.625 [0.473]	-0.040** [0.018]	0.14	106
US GDP (A)	0.316 [0.338]	0.117 [0.094]	0.093 [0.211]	0.103 [0.198]	-0.185 [0.164]	0.107 [0.091]	0.044 [0.097]	-0.212 [0.210]	0.001 [0.004]	0.42	35
US GDP (F)	-0.020 [0.083]	0.013 [0.026]	-0.047 [0.058]	0.065 [0.053]	0.013 [0.046]	-0.003 [0.024]	0.011 [0.027]	-0.094* [0.052]	0.002 [0.001]	0.31	35
US GDP (S)	0.074 [0.228]	-0.039 [0.054]	-0.021 [0.123]	0.095 [0.130]	0.020 [0.095]	0.002 [0.057]	0.112* [0.056]	-0.113 [0.111]	0.002 [0.003]	0.32	36
EU Ind. Prod.	0.324** [0.127]	0.201** [0.096]	0.052 [0.190]	0.226 [0.162]	0.001 [0.189]	-0.116 [0.090]	0.169* [0.093]	-0.211* [0.118]	0.000 [0.004]	0.47	90
EU Retail Sales	0.519*** [0.072]	-0.100 [0.072]	0.163 [0.195]	-0.067 [0.112]	0.203 [0.159]	-0.133** [0.066]	0.033 [0.098]	0.364*** [0.107]	-0.008** [0.004]	0.25	83
EU GDP (A)	-0.032 [0.068]	-0.003 [0.047]	0.148** [0.057]	0.011 [0.074]	-0.106* [0.061]	0.008 [0.041]	0.056 [0.041]	.	0.003 [0.002]	0.51	30
EU GDP (F)	-0.010 [0.043]	-0.016 [0.019]	-0.020 [0.050]	0.015 [0.046]	-0.026 [0.040]	0.033 [0.031]	0.015 [0.022]	0.054 [0.045]	0.001 [0.001]	0.54	27
EU GDP (S)	-0.008 [0.032]	0.015 [0.016]	0.024 [0.045]	-0.036 [0.044]	-0.021 [0.035]	0.009 [0.024]	0.010 [0.023]	0.006 [0.040]	0.001 [0.001]	0.08	36
DE Ind. Prod.	1.053*** [0.175]	0.141 [0.145]	0.831*** [0.293]	-0.088 [0.296]	-0.350 [0.288]	-0.213 [0.160]	0.264 [0.221]	0.217 [0.216]	-0.012** [0.005]	0.50	78
DE Retail Sales	0.558*** [0.066]	0.020 [0.132]	-0.173 [0.190]	-0.288 [0.187]	0.105 [0.161]	0.363*** [0.079]	-0.009 [0.110]	-0.044 [0.161]	0.002 [0.003]	0.34	79
DE GDP (A)	0.171 [0.106]	0.027 [0.041]	0.319*** [0.091]	.	-0.315*** [0.075]	-0.029 [0.065]	0.137* [0.075]	0.032 [0.090]	-0.001 [0.003]	0.68	29
DE GDP (F)	0.022 [0.026]	-0.018 [0.014]	0.054** [0.022]	.	-0.004 [0.026]	.	-0.051* [0.026]	0.000 [0.018]	0.000 [0.001]	0.38	26

Table 6: The impact of international economic conditions on forecasters' disagreement  
(Continued)

Indicator	<i>constant</i>	<i>resUS<sub>rp</sub></i>	<i>volUS<sub>rp</sub></i>	<i>resEU<sub>rp</sub></i>	<i>volEU<sub>rp</sub></i>	<i>resDE<sub>rp</sub></i>	<i>volDE<sub>rp</sub></i>	<i>hOil<sub>rp</sub></i>	<i>numE<sub>t</sub></i>	<i>R</i> <sup>2</sup>	<i>N</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
<b>Employment Situation &amp; Housing Markets</b>											
US In. Jobless Claims	7.695*** [2.750]	1.926 [1.800]	0.149 [2.421]	2.792 [2.470]	0.911 [2.042]	0.456 [1.105]	1.240 [1.495]	-3.972* [2.102]	0.002 [0.069]	0.08	468
US Non-farm Payroll	46.695*** [16.396]	3.408 [7.672]	0.384 [10.290]	12.680 [10.617]	-11.398 [8.494]	-0.014 [5.647]	7.592 [6.274]	-25.566*** [9.346]	-0.166 [0.213]	0.15	103
US Building Permits	60.303*** [3.541]	-1.529 [5.248]	0.648 [7.615]	9.093 [6.907]	-4.441 [6.654]	-8.509** [3.981]	1.783 [4.661]	1.406 [5.963]	-0.814*** [0.093]	0.53	100
US Housing Starts	115.688*** [11.041]	-4.890 [5.741]	2.863 [7.172]	10.014 [7.545]	-6.418 [6.268]	-11.184*** [3.470]	3.814 [4.577]	3.888 [6.275]	-1.218*** [0.164]	0.44	108
US New Home Sales	73.720*** [8.298]	-13.203** [5.127]	3.796 [6.505]	14.449** [6.917]	-11.440* [5.784]	-10.662*** [3.103]	5.691 [4.157]	0.623 [5.731]	-0.736*** [0.128]	0.43	106
EU Unempl. Rate	-0.026 [0.072]	0.006 [0.066]	0.024 [0.096]	-0.032 [0.095]	-0.021 [0.084]	0.027 [0.050]	-0.014 [0.062]	-0.028 [0.085]	0.003 [0.003]	0.02	107
DE Unempl. Rate	0.070*** [0.015]	-0.007 [0.016]	-0.012 [0.024]	0.012 [0.023]	-0.006 [0.021]	-0.002 [0.012]	0.000 [0.015]	-0.008 [0.019]	0.000 [0.001]	0.04	98
<b>Business Conditions &amp; Consumer Confidence</b>											
US ISM Manuf. PMI	1.452*** [0.220]	0.139 [0.125]	0.115 [0.161]	0.069 [0.165]	0.036 [0.139]	-0.107 [0.080]	0.048 [0.101]	-0.215 [0.142]	-0.007** [0.003]	0.20	107
US Phil. Fed Index	2.144* [1.087]	-0.006 [0.518]	0.311 [0.753]	-0.527 [0.704]	-0.202 [0.753]	0.795** [0.373]	0.010 [0.462]	0.496 [0.594]	0.016 [0.020]	0.12	107
US Uni Michigan Conf.	-0.176 [0.291]	0.112 [0.185]	-0.200 [0.235]	0.264 [0.247]	0.076 [0.204]	0.210* [0.115]	0.043 [0.150]	-0.411** [0.208]	0.023*** [0.005]	0.18	215
US Cons. Conf.	2.205*** [0.561]	-0.034 [0.325]	0.695 [0.419]	-0.048 [0.429]	0.055 [0.360]	0.460** [0.197]	-0.734*** [0.264]	-0.438 [0.366]	-0.007 [0.009]	0.18	107
EU Business Cl.	0.169* [0.091]	-0.035 [0.135]	0.118 [0.209]	0.139 [0.195]	-0.018 [0.199]	-0.098 [0.093]	0.018 [0.132]	0.182 [0.171]	-0.005 [0.008]	0.08	88
EU Ind. Conf.	0.812** [0.330]	-0.192 [0.358]	-0.579 [0.712]	1.516*** [0.499]	0.473 [0.732]	-0.457 [0.309]	1.221*** [0.417]	-0.888** [0.442]	-0.002 [0.011]	0.45	89
EU Econ. Conf.	0.041 [0.131]	0.086 [0.156]	-0.125 [0.312]	0.267 [0.221]	0.245 [0.321]	-0.134 [0.140]	0.070 [0.182]	-0.144 [0.194]	0.019*** [0.006]	0.33	93
ZEW EU Expect.	2.310** [1.015]	1.441 [1.470]	6.601* [3.479]	-4.222 [2.862]	-4.010 [3.464]	. [.]	2.052 [2.690]	1.564 [2.646]	0.193 [0.165]	0.12	78
EU Cons. Conf.	-0.440 [0.989]	0.119 [1.410]	-4.700* [2.829]	0.105 [1.956]	15.470*** [2.908]	4.371*** [1.203]	-12.461*** [1.655]	-4.651*** [1.754]	0.042 [0.035]	0.48	104
IFO DE Business Cl.	0.863*** [0.220]	-0.014 [0.118]	0.075 [0.280]	-0.015 [0.228]	0.242 [0.280]	-0.025 [0.281]	0.214 [0.219]	0.174 [0.211]	-0.009 [0.005]	0.33	82
ZEW DE Curr. Situation	1.607* [0.886]	0.031 [0.923]	1.868 [2.203]	0.252 [1.797]	2.952 [2.201]	-0.954 [2.203]	-0.966 [1.708]	1.151 [1.664]	0.083 [0.050]	0.34	83
ZEW DE Expect.	4.324*** [1.027]	1.601* [0.815]	2.048* [1.048]	-1.969* [1.152]	-0.069 [0.923]	0.401 [0.717]	-0.022 [0.719]	-0.950 [0.927]	-0.008 [0.028]	0.24	104
<b>Prices &amp; Monetary Policy</b>											
US CPI	0.082 [0.050]	0.074** [0.030]	0.015 [0.023]	0.000 [0.036]	0.004 [0.020]	-0.022 [0.014]	0.015 [0.015]	-0.036* [0.022]	0.000 [0.001]	0.45	89
US PPI	0.091 [0.077]	0.094* [0.048]	0.098 [0.091]	0.082 [0.069]	-0.081 [0.089]	-0.018 [0.030]	-0.013 [0.043]	-0.101 [0.061]	0.002 [0.001]	0.33	92

Table 6: The impact of international economic conditions on forecasters' disagreement  
(Continued)

	<i>constant</i>	<i>resUS<sub>rp</sub></i>	<i>volUS<sub>rp</sub></i>	<i>resEU<sub>rp</sub></i>	<i>volEU<sub>rp</sub></i>	<i>resDE<sub>rp</sub></i>	<i>volDE<sub>rp</sub></i>	<i>hOil<sub>rp</sub></i>	<i>numE<sub>t</sub></i>	<i>R</i> <sup>2</sup>	<i>N</i>
Indicator	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
US ISM Prices Paid	1.572 [0.969]	-1.050 [0.908]	-0.355 [1.155]	1.842 [1.191]	0.462 [0.987]	-0.399 [0.472]	0.189 [0.719]	-0.308 [1.006]	0.070 [0.052]	0.05	108
US Imp. Price Index	0.167 [0.128]	0.198* [0.106]	-0.026 [0.139]	0.281* [0.147]	0.065 [0.115]	-0.015 [0.074]	0.035 [0.087]	-0.317** [0.133]	0.005* [0.003]	0.49	95
US Federal Funds Rate	-0.087*** [0.023]	0.022 [0.028]	-0.099*** [0.035]	0.094** [0.036]	0.047 [0.031]	0.049*** [0.014]	0.011 [0.022]	-0.095*** [0.030]	0.001*** [0.000]	0.56	72
EU CPI	0.074 [0.046]	-0.027 [0.050]	-0.002 [0.051]	0.005 [0.062]	0.001 [0.045]	-0.017 [0.033]	0.019 [0.034]	0.015 [0.047]	0.000 [0.002]	0.03	99
EU PPI	0.189*** [0.043]	0.008 [0.045]	0.080 [0.077]	0.203*** [0.064]	-0.028 [0.067]	-0.050 [0.034]	-0.007 [0.047]	-0.070 [0.059]	-0.002 [0.002]	0.40	93
ECB Interest Rates	0.010 [0.016]	0.007 [0.021]	-0.147*** [0.031]	0.035 [0.028]	0.077*** [0.027]	0.047*** [0.013]	0.056*** [0.017]	-0.093*** [0.023]	0.000 [0.000]	0.45	106
EU M3	0.209*** [0.038]	0.059 [0.039]	0.016 [0.049]	0.019 [0.052]	-0.067 [0.043]	0.020 [0.025]	0.003 [0.032]	-0.063 [0.043]	-0.001 [0.001]	0.13	104
EU M3 3mth avg	0.138** [0.060]	0.034 [0.069]	-0.184** [0.089]	0.272*** [0.092]	-0.022 [0.079]	-0.044 [0.038]	0.039 [0.060]	-0.210*** [0.077]	-0.001 [0.003]	0.23	103
DE CPI	-0.105*** [0.025]	-0.005 [0.025]	-0.134 [0.083]	0.097 [0.065]	-0.050 [0.056]	0.108*** [0.038]	0.008 [0.039]	-0.203*** [0.073]	0.007*** [0.001]	0.34	132
DE PPI	0.275*** [0.041]	0.049 [0.049]	0.006 [0.066]	0.086 [0.068]	-0.017 [0.053]	-0.032 [0.028]	0.062* [0.037]	-0.039 [0.052]	-0.003** [0.001]	0.33	88
Balances											
US Gov't Budget Balance	21.229*** [6.861]	-2.345 [4.673]	2.839 [5.868]	14.501** [6.101]	-1.823 [5.146]	-5.762** [2.497]	3.203 [3.825]	0.891 [5.209]	-0.354* [0.209]	0.24	105
US Current Account	2.695 [2.714]	0.731 [1.186]	1.773 [2.447]	2.242 [2.303]	-1.217 [1.901]	-1.809** [0.854]	1.641 [1.091]	-0.909 [2.184]	0.022 [0.060]	0.39	36
US Trade Balance	0.040 [0.424]	0.138 [0.155]	0.605*** [0.225]	0.029 [0.226]	0.117 [0.196]	-0.083 [0.122]	0.161 [0.144]	0.092 [0.197]	0.016*** [0.006]	0.49	108
DE Current Account	2.298*** [0.359]	0.478 [0.497]	-0.448 [0.702]	-0.407 [0.654]	-0.013 [0.706]	-0.040 [0.289]	0.177 [0.444]	0.013 [0.553]	-0.051* [0.030]	0.05	100
DE Trade Balance	1.425*** [0.228]	-0.118 [0.228]	-0.245 [0.289]	0.723** [0.302]	0.226 [0.259]	0.018 [0.139]	-0.306 [0.197]	-0.567** [0.256]	-0.008 [0.012]	0.14	106

Source: Bloomberg, own calculations.

Note: OLS standard errors are displayed in brackets. Coefficients significantly different from 0 at 1%, 5%, and 10% significance level are distinguished with \*\*\*, \*\*, and \*.

Table 7: Expectations formation analysis with respect to initial announcements

Indicators	Extrapolative Expectations							Adaptive Expectations						
	$\alpha$	$\beta_1$	$\beta_2$	p-Values for $H_0$ :			$R^2$	$\alpha$	$\beta_1$	$\beta_2$	p-Values for $H_0$ :			$R^2$
				$\beta_2 > 0$	$\beta_2 < 0$	$\beta_2 = 0$					$\beta_1 + \beta_2 > 1$	$\beta_1 + \beta_2 < 1$	$\beta_1 + \beta_2 = 1$	
US Bus. Inventories	0.0513* [0.0246]	0.7876* [0.0473]	-0.2595 [0.0803]	<b>0.00</b>	1.00	<b>0.00</b>	0.81	0.0315 [0.0217]	0.6908* [0.1160]	0.2062* [0.0945]	<b>0.02</b>	0.98	<b>0.03</b>	0.84
US CPI	0.0982* [0.0378]	0.4780* [0.1176]	0.2127 [0.1129]	0.97	<b>0.03</b>	0.06	0.48	0.0658 [0.0585]	0.291 [0.4781]	0.2844 [0.3222]	<b>0.02</b>	0.98	<b>0.04</b>	0.39
US Factory Orders	0.1136 [0.2160]	-0.1908* [0.2237]	0.0809 [0.1314]	0.73	0.27	0.54	<b>0.02</b>	0.1546 [0.1932]	-0.5363 [0.3398]	0.3583 [0.3261]	<b>0.00</b>	1.00	<b>0.00</b>	0.05
US ISM Prices Paid	5.2167* [1.2279]	0.9090* [0.0187]	0.142 [0.0409]	1.00	<b>0.00</b>	<b>0.00</b>	0.97	4.9486* [1.3265]	-0.1134* [0.0567]	1.0256* [0.0588]	<b>0.00</b>	1.00	<b>0.00</b>	0.96
US Imp. Price Index	0.0397 [0.1410]	0.6050* [0.1302]	-0.0959 [0.0982]	0.17	0.83	0.33	0.49	0.1221 [0.1282]	0.8004 [0.4043]	-0.0753 [0.2762]	0.07	0.93	0.14	0.50
US Industrial Prod.	0.1558* [0.0473]	0.4554* [0.1080]	-0.2521 [0.0838]	<b>0.00</b>	1.00	<b>0.00</b>	0.35	0.0435 [0.0456]	0.9745* [0.1737]	-0.2326 [0.1320]	<b>0.00</b>	1.00	<b>0.01</b>	0.49
US Leading Indic.	0.1244* [0.0418]	0.3615* [0.0946]	-0.1887 [0.0800]	<b>0.01</b>	0.99	<b>0.02</b>	0.13	0.0867* [0.0387]	0.8132* [0.2849]	-0.3582 [0.2263]	<b>0.00</b>	1.00	<b>0.00</b>	<b>0.17</b>
US Retail Sales	0.1831 [0.0962]	0.1932* [0.1715]	-0.1528 [0.0806]	<b>0.03</b>	0.97	0.06	<b>0.04</b>	0.2373* [0.0891]	0.0418 [0.1909]	0.0114 [0.1515]	<b>0.00</b>	1.00	<b>0.00</b>	<b>0.00</b>
US Retail Sales ex Auto	0.2524* [0.0549]	0.2917* [0.1208]	-0.1785 [0.0599]	<b>0.00</b>	1.00	<b>0.00</b>	0.25	0.1440* [0.0633]	0.7002* [0.1551]	-0.0853 [0.0846]	<b>0.00</b>	1.00	<b>0.01</b>	0.41
EU PPI	0.1315* [0.0479]	0.4904* [0.1047]	-0.1563 [0.0959]	<b>0.05</b>	0.95	0.11	0.32	0.1725* [0.0479]	-0.4574 [0.3546]	0.8050* [0.2671]	<b>0.00</b>	1.00	<b>0.00</b>	0.32
EU Retail Sales	0.0878 [0.0544]	-0.3106* [0.1193]	-0.0866 [0.0858]	0.16	0.84	0.32	0.39	0.1518* [0.0551]	-0.1856 [0.1444]	-0.3053* [0.1051]	<b>0.00</b>	1.00	<b>0.00</b>	0.27
EU Unempl. Rate	-0.1325* [0.0510]	1.0172* [0.0060]	0.2794 [0.0618]	1.00	<b>0.00</b>	<b>0.00</b>	<b>1.00</b>	-0.1934* [0.0525]	-0.1313 [0.0740]	1.1562* [0.0752]	1.00	<b>0.00</b>	<b>0.00</b>	<b>1.00</b>
DE Ind. Prod.	0.2449* [0.1119]	0.3601* [0.0907]	-0.2013 [0.0677]	<b>0.00</b>	1.00	<b>0.00</b>	0.29	-0.0848 [0.0960]	0.9443* [0.1236]	-0.1829* [0.0600]	<b>0.02</b>	0.98	<b>0.05</b>	0.60
DE Retail Sales	0.3091* [0.0845]	-0.4740* [0.0927]	0.1349 [0.0467]	1.00	<b>0.00</b>	<b>0.01</b>	0.60	0.0336 [0.0755]	0.5031* [0.0949]	-0.4146* [0.0385]	<b>0.00</b>	1.00	<b>0.00</b>	0.69
DE Unempl. Rate	-0.0082 [0.0480]	1.0011 [0.0050]	0.2142 [0.0411]	1.00	<b>0.00</b>	<b>0.00</b>	<b>1.00</b>	-0.0382 [0.0482]	-0.1088 [0.0629]	1.1127* [0.0638]	0.78	0.22	0.43	<b>1.00</b>

Source: Bloomberg, own calculation.

Note: indicates that the null hypothesis  $H_0 : (\alpha = \beta_2 = 0, \beta_1 = 1)$  have to be rejected at least at a 5% significance level. Brackets denote heteroskedasticity-robust standard errors.



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