RESULTS OF THE SECOND SPECIAL QUESTIONNAIRE FOR PARTICIPANTS IN THE ECB SURVEY OF PROFESSIONAL FORECASTERS

This document summarises the results derived from the responses to a special questionnaire sent to participants in the ECB Survey of Professional Forecasters (SPF) in July 2013, with the request to return it by September 2013. This special survey was conducted in the context of the fifteenth anniversary of the SPF’s launch in January 1999 and aimed to take stock of current forecasting practices and to gauge potential changes since the start of the financial crisis. Understanding how SPF participants make their forecasts and form their expectations is important to interpret both the average outcomes and the heterogeneity across individual forecasts.

Responses were received from 45 SPF participants, which represents around three-quarters of the average number of responses received in the regular survey rounds. As in the first special questionnaire sent out in autumn 2008, there were questions on timeliness and methods of forecasting, on the use of economic models and judgement, and on the way probability distributions and assumptions are computed (see Annex 1). These questions have been partly rephrased and extended to find out whether and in what way the forecasting processes have changed since the start of the financial crisis. Tables reporting the replies and the response rates for each question are available in Annex 2. It should be noted that on some occasions, the percentages reported may add up to more than 100%, as respondents could indicate more than one category.

In summary, the replies suggest that SPF responses can reflect a relatively diverse set of views. In preparing their forecasts, participants widely use both structural and time series models, but judgement also plays a key role, in particular for the reported probability distributions and to an increasing extent following the start of the financial crisis in 2008. In comparison with the first special questionnaire from 2008, the results below also indicate that time series models are now more commonly used and that key assumptions are now more often formed on the basis of market data such as futures prices than previously. A large majority of respondents report that they use SPF results externally as well as internally, which indicates that the survey is perceived as a useful source of information for expectations about macroeconomic developments by forecasters in financial and non-financial institutions.

I FREQUENCY OF UPDATES OF THE FORECASTS REPORTED IN THE SPF

The majority of respondents (84%) reported that their forecasts are updated on a regular calendar basis. Around one-third (31%) do so following important data releases that make them change their view of the economy. A number of respondents (16%) update their forecasts both on a

1 An abridged summary of this note was published as Box 2 in the article entitled “Fifteen years of the ECB Survey of Professional Forecasters” in the January 2014 issue of the ECB’s Monthly Bulletin. Any questions or queries on the questionnaire and results should be addressed to Alexandros Melemenidis, Moritz Karber or Aidan Meyler, ecb-spf@ecb.europa.eu
Of those respondents who update their forecasts regularly according to a calendar, two-thirds reported that they updated on a quarterly basis, while a smaller share (29%) updates them each month. Compared with the 2008 special questionnaire, while now a lower share of participants report that they update their forecasts each month, the share of participants who report that they update their forecasts quarterly has increased (see Chart 2).

Most respondents indicated that they provide their latest available forecast for each SPF round, with only a small proportion preparing a new forecast specifically for the SPF (see Chart 3).
Compared with 2008, more respondents prepare a new forecast for the SPF. Of the forecasts that are sent in a given SPF round, around half are fully fledged new forecasts, while approximately one-third are mechanical updates of previous forecasts on the basis of the latest data or assumptions (see Chart 4).

2 FREQUENCY OF THE DATA BEING FORECAST

For the short and, to some extent, medium-term forecast horizons, most respondents tend to forecast the variables at the highest frequency at which these are published. Hence, HICP inflation is typically forecast at a monthly frequency, while real GDP growth is forecast at a quarterly frequency. The responses regarding unemployment rate forecasts were less homogeneous, with some respondents forecasting short and medium-term horizons at a monthly frequency and others forecasting at a quarterly frequency. For all three variables, around 80% of the respondents replied that their longer-term forecasts are annual. In general, one can observe that for longer forecast horizons respondents are more likely to forecast the variables at a lower frequency (see Chart 5).

3 FORECASTING TECHNIQUES AND MODELS

The responses indicate that the type of model preferred to generate forecasts varies according to the forecast horizon and to the variable being forecast (see Chart 6). Reduced form models, such as single equation, vector autoregressive (VAR) or vector error correction (VEC) models, seem to be commonly used for all horizons and variables, although somewhat more prominently to forecast inflation rather than real GDP or unemployment. Structural models, such as supply and demand-based macro models or dynamic stochastic general equilibrium (DSGE) models, are generally used somewhat less
than reduced form models but their relative use increases strongly for the longer forecast horizons.

Most respondents reported that they use at least one type of reduced form model, with a substantial share of respondents reporting that they use two or more types of these models for a given variable and horizon. For all variables and horizons except longer-term GDP growth, more respondents indicate that they use reduced form models rather than structural models, which is an increase compared with the 2008 questionnaire where for the medium-term forecast horizon (except for inflation) and beyond, traditional macro models were more commonly used than time series models. With regard to structural models, the responses suggest an increased use of DSGE models in comparison with the 2008 questionnaire, putting them now on a more or less equal footing with more traditional supply and demand-based macro models.

More generally, the use of different models for the same horizons and variables is motivated by the aim to cross-check results or by the practice to forecast components of the core variables with different models and later combine them in a bottom-up approach. Moreover, the comparative advantage of using different models at different forecast horizons also plays a role.

Most respondents consider their forecasts to be, at least in part, judgement-based – in the sense that there is a mix of model-based outcomes and judgemental adjustments – with one-third of respondents reporting that their forecasts are essentially, i.e. to a very high degree, judgement-based. Across horizons, a slightly higher share of respondents report essentially judgement-based forecasts for the unemployment rate than for HICP inflation and real GDP growth (see Chart 7). When looking at the combined shares of essentially judgemental forecasts and model-based forecasts including judgement, they are roughly the same for all three variables. Looking at the impact of judgement on forecasts for different forecast horizons,
the share of respondents sending essentially judgement-based forecasts is higher for longer-term horizons than for short and medium-term horizons. These results correspond to those in the 2008 special questionnaire when respondents assigned higher weights to judgement as a basis for their longer-term forecasts than for the short to medium-term forecasts.

For longer-term horizons, respondents tend to rely more on model-based forecasts than is the case for short and medium-term horizons.

When forming their longer-term (five years ahead) inflation expectations, most respondents make use of a wide range of information: the ECB’s inflation objective is mentioned most often (81%), followed by trends in actual inflation (54%), longer-term inflation expectations from financial markets (43%) and trends in wages and monetary aggregates and other survey-based forecasts (all 38%; see Chart 8).

Regarding longer-term forecasts provided for real GDP growth and the unemployment rate, most respondents indicated that these can be interpreted as their estimates for long-term potential growth (68%) and the non-accelerating inflation rate of unemployment (NAIRU) (53%).

Respondents were also asked whether changes in the forecasts of different variables are dependent on one another. For a majority of respondents, at least at the short (56%) and medium-term (70%) horizons, changes in GDP growth and inflation forecasts are dependent on one another in a kind of Phillips Curve relationship. Across all time horizons, a majority of respondents also replied that changes in forecasts for real GDP growth and the unemployment rate follow some kind of Okun’s Law relationship.

Almost all respondents stated that they changed their models following the financial crisis in 2008 and the majority indicated that, since then, the importance of judgement in forming their expectations had increased. Some of the changes relate to the treatment of model parameters, with some respondents placing more emphasis on the post-crisis parameters (50%) and others freezing parameters at values derived for the pre-crisis period (22%). Around one-third of respondents introduced more real financial linkages into their models. Most forecasters (72%) reported that they use linear models, while others explicitly allow for non-linearities such as those captured in structural breaks, the zero lower bound for nominal interest rates or time-varying parameters.

The euro area forecasts are mostly formed on the basis of data and models for the euro area as a whole, but also on the basis of aggregating from bottom up the forecasts for individual countries (mostly the largest euro area economies). The use of both practices is mentioned by some respondents to be due to different practices for different variables, while others mention using bottom-up approaches as a means of cross-checking results.
Around three-quarters of the respondents conduct dedicated evaluations of the accuracy of their models, most of these on an annual or quarterly basis and in a formal way, which means on the basis of forecast error statistics.

4 OTHER VARIABLES AND CONDITIONING ASSUMPTIONS

With regard to other variables and conditioning assumptions, most respondents produce in-house forecasts for oil prices, exchange rates, interest rates and wage growth (see Chart 9). In-house forecasts of oil prices are often complemented by market data, for example futures prices or averages of recent spot prices. A few respondents reported that they use external forecasts to complement and cross-check their in-house forecasts for oil prices. In terms of other sources, a small number of respondents use automatic rules (e.g. a random walk or a constant rate of change in oil prices).

In comparison with the 2008 questionnaire, while not entirely comparable due to a changed design of the questions, in-house forecasts are still the main input for key assumptions, but their use has decreased slightly while at the same time the reported use of market data has increased. Overall, the strong role of in-house forecasts or time-dependent futures prices suggests that SPF responses can reflect a relatively diverse set of views and assumptions.

5 PROBABILITY DISTRIBUTIONS AND CORRESPONDING POINT ESTIMATES

SPF participants were also asked how they generate their reported probability distributions for HICP inflation, real GDP growth and the unemployment rate. A large majority of respondents indicated that these probability distributions are derived on the basis of judgement, while the remaining respondents generate them from models or from models with judgemental adjustments. Among the three variables, the probability distributions for the unemployment rate are marginally more likely to be essentially judgement-based than those for HICP inflation and real GDP growth (see Chart 10).

For those SPF participants that report probability distributions, the point forecasts mostly refer to the mean of the distribution (61%), but in some cases also to the median or the mode (22% and 19% respectively). The mode and, to a smaller extent, the median of the probability distributions are

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3 The mean is the weighted average of all possible outcomes, where the weights are the respondents’ assessment of the probability associated with each outcome. The mode is the forecast that is most likely to occur, but does not necessarily reflect the balance of risks surrounding the most likely outcome. The median is the outcome with 50% probability above and 50% probability below, and does not take into account the outliers above or below the median.
now being reported more often than in 2008. The important role of distributions is highlighted by the result that, compared with 2008, the share of respondents not providing probability distributions at all has significantly decreased (by half; see Chart 11).

6 USE OF THE FORECASTS

A large majority of respondents (86%) stated that they publish externally, at least partly, the forecasts they send to the ECB when replying to the SPF, which is a higher percentage than in 2008.

Participants were also asked to what extent they make use of the results of the SPF for their own purposes. Most respondents use them as an input to internal or external reports or as an input for their own forecasts in the next SPF round. This is however mostly the case for the results for the point estimates, while only a few respondents indicated that they make use of the probability distributions provided in the SPF.
ANNEX 1
SPECIAL QUESTIONNAIRE FOR PARTICIPANTS IN THE ECB SURVEY OF PROFESSIONAL FORECASTERS

A) QUESTIONS ON FORECASTING PROCESSES

1a. When do you update your forecasts? (For example, following a regular calendar schedule, new data releases for the variables of interest, or in the light of significant shocks, such as to commodity prices or exchange rates.) If the frequency of updates varies with the length of the forecast horizon, please explain below.

- Regular calendar schedule:
  - Quarterly
  - Monthly
  - Weekly
  - Whenever new data on variables of interest are released
  - Other

Additional comments:

1b. When responding to the SPF, do you typically …

- … provide your latest available forecast?
- … prepare a new forecast specifically for SPF purposes?

1c. When preparing your forecasts, do you …

- … mechanically update your previous forecasts with new actual data and assumptions?
- … prepare a fully fledged new forecast?
- Neither of the above. It depends on the timing (e.g. fully fledged on a quarterly basis, mechanical on a monthly basis; please explain below).

Additional comments:

2. What is the frequency of the variables of interest (HICP inflation, GDP growth, unemployment rate) in your model/forecast?

2a. Short-term forecasts (one year or less)

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<thead>
<tr>
<th></th>
<th>HICP</th>
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1 The questionnaire was sent out on 16 July 2013 and the SPF participants were asked to return the form by 13 September. The questionnaire also contained a few internal and procedural questions, which aimed to elicit feedback about the SPF itself. These are excluded from this sample form.
2b. **Medium-term forecasts (from one to three years)**

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2c. **Longer-term forecasts (five years ahead)**

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Additional comments:

3. **To what extent are your point forecasts model or judgement-based?** (By “model” we mean a mathematical representation of relationships between economic variables; by “judgement” we mean experience and intuition. We recognise that this distinction may depend on the timing and vary over time, so please provide the most representative answer and possibly additional comments.)

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Additional comments:
4a. **If you use models for forecasting, what type do you use? (If you use different types, please indicate the main one in the space to the right of the box.)**

### Short-term (one year or less)

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<thead>
<tr>
<th>Reduced form models:</th>
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### Longer-term (five years ahead)

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4b. **If you use different models, what is your reason for doing so?**

- We apply a bottom-up approach and use different models for different components
- To cross-check results
- Because of the comparative advantages of different models at different forecast horizons

4c. **If you use different models to cross-check results, how do you choose the final result?**

- We apply averaging across model results
- We decide between model outcomes on the basis of plausibility
4a. If you use models for forecasting, what type do you use? (If you use different types, please indicate the main one in the space to the right of the box.)

- Reduced form models:
  - ARIMA □ □ □
  - Single equation □ □ □
  - VAR / VEC □ □ □
  - Bayesian VAR □ □ □
  - Factor models □ □ □
  - Others ( ) □ □ □

- Structural models:
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  - IS-LM, AS-AD □ □ □
  - Others ( ) □ □ □

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4c. If you use different models to cross-check results, how do you choose the final result?

- We apply averaging across model results
- We decide between model outcomes on the basis of plausibility

Additional comments: _______________________________________________________

5. If you use models for forecasting, which of the following statements is true for them?

- They are linear □
- They allow for non-linearities, e.g. structural breaks, the zero lower bound on nominal interest rates, time-varying parameters □

(Please specify below the type of non-linearity and for which variable it applies, e.g. inflation, GDP, unemployment.)

6. If you use models for forecasting, did the 2008 crisis have an impact on their use?

Yes □ No □

If yes, what has changed?

- We complement with a higher degree of judgement Yes □ No □
- We froze model parameters derived from the pre-crisis period Yes □ No □
- We place more emphasis on the post-crisis model parameters Yes □ No □
- We introduced more real financial linkages Yes □ No □
- Other changes (please specify below) Yes □ No □
7. **How do you form the key assumptions?**

**Oil prices:**
- Futures prices
- In-house forecast
- Average of recent prices (length of the sample used for the average: [blank])
- Other (please explain) ( [blank] )

If your oil price assumptions are based on futures prices, which crude oil quotation do you use?
- Brent
- WTI (West Texas Intermediate)
- Other (please specify) ( [blank] )

**Exchange rates:**
- Futures prices
- In-house forecast
- Average of recent prices (length of the sample used for the average: [blank])
- Other (please explain) ( [blank] )

**Interest rates:**
- Futures prices
- In-house forecast
- Average of recent prices (length of the sample used for the average: [blank])
- Other (please explain) ( [blank] )

**Wage growth rates:**
- In-house forecast
- Average of recent rates (length of the sample used for the average: [blank])
- Other (please explain) ( [blank] )

If you use in-house forecasts for these variables, please provide details on how they are computed:
8. Does your reported point forecast refer to the mean, mode or median of your reported probability distribution in the SPF?

- Mean □
- Mode □
- Median □
- None of the above (please explain below) □
- We do not calculate/report probability distributions □

Additional comments:

9. Are your reported probability distributions model or judgement-based? (By “model” we mean a mathematical representation of relationships between economic variables; by “judgement” we mean experience and intuition. We recognise that this distinction may depend on the timing and vary over time, so please provide the most representative answer.)

9a. Short-term (one year or less)

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9b. Medium-term (from one to three years)

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9c. Longer-term (five years ahead)

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10. Do you compute the probability distributions only for the SPF or does your institution normally use them for other purposes (e.g. for internal/external reports)? (If this varies systematically across forecast variables and horizons, please provide details.)

- Only for the SPF □
- Also for other purposes (please specify below) □
11. Which of the following information do you typically use to form your longer-term (five years ahead) inflation expectations?

- Long-term inflation expectations from other surveys (e.g. Consensus Economics, Euro Zone Barometer)
- Long-term inflation expectations from financial markets (e.g. break-even inflation rates, inflation-linked swaps)
- Trends in actual inflation
- Trends in monetary aggregates
- Trends in wages
- Fiscal variables (e.g. debt-to-GDP ratios)
- The ECB’s inflation objective
- Other variables (please specify below)

12. Relationships between forecasts of different variables

12a. Are changes in your inflation and GDP growth forecasts dependent on one another (e.g. according to a Phillips Curve relationship)?

Our inflation and GDP growth forecasts tend to change according to a given relationship …

… in the short term (up to one year) Yes □ No □
… in the medium term (from one to three years) Yes □ No □
… in the longer term (five years ahead) Yes □ No □

12b. Are changes in your unemployment and GDP growth forecasts dependent on one another (e.g. according to an Okun’s Law relationship)?

Our unemployment and GDP growth forecasts tend to change according to a given relationship …

… in the short term (up to one year) Yes □ No □
… in the medium term (from one to three years) Yes □ No □
… in the longer term (five years ahead) Yes □ No □

Please comment on the type of relationships you apply:
13. **How do you compute your forecasts for the euro area? (If this varies systematically across forecast variables and horizons, please provide details.)**

- Directly for the euro area as a whole
- By aggregating country/regional forecasts

Additional comments: ____________________________

14. **Do you publish externally the forecasts that you send to the ECB?**

- Yes, all of the forecasts
- Yes, but only some of them (please provide details)
- No, none of the forecasts

15. **Do you conduct dedicated evaluations of the accuracy of your forecasts? (If this varies systematically across forecast variables and horizons, please provide details.)**

- Yes □  No □

15a. **If yes, at which frequency?**

- Yearly □
- Quarterly □
- Other (please specify: ____________________________ ) □

15b. **If yes, how do you conduct the evaluation? (Please provide details below.)**

- Formally (e.g. computing forecast error statistics) □
- More informally □
### B) QUESTIONS ON THE SPF QUESTIONNAIRE AND PROCEDURES

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Do you use the aggregate results of the ECB SPF for your own purposes?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16a. Do you use the aggregate point forecasts? (If this varies systematically across forecast variables and horizons, please provide details. Tick more than one box if appropriate.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, previous results provide input to my own SPF forecasts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, I use them for other purposes such as internal or external reports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16b. Do you use the aggregate probability distributions? (If this varies systematically across forecast variables and horizons, please provide details. Tick more than one box if appropriate.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, previous results provide input to my own SPF forecasts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, I use them for other purposes such as internal or external reports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional comments:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Would you be able to provide forecasts for the following HICP exclusion measures?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HICP excluding food and energy</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>HICP excluding energy</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Other exclusion measures (please specify below)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>18. Interpretation of longer-term forecasts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18a. Can your longer-term forecast (five years ahead) of real GDP growth be interpreted as your estimate of potential output growth?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>18b. Can your longer-term forecast (five years ahead) of the unemployment rate be interpreted as your estimate of the non-accelerating inflation rate of unemployment (NAIRU) or an otherwise defined structural unemployment rate?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Additional comments:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANNEX 2

SUMMARY OF THE ANSWERS AND RESPONSE RATES

Q1a When do you update your forecasts?
For example, following a regular calendar schedule, new data releases for the variables of interest, or in the light of significant shocks, such as to commodity prices or exchange rates.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual</td>
<td>0</td>
</tr>
<tr>
<td>Quarterly</td>
<td>26</td>
</tr>
<tr>
<td>Monthly</td>
<td>11</td>
</tr>
<tr>
<td>Weekly</td>
<td>0</td>
</tr>
<tr>
<td>Calendar driven</td>
<td>14</td>
</tr>
<tr>
<td>Whenever new data on variables of interest are released</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: Seven respondents replied that they follow a regular schedule, but would also update their forecasts ad hoc in case of data releases that make them change their expectations. From the qualitative comments of these respondents, as well as the respondent who indicated quarterly as well as monthly updates, one can see that updates at higher frequency or ad hoc are often only done for part of the forecasts. The two respondents reporting “other calendar-driven schedule” forecast twice and three times a year, respectively.

Q1b When responding to the SPF, do you typically …
… provide your latest available forecast? 38 84%
… prepare a new forecast specifically for SPF purposes? 8 18%

Note: One respondent checked both possible answers and commented that he would not produce a new forecast if the variables of interest were still within the probability space of the last forecast.

Q1c When preparing your forecasts, do you …
… mechanically update your previous forecasts with new actual data and assumptions? 16 36%
… prepare a fully fledged new forecast? 19 43%
Neither of the above. It depends on the timing (e.g. fully fledged on a quarterly basis, mechanical on a monthly basis). 9 20%

Note: One respondent who indicated that he provides mechanical updates for the SPF commented that, depending on how different data releases are from his forecasts, he might also consider preparing a fully fledged new forecast.
Q2 What is the frequency of the variables of interest (HICP inflation, GDP growth, unemployment rate) in your model/forecast?

Q2a Short-term forecasts (one year or less)

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual</td>
<td>11%</td>
<td>11%</td>
<td>19%</td>
</tr>
<tr>
<td>Quarterly</td>
<td>22%</td>
<td>87%</td>
<td>35%</td>
</tr>
<tr>
<td>Monthly</td>
<td>76%</td>
<td>4%</td>
<td>49%</td>
</tr>
<tr>
<td>Responses</td>
<td>45</td>
<td>45</td>
<td>43</td>
</tr>
</tbody>
</table>

Q2b Medium-term forecasts (from one to three years)

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual</td>
<td>20%</td>
<td>20%</td>
<td>28%</td>
</tr>
<tr>
<td>Quarterly</td>
<td>41%</td>
<td>80%</td>
<td>50%</td>
</tr>
<tr>
<td>Monthly</td>
<td>41%</td>
<td>0%</td>
<td>23%</td>
</tr>
<tr>
<td>Responses</td>
<td>41</td>
<td>41</td>
<td>40</td>
</tr>
</tbody>
</table>

Q2c Longer-term forecasts (five years ahead)

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual</td>
<td>79%</td>
<td>79%</td>
<td>82%</td>
</tr>
<tr>
<td>Quarterly</td>
<td>9%</td>
<td>21%</td>
<td>12%</td>
</tr>
<tr>
<td>Monthly</td>
<td>15%</td>
<td>0%</td>
<td>9%</td>
</tr>
<tr>
<td>Responses</td>
<td>35</td>
<td>35</td>
<td>33</td>
</tr>
</tbody>
</table>

Note: A number of respondents indicated more than one frequency.

Q3 To what extent are your point forecasts model or judgement-based?

Q3a Short-term forecasts (one year or less)

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essentially judgement-based</td>
<td>24%</td>
<td>24%</td>
<td>35%</td>
</tr>
<tr>
<td>Model-based with judgemental adjustments</td>
<td>60%</td>
<td>60%</td>
<td>49%</td>
</tr>
<tr>
<td>Essentially model-based</td>
<td>16%</td>
<td>16%</td>
<td>16%</td>
</tr>
<tr>
<td>Responses</td>
<td>45</td>
<td>45</td>
<td>45</td>
</tr>
</tbody>
</table>

Q3b Medium-term forecasts (from one to three years)

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essentially judgement-based</td>
<td>31%</td>
<td>26%</td>
<td>34%</td>
</tr>
<tr>
<td>Model-based with judgemental adjustments</td>
<td>52%</td>
<td>60%</td>
<td>49%</td>
</tr>
<tr>
<td>Essentially model-based</td>
<td>17%</td>
<td>14%</td>
<td>17%</td>
</tr>
<tr>
<td>Responses</td>
<td>42</td>
<td>42</td>
<td>41</td>
</tr>
</tbody>
</table>
### Q3c Longer-term forecasts (five years ahead)

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essentially judgment-based</td>
<td>47%</td>
<td>44%</td>
<td>47%</td>
</tr>
<tr>
<td>Model-based with judgemental adjustments</td>
<td>25%</td>
<td>33%</td>
<td>28%</td>
</tr>
<tr>
<td>Essentially model-based</td>
<td>28%</td>
<td>22%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Responses | 36   | 36  | 36           |

### Q4a If you use models for forecasting, what type do you use?

#### Short-term forecasts (one year or less)

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARIMA</td>
<td>38%</td>
<td>12%</td>
<td>15%</td>
</tr>
<tr>
<td>Single equation</td>
<td>47%</td>
<td>55%</td>
<td>63%</td>
</tr>
<tr>
<td>VAR/VEC</td>
<td>25%</td>
<td>33%</td>
<td>26%</td>
</tr>
<tr>
<td>Bayesian VAR</td>
<td>3%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Factor</td>
<td>3%</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>Other reduced form</td>
<td>16%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>DSGE</td>
<td>6%</td>
<td>6%</td>
<td>7%</td>
</tr>
<tr>
<td>IS-LM, AS-AD</td>
<td>13%</td>
<td>18%</td>
<td>22%</td>
</tr>
<tr>
<td>Other structural</td>
<td>9%</td>
<td>9%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Responses | 32   | 33  | 27           |

#### Medium-term forecasts (from one to three years)

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARIMA</td>
<td>28%</td>
<td>10%</td>
<td>12%</td>
</tr>
<tr>
<td>Single equation</td>
<td>41%</td>
<td>45%</td>
<td>58%</td>
</tr>
<tr>
<td>VAR/VEC</td>
<td>28%</td>
<td>26%</td>
<td>23%</td>
</tr>
<tr>
<td>Bayesian VAR</td>
<td>7%</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>Factor</td>
<td>7%</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>Other reduced form</td>
<td>14%</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>DSGE</td>
<td>14%</td>
<td>19%</td>
<td>15%</td>
</tr>
<tr>
<td>IS-LM, AS-AD</td>
<td>10%</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>Other structural</td>
<td>14%</td>
<td>13%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Responses | 29   | 31  | 26           |
Longer-term forecasts (five years ahead)

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARIMA</td>
<td>10%</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>Single equation</td>
<td>33%</td>
<td>32%</td>
<td>38%</td>
</tr>
<tr>
<td>VAR/VEC</td>
<td>29%</td>
<td>18%</td>
<td>19%</td>
</tr>
<tr>
<td>Bayesian VAR</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Factor</td>
<td>10%</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>Other reduced form</td>
<td>10%</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>DSGE</td>
<td>10%</td>
<td>18%</td>
<td>14%</td>
</tr>
<tr>
<td>IS-LM, AS-AD</td>
<td>14%</td>
<td>18%</td>
<td>14%</td>
</tr>
<tr>
<td>Other structural</td>
<td>19%</td>
<td>18%</td>
<td>19%</td>
</tr>
<tr>
<td>Responses</td>
<td>21</td>
<td>22</td>
<td>21</td>
</tr>
</tbody>
</table>

Note: Percentages do not add up to 100% as most respondents reported that they use more than one model per variable and horizon.

Q4b If you use different models, what is your reason for doing so?

- We apply a bottom-up approach and use different models for different components 13 65%
- To cross-check results 13 65%
- Because of the comparative advantages of different models at different forecast horizons 13 65%

Responses 20

Note: Percentages do not add up to 100% as most respondents reported that they agree with multiple (or all) of the provided explanations.

Q4c If you use different models to cross-check results, how do you choose the final result?

- We apply averaging across model results 5 29%
- We decide between model outcomes on the basis of plausibility 15 88%

Responses 17

Note: Three respondents indicated that they use both methods.
Q5 If you use models for forecasting, which of the following statements is true for them?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>They are linear</td>
<td>26</td>
</tr>
<tr>
<td>They allow for non-linearities, e.g. structural breaks, the zero lower bound on nominal interest rates, time-varying parameters</td>
<td>11</td>
</tr>
</tbody>
</table>

Note: One respondent indicated that he normally uses non-linear models, but sometimes cross-checks these results with linear models.

The use of the zero lower bound on nominal interest rates is mentioned three times. Two respondents who reported that they use linear models allow for changes in constants.

Q6 If you use models for forecasting, did the 2008 crisis have an impact on their use?

<table>
<thead>
<tr>
<th>Answer</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>34</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
</tbody>
</table>

If yes, what was changed?

<table>
<thead>
<tr>
<th>Change</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>We complement with a higher degree of judgement</td>
<td>23</td>
</tr>
<tr>
<td>We froze model parameters derived from the pre-crisis period</td>
<td>7</td>
</tr>
<tr>
<td>We place more emphasis on the post-crisis model parameters</td>
<td>16</td>
</tr>
<tr>
<td>We introduced more real financial linkages</td>
<td>11</td>
</tr>
<tr>
<td>Other changes</td>
<td>7</td>
</tr>
</tbody>
</table>

Note: Percentages do not add up to 100% as most respondents reported that they had made various changes to their models.
Q7 How do you form the key assumptions?

Oil prices

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Futures prices</td>
<td>19</td>
<td>43%</td>
</tr>
<tr>
<td>In-house forecast</td>
<td>25</td>
<td>57%</td>
</tr>
<tr>
<td>Average of recent prices</td>
<td>5</td>
<td>11%</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>18%</td>
</tr>
<tr>
<td><strong>Responses</strong></td>
<td><strong>44</strong></td>
<td></td>
</tr>
</tbody>
</table>

Length of sample used for the average of recent prices: 2.8 years; 4 responses

Note: Percentages do not add up to 100% as some respondents reported that they had use multiple sources of information.

Out of the eight respondents who checked “other”, six use institutional or survey-based forecasts.

If your oil price assumptions are based on futures prices, which crude oil quotation do you use?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brent</td>
<td>19</td>
<td>90%</td>
</tr>
<tr>
<td>West Texas Intermediate (WTI)</td>
<td>6</td>
<td>29%</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Responses</strong></td>
<td><strong>21</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note: Percentages do not add up to 100% as five respondents reported that they had use both the Brent and the WTI quotations.

Exchange rates

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Futures prices</td>
<td>5</td>
<td>12%</td>
</tr>
<tr>
<td>In-house forecast</td>
<td>29</td>
<td>66%</td>
</tr>
<tr>
<td>Average of recent rates</td>
<td>8</td>
<td>18%</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>16%</td>
</tr>
<tr>
<td><strong>Responses</strong></td>
<td><strong>43</strong></td>
<td></td>
</tr>
</tbody>
</table>

Length of sample used for the average of recent rates: 1.8 years; 6 responses

Note: Percentages do not add up to 100% as some respondents reported that they use multiple sources of information.

Out of the seven respondents who checked “other”, three use institutional or survey-based forecasts. Two assume exchange rates to remain constant.

Wage growth

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house forecast</td>
<td>35</td>
<td>90%</td>
</tr>
<tr>
<td>Average of recent rates</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Responses</strong></td>
<td><strong>39</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note: Percentages do not add up to 100% as some respondents reported that they had use multiple sources of information.

Out of the five respondents who checked “other”, two use institutional forecasts and two use automatic rules.
### Interest rates

<table>
<thead>
<tr>
<th>Source</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Futures prices</td>
<td>9</td>
<td>20%</td>
</tr>
<tr>
<td>In-house forecast</td>
<td>37</td>
<td>84%</td>
</tr>
<tr>
<td>Average of recent rates</td>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>44</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Length of sample used for the average of recent rates: 5.1 years; 2 responses*

*Note: Percentages do not add up to 100% as some respondents reported that they had used multiple sources of information.*

*Out of the two respondents who checked “other”, one uses European Commission forecasts and the other follows central bank guidance.*

### Wage growth

<table>
<thead>
<tr>
<th>Source</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house forecast</td>
<td>35</td>
<td>90%</td>
</tr>
<tr>
<td>Average of recent rates</td>
<td>4</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>39</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Percentages do not add up to 100% as some respondents reported that they had used multiple sources of information.*

*Out of the five respondents who checked “other”, two use institutional forecasts and two use automatic rules.*

### Q8 Does your reported point forecast refer to the mean, mode or median of your reported probability distribution in the SPF?

<table>
<thead>
<tr>
<th>Description</th>
<th>Responses</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>22</td>
<td>49%</td>
</tr>
<tr>
<td>Mode</td>
<td>7</td>
<td>16%</td>
</tr>
<tr>
<td>Median</td>
<td>8</td>
<td>18%</td>
</tr>
<tr>
<td>None of the above</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>We do not calculate/report probability distributions</td>
<td>9</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Percentages do not add up to 100% as one respondent checked both “Mean” and “Median”. In the comments he explained that the pure model results refer to the mean, but that after adjustments the estimates might move more towards the median.*
Q9 Are your reported probability distributions model or judgement-based?

Q9a Short-term forecasts (one year or less)  

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essentially judgement-based</td>
<td>70%</td>
<td>72%</td>
<td>79%</td>
</tr>
<tr>
<td>Model-based with judgemental adjustments</td>
<td>15%</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>Essentially model-based</td>
<td>15%</td>
<td>13%</td>
<td>11%</td>
</tr>
<tr>
<td>Responses</td>
<td>40</td>
<td>39</td>
<td>38</td>
</tr>
</tbody>
</table>

Q9b Medium-term forecasