Professional Forecasters and January

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Abstract

Each month various professional forecasters give forecasts for next year's real GDP growth and many other variables. In terms of forecast updates, January is a special month, as then the forecast horizon moves to the following calendar year, and as such the observation is not a revision. Instead of deleting the January data when analyzing forecast updates, this paper proposes a periodic version of an often considered test regression, to explicitly include and model the January data. An application of this periodic model for many forecasts across a range of countries learns that apparently there is a January optimism effect. In fact, in January, GDP forecast updates are suddenly positive, and at the same time the forecast updates for unemployment are likewise negative. This optimism about the new year of the professional forecasters is however found to be detrimental to forecast accuracy. The main conclusion is that forecasts created in January for the next year need to be treated with care.

Key words: Professional forecasters; macroeconomic forecasting; weak-form efficiency; periodic regression model; forecast updates; January effect

JEL codes: C53; E27; E37

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1. Introduction

Professional forecasters, like those who are collected in the Survey of Professional Forecasters[1] and the Consensus Forecasters[2], can quote forecasts in each month of the year. Important variables, for which these forecasts are given, are for example real GDP growth and unemployment. The forecast targets usually are yearly real GDP growth and unemployment, among others, where the years are the current year and the next year. For example, in January of 2019, forecasts are given for the outcomes in years 2019 and 2020, see Figure 1. Often, the focus is on the average forecast ("consensus"), see Ager et al. (2009), Ashiya (2003, 2006), Cho (2002), Dovern and Weisser (2011), Isiklar et al. (2006) among many others, although there are also many studies that include measures of dispersion, see Capistran and Timmermann (2009), Lahiri and Sheng (2008), Manzan (2011), Legerstee and Franses (2015), among many others.

The month January each year can be viewed as a special month. It is the first month for which the forecast horizon switches to a new year. Whereas the other months concern the forecasts for years T and T+ 1, in January for the first time, this changes from T+1 to T+2, see Figure 2 for the December 2018 forecasts and compare these with those in Figure 1. So, strictly speaking, the quote in January does not amount to a forecast revision because the forecast horizon changes, so we better label it as the "January update".

January can be a special month and this seems to hold for variables like consumer confidence and stock returns. Ciccone (2011, Table 1) reports that consumer confidence generally peaks in January, even though the survey questions ask respondents to think about comparing the next year with this year. Also, there is evidence that stock returns can show a so-called January effect, that is, investor optimism, which entails that stock returns can be higher on average in January than in other months, see for example Ciccone (2011) and Chen and Daves (2018).

[1] https://www.philadelphiafed.org/research-and-data/real-time-center/survey-of-professional-forecasters/
[2] https://www.consensuseconomics.com/

In the current study, I examine the forecasts created by professional forecasters to see whether an optimism-based January effect exists for their forecasts. The data concern the forecasts presented by Consensus Economics, and will concern real GDP growth and unemployment for various countries.

The outline of this paper is as follows. The next section introduces the auxiliary regression model that will be used for analysis of the monthly data. This regression model was introduced by Nordhaus (1987) to examine weak-form efficiency of forecasts. The model associates forecast updates for the same forecast horizon with lagged updates. Note that we treat the differences between the quotes in January versus December as an update, although strictly speaking it does not amount to a forecast revision because the forecast horizon changes. When the lags in the Nordhaus regression have no predictive power, this is interpreted as weak-form efficiency. This Nordhaus regression is applied to the monthly updates of forecasts for real GDP growth for 13 countries, and the first impression is that weak-form efficiency seems to hold. However, as we will see in Section 3, when the months of January are deleted, it will be learned that weak-form efficiency must be rejected as the first lag of the updates is significant all across the board. This suggests that there is something going on for January. Section 3 therefore proposes a periodic version of the Nordhaus regression, where parameters are allowed to vary across the months in an attempt to examine what is happening in January. It is found that all real GDP growth forecasts for a new calendar year are raised upwards, suggesting an optimism effect. Next, a potential optimism effect is examined for forecasts for unemployment which then should have a downward tendency, and this is indeed found for about all countries. To see if optimism in January translates to more accurate forecasts, it turns out that, on average, about 15 % increase in absolute forecast errors can be attributed to the optimistic January forecasts. The last section contains the conclusion, which basically is that January quotes for the next calendar year of professional forecasters should be treated with care.

2. The Nordhaus regression

The regression model that is often used to examine so-called weak-form efficiency was introduced in Nordhaus (1987). This efficiency implies that the correlation between subsequent forecast revisions is zero.

The model is also at stake in this paper, where I analyze the forecast revisions in the average forecasts (consensus) created by Consensus Forecasters. Each year, there is an average forecast produced in month *m* in year *T* for the outcome of an economic variable in year *T*+1. The key variables that are addressed are real GDP growth, inflation and unemployment. The forecasts are denoted as $F_{T+1|T,m}$, where *m* ranges from January to December. For real GDP growth, the data that I will analyze are presented in Figure 3. These data concern the real GDP growth forecasts for 13 countries (or areas), for the sample 1995.01-2018.12, although for some countries the sample starts later than 1995.01, see Table 1.

For the months February to December the forecast updates are thus given by

$$F_{T+1|T,m} - F_{T+1|T,m-1} \;\; for\; m = February, March, \dots, December$$

As can be seen from comparing Figure 2 with Figure 1, for January the forecast updates are

$$F_{T+2|T+1,January} - F_{T+1|T,December}$$

which clearly shows that the "January update" entails a new forecast horizon, that is, year *T*+2. A graph of the forecast updates for real GDP growth in the USA is given in Figure 4. Clearly, the forecast update in January involves another forecast horizon, that is, the next year $T + 2$. So, potentially, the month of January is a special month. On the other hand, even though it involves the switch to a new calendar year, there does not have to be constant and specific news that makes a new year special. However, if we look at the updates in Figure 4, at first sight we see various spikes in January.

To keep notation simple, the Nordhaus regression for forecast updates reads as

$$Update_t = \alpha + \beta\, Update_{t-1} + \varepsilon_t, \qquad (1)$$

for which the t-test on β is decisive on rejecting or not rejecting weak-form efficiency.

In Table 1, I present the estimation results for the Nordhaus regression in (1) for the updates in forecasts for real GDP growth for USA, Japan, Germany, France, UK, Italy, Canada, Eurozone, the Netherlands, Norway, Spain, Sweden and Switzerland. Clearly, all 13 β parameters are estimated as statistically insignificant. In other words, it seems that weak-form efficiency cannot be rejected.

3. January

Given the visual impression from Figure 4 that January could be a special month, I next run the 13 Nordhaus regressions in (1), where now the data for January are deleted. The estimation results appear in Table 2. Except for Norway, we now see that all β parameters are now statistically insignificant from 0. And, hence, now we have to reject weak-form efficiency.

To examine the case of January even further, I now convert the Nordhaus regression in (1) into a version that allows the parameters to vary across January and the other months. Denote the two seasonal dummy variables $D_{January,t}$ and $D_{February,t}$ which take a value 1 in the months January and February, respectively, and 0 otherwise. A relevant periodic Nordhaus regression now looks like

$$\begin{aligned} Update_t &= \alpha + \alpha_1 D_{January,t} \\ &+\beta\, Update_{t-1} + \beta_1 D_{January,t} Update_{t-1} + \beta_2 D_{February,t} Update_{t-1} + \varepsilon_t. \end{aligned} \qquad (2)$$

So, α_1 provides an additional intercept term for January, β_1 allows the dynamic structure in January to be different, and so does β_2 for February. The parameters can again be estimated

using least squares. Franses and Paap (2004) provide a concise account of periodic time series models.

Table 3 presents the parameter estimates for (2). If there would be an optimism effect, one would expect α_1 to be positive. At the same time, when β is positive, then there would be a tendency to return to the mean in all months also in January, but when there is such an upswing in January, then one would thus expect β_1 to be negative. When February would correct for this upswing, one would expect β_2 also to be negative. The estimation results in Table 3 confirm these expectations. For all 13 countries, the estimated β_1 is significant and negative (-2.301 on average), whereas also for all 13 countries β_2 is significant and negative (on average -0.542). And, except for Sweden, all α_1 are significant and positive (on average 0.235). This all suggests that professional forecasters are optimistic in January about the next year to come.

Now, if such an optimism effect would exist, then one would find similar results for a variable like unemployment, where now the sign of α_1 would be negative, and the sign of β_1 would become positive, at least given a positive value for when β. The estimation results for 8 countries (for the other countries no forecasts are available) in Table 4 confirm this expectation. So, again, in January, forecasters are optimistic.

Finally, it is of interest to examine if such a January optimism translates to higher forecast accuracy or not. For real GDP growth for 13 countries, where we take the currently (June 2019) available realizations of real GDP growth (see Figure 5 for the USA), Table 5 reports on the regression results for

$$Absolute\ forecast\ error_t = \alpha + \beta D_{January,t} + u_t \qquad (3)$$

with

$$u_t = \rho u_{t-1} + \varepsilon_t.$$

As can be seen from the relevant column, except for Norway, all estimated β parameters in (3) are significant at the 5% level. Hence, January optimism harms forecast quality. The last column of Table 5 shows that forecasts seem to deteriorate with about 15%, on average.

4. Conclusion

The conclusions from the analysis in this paper are easy to articulate. In January, professional forecasters are (too) optimistic about the next calendar year. In terms of forecast accuracy, this optimism does not translate to more accurate forecasts. So, it seems that we have to treat the January based forecasts for the next calendar with care.

As a by-product, the estimation results in this paper provide a way to correct the Consensus forecasts for the January optimism of the professional forecasters.

USA

Survey Date:
January 14, 2019

	Gross Domestic Product *real, % change* 2019	2020
Consensus (Mean)	2,508	1,846
High	2,900	2,645
Low	2,200	0,945
Standard Deviation	0,173	0,385
Number of Forecasts	26	26
First Trust Advisors	2,900	2,400
RDQ Economics	2,818	2,568
The Conference Board	2,700	2,200
Moody's Analytics	2,698	0,945
Robert Fry Economics	2,679	2,645
Citigroup	2,637	2,033
Univ of Michigan - RSQE	2,610	1,681
Wells Fargo	2,600	2,200
Bank of America - Merrill	2,545	1,811
Inforum - Univ of Maryland	2,532	2,001
FedEx Corporation	2,515	2,110
Oxford Economics	2,515	1,850
BBVA Compass	2,506	1,816
Fannie Mae	2,500	1,900
Georgia State University	2,500	1,765
Nat Assn of Home Builders	2,500	1,300
IHS Markit	2,479	1,973
Ford Motor Company	2,479	1,973
BMO Capital Markets	2,400	1,700
HSBC	2,400	1,800
Goldman Sachs	2,376	1,615
JP Morgan	2,330	1,452
Econ Intelligence Unit	2,300	1,300
Standard & Poor's	2,283	1,757
CIBC World Markets	2,200	1,500
Swiss Re	2,200	1,700

Figure 1: The Consensus forecasts presented on January 14 2019, for USA real GDP growth, for 2019 and 2020.

USA

Survey Date:
December 10, 2018

	Gross Domestic Product *real, % change*	
	2018	**2019**
Consensus (Mean)	2,901	2,590
High	2,937	2,900
Low	2,867	2,100
Standard Deviation	0,014	0,214
Number of Forecasts	27	27
Univ of Michigan - RSQE	2,937	2,726
Eaton Corporation	2,932	2,821
RDQ Economics	2,926	2,749
Bank of America - Merrill	2,914	2,691
Citigroup	2,909	2,757
FedEx Corporation	2,905	2,612
Moody's Analytics	2,901	2,856
Inforum - Univ of Maryland	2,900	2,666
BMO Capital Markets	2,900	2,500
CIBC World Markets	2,900	2,100
Econ Intelligence Unit	2,900	2,200
Fannie Mae	2,900	2,600
First Trust Advisors	2,900	2,900
Georgia State University	2,900	2,715
Nat Assn of Home Builders	2,900	2,500
Robert Fry Economics	2,900	2,600
The Conference Board	2,900	2,900
Wells Fargo	2,900	2,700
Goldman Sachs	2,897	2,524
JP Morgan	2,897	2,411
Ford Motor Company	2,896	2,478
Macroeconomic Advisers	2,896	2,554
Standard & Poor's	2,896	2,283
PNC Financial Services	2,890	2,840
BBVA Compass	2,885	2,485
Oxford Economics	2,884	2,517
Swiss Re	2,867	2,236

Figure 2: The Consensus forecasts presented on December 10 2018, for USA real GDP growth, for 2018 and 2019.

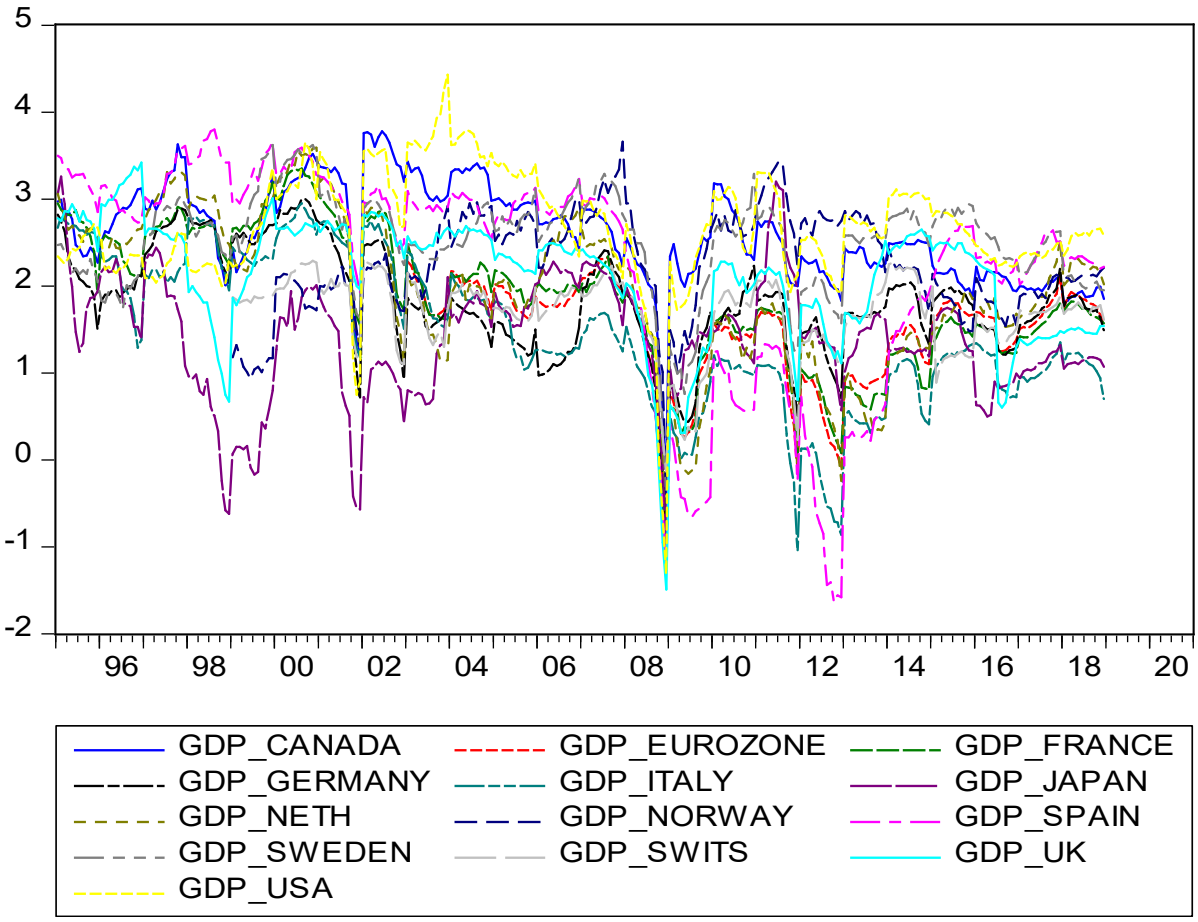

Figure 3: real GDP growth forecasts for the next calendar year for 13 countries (or areas), 1995.01-2018.12, although for some countries the sample starts later, see Table 1.

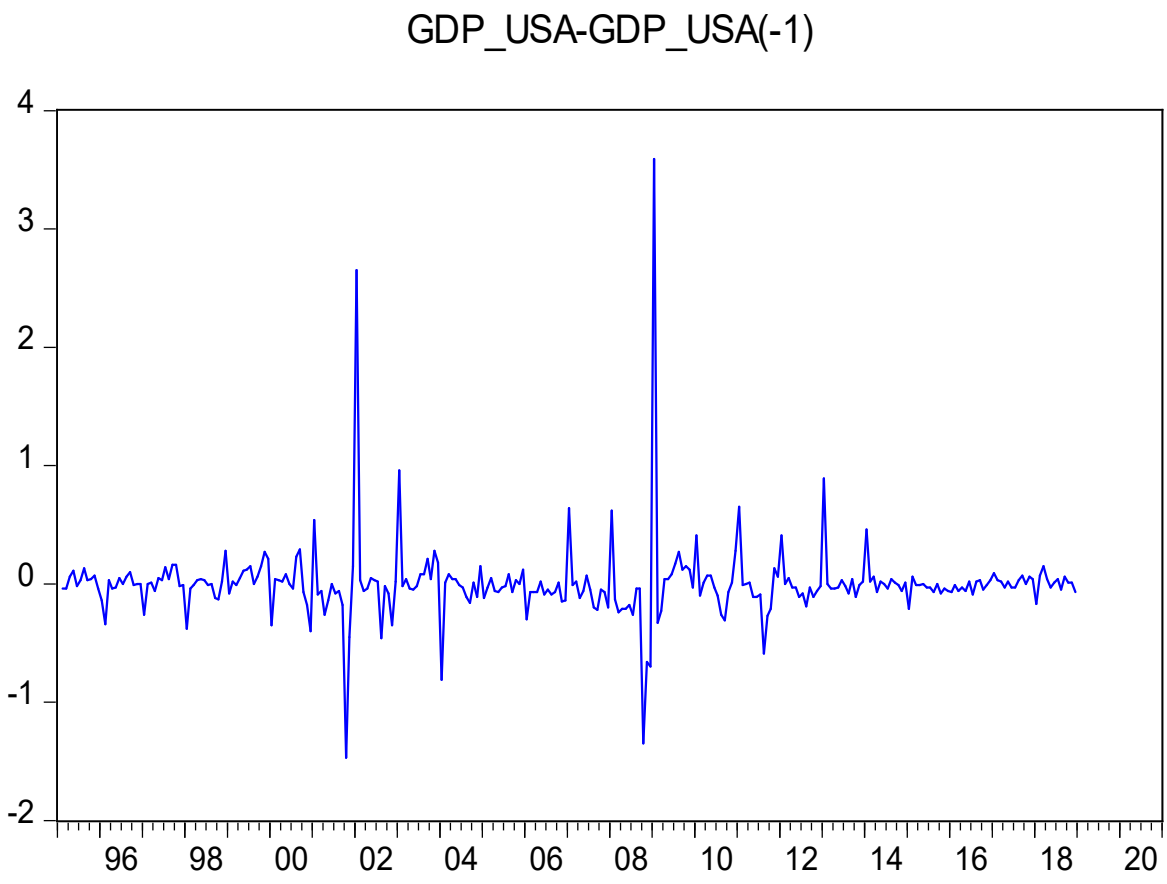

Figure 4: Forecast updates, real GDP growth USA

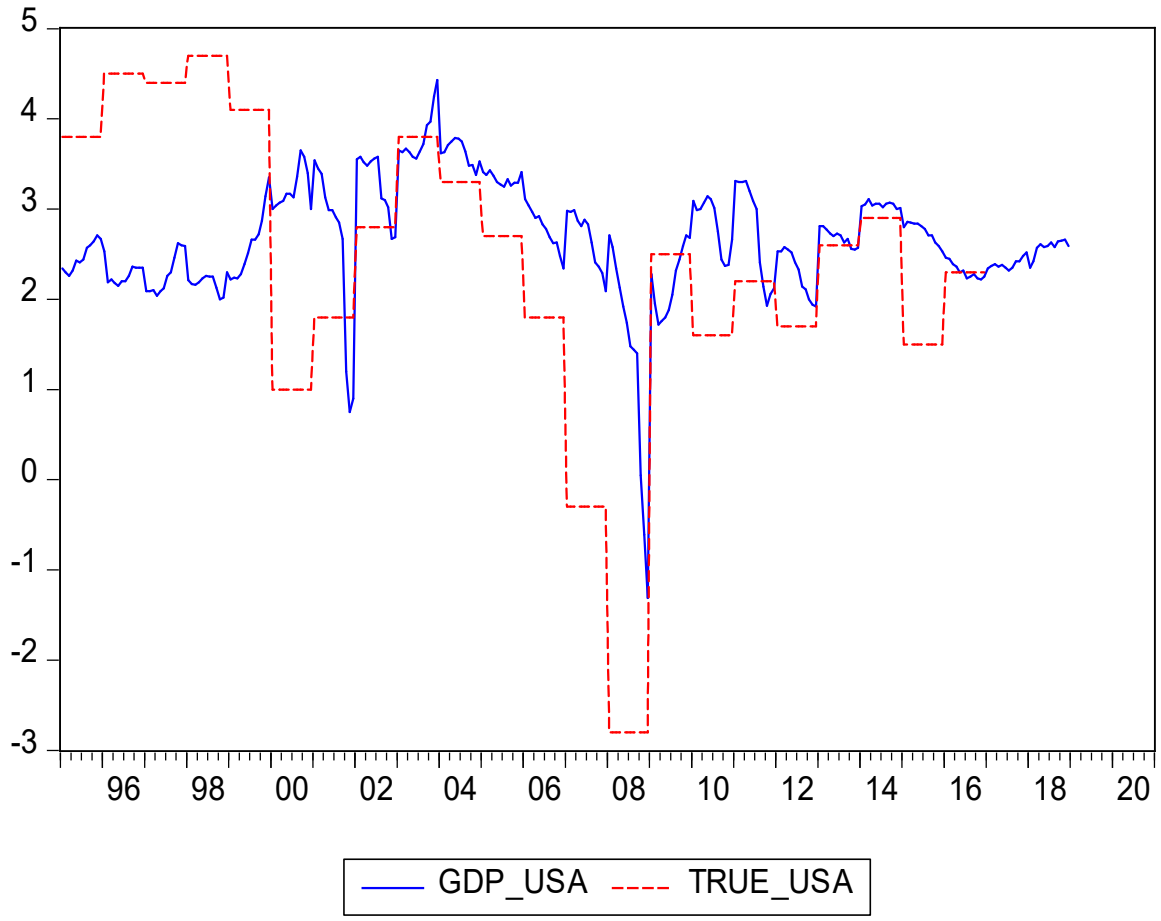

Figure 5: Forecasts for real GDP growth, USA (GDP_USA), and realizations (TRUE_USA) (available in June 2019).

Table 1: Estimates of the Nordhaus regression in (1) for forecast updates on real GDP growth (with standard errors in parentheses). Boldface indicates significant at the 5% level.

Country/Region	Sample	α	β	R^2
USA	1995.01-2018.12	0.001 (0.020)	-0.003 (0.059)	0.000
Japan	1995.01-2018.12	-0.008 (0.016)	0.002 (0.059)	0.000
Germany	1995.01-2018.12	-0.004 (0.014)	-0.011 (0.059)	0.000
France	1995.01-2018.12	-0.005 (0.013)	-0.007 (0.059)	0.000
UK	1995.01-2018.12	-0.004 (0.014)	0.026 (0.059)	0.001
Italy	1995.01-2018.12	-0.007 (0.014)	-0.018 (0.059)	0.000
Canada	1995.01-2018.12	-0.004 (0.016)	0.027 (0.059)	0.001
Eurozone	2003.01-2018.12	-0.004 (0.016)	-0.017 (0.073)	0.000
The Netherlands	1995.01-2018.12	-0.003 (0.015)	-0.005 (0.059)	0.000
Norway	1999.01-2018.12	0.005 (0.016)	**-0.185 (0.064)**	0.034
Spain	1995.01-2018.12	-0.004 (0.015)	-0.013 (0.059)	0.000
Sweden	1995.01-2018.12	-0.002 (0.013)	0.025 (0.059)	0.001
Switzerland	1999.01-2018.12	-0.001 (0.014)	0.046 (0.065)	0.002

Table 2: Estimates of the Nordhaus regression in (1) for forecast updates on real GDP growth (with standard errors in parentheses). Sample size is in Table 1. Data on all January months are excluded. Boldface indicates significant at the 5% level.

Country/Region	α		β		R^2
USA	**-0.033**	**(0.011)**	**0.078**	**(0.031)**	0.024
Japan	**-0.031**	**(0.012)**	**0.139**	**(0.045)**	0.035
Germany	**-0.034**	**(0.008)**	**0.213**	**(0.033)**	0.134
France	**-0.039**	**(0.008)**	**0.166**	**(0.037)**	0.072
UK	**-0.026**	**(0.009)**	**0.148**	**(0.037)**	0.056
Italy	**-0.050**	**(0.008)**	**0.136**	**(0.034)**	0.059
Canada	**-0.033**	**(0.008)**	**0.131**	**(0.029)**	0.072
Eurozone	**-0.035**	**(0.009)**	**0.208**	**(0.043)**	0.117
The Netherlands	**-0.032**	**(0.010)**	**0.150**	**(0.038)**	0.055
Norway	-0.018	(0.011)	0.085	(0.050)	0.013
Spain	**-0.032**	**(0.009)**	**0.098**	**(0.033)**	0.032
Sweden	-0.012	(0.008)	**0.183**	**(0.039)**	0.078
Switzerland	**-0.025**	**(0.010)**	**0.119**	**(0.049)**	0.027

Table 3: Estimates of the periodic Nordhaus regression for forecast updates on real GDP growth (with standard errors in parentheses). Sample size is in Table 1. Boldface indicates significant at the 5% level.

Country/Region	α	α_1	β	β_1	β_2	R^2
USA	-0.013 (0.017)	**0.376 (0.060)**	**0.484 (0.100)**	**-2.931 (0.289)**	**-0.559 (0.115)**	0.392
Japan	-0.022 (0.015)	**0.210 (0.052)**	**0.340 (0.081)**	**-1.425 (0.186)**	**-0.374 (0.111)**	0.249
Germany	-0.014 (0.009)	**0.171 (0.033)**	**0.783 (0.075)**	**-2.882 (0.146)**	**-0.770 (0.087)**	0.651
France	-0.019 (0.010)	**0.296 (0.034)**	**0.587 (0.078)**	**-1.926 (0.169)**	**-0.625 (0.097)**	0.528
UK	-0.015 (0.012)	**0.137 (0.042)**	**0.472 (0.079)**	**-3.002 (0.243)**	**-0.502 (0.099)**	0.416
Italy	-0.029 (0.011)	**0.404 (0.038)**	**0.510 (0.085)**	**-1.883 (0.178)**	**-0.514 (0.102)**	0.543
Canada	-0.019 (0.013)	**0.138 (0.048)**	**0.526 (0.099)**	**-3.678 (0.310)**	**-0.509 (0.114)**	0.427
Eurozone	-0.008 (0.009)	**0.303 (0.031)**	**0.833 (0.077)**	**-2.671 (0.142)**	**-0.873 (0.092)**	0.742
Neth.	-0.020 (0.012)	**0.258 (0.042)**	**0.434 (0.080)**	**-2.227 (0.191)**	**-0.435 (0.101)**	0.436
Norway	-0.013 (0.013)	**0.125 (0.047)**	**0.339 (0.098)**	**-1.629 (0.158)**	**-0.381 (0.120)**	0.395
Spain	-0.015 (0.013)	**0.247 (0.048)**	**0.558 (0.104)**	**-1.977 (0.229)**	**-0.611 (0.121)**	0.323
Sweden	-0.007 (0.011)	0.045 (0.039)	**0.558 (0.086)**	**-2.260 (0.191)**	**-0.571 (0.106)**	0.350
Switzerland	-0.017 (0.013)	**0.346 (0.044)**	**0.299 (0.087)**	**-1.422 (0.217)**	**-0.325 (0.120)**	0.291

Table 4: Estimates of the periodic Nordhaus regression for forecast updates on Unemployment rate (with standard errors in parentheses). Sample size is in Table 1. Boldface indicates significant at the 5% level.

Country/Region	α	α_1	β	β_1	β_2	R^2
USA	0.005 (0.008)	**-0.135 (0.031)**	**0.482 (0.070)**	**0.646 (0.288)**	**-0.227 (0.101)**	0.355
Japan	0.003 (0.006)	**-0.070 (0.021)**	**0.355 (0.071)**	**0.583 (0.197)**	**-0.236 (0.118)**	0.182
Germany	0.007 (0.007)	**-0.217 (0.026)**	**0.561 (0.075)**	0.297 (0.234)	**-0.416 (0.101)**	0.402
France	0.012 (0.007)	**-0.267 (0.025)**	**0.365 (0.064)**	**0.402 (0.187)**	**-0.284 (0.100)**	0.442
UK	-0.013(0.014)	0.085 (0.050)	0.082 (0.068)	**2.111 (0.468)**	0.061 (0.126)	0.108
Italy	0.014 (0.008)	**-0.231 (0.029)**	**0.296 (0.066)**	**0.699 (0.239)**	-0.103 (0.112)	0.318
Canada	0.009 (0.007)	**-0.211 (0.023)**	**0.337 (0.075)**	0.331 (0.227)	-0.143 (0.104)	0.346
Eurozone	0.009 (0.007)	**-0.199 (0.024)**	**0.698 (0.062)**	**1.039 (0.185)**	**-0.367 (0.097)**	0.620

Table 5: Absolute forecast errors for real GDP growth, analyzed using the regression model in (3) (standard errors are in parentheses). Realizations are taken as the currently available value. Boldface indicates significant at the 5% level.

Country/Region	α	β	% increase Absolute Error
USA	1.153 (0.720)	**0.220 (0.044)**	19.1%
Japan	1.324 (0.918)	**0.157 (0.072)**	11.9%
Germany	1.386 (1.242)	**0.266 (0.086)**	19.2%
France	0.952 (0.595)	**0.140 (0.044)**	14.7%
UK	0.822 (0.979)	0.095 (0.061)	11.5%
Italy	1.259 (1.231)	**0.197 (0.084)**	15.6%
Canada	1.162 (0.903)	0.080 (0.065)	6.9%
Eurozone	1.091 (1.071)	**0.259 (0.085)**	23.7%
The Netherlands	**1.388 (0.607)**	**0.263 (0.062)**	19.0%
Norway	1.083 (0.631)	0.077 (0.046)	7.1%
Spain	1.194 (0.801)	**0.268 (0.058)**	22.5%
Sweden	1.444 (1.744)	**0.185 (0.088)**	12.8%
Switzerland	1.259 (0.683)	0.118 (0.064)	9.4%
Average			14.9%

References

Ager, P., M. Kappler, and S. Osterloh (2009), The accuracy and efficiency of the Consensus forecasts: A further application and extension of the pooled approach, International Journal of Forecasting, 25, 167-181.

Ashiya, M. (2003), Testing the rationality of Japanese GDP forecasts: The sign of forecast revision matters, Journal of Economic Behavior & Organization, 50, 263-269.

Ashiya, M. (2006), Testing the rationality of forecast revisions made by the IMF and the OECD, Journal of Forecasting, 25, 25-36.

Capistran, C. and A. Timmermann (2009), Disagreement and biases in inflation expectations, Journal of Money, Credit and Banking, 41, 365-396.

Chen, Z. and Ph. R. Daves (2018), The January sentiment effect in the U.S. stock market, International Review of Financial Analysis, 59, 94-104.

Cho, D.W. (2002), Do revisions improve forecasts?, International Journal of Forecasting, 18, 107-115.

Ciccone, S.J. (2011), Investor optimism, false hopes and the January effect, Journal of Behavioral Finance, 12, 158-168.

Dovern, J. and J. Weisser (2011), Accuracy, unbiasedness and efficiency of professional macroeconomic forecasts: An empirical comparison for the G7, International Journal of Forecasting, 27, 452-465.

Franses, P.H. and R. Paap (2004), Periodic Time Series Models, Oxford: Oxford University Press.

Isiklar, G., K. Lahiri and P. Loungani (2006), How quickly do forecasters incorporate news? Evidence from cross-country surveys, Journal of Applied Econometrics, 21, 703-725.

Lahiri, K. and X. S. Sheng (2008). Evolution of forecast disagreement in a Bayesian learning model. Journal of Econometrics, vol. 144, 325-340.

Legerstee, R. and P.H. Franses (2015), Does disagreement amongst forecasters have predictive value? Journal of Forecasting, 34, 290-302.

Manzan, S. (2011). Differential interpretation in the survey of professional forecasters. Journal of Money, Credit and Banking, vol. 43, 993-1017.

Nordhaus, W.D. (1987), Forecasting efficiency: Concepts and applications, Review of Economics and Statistics, 69, 667-674.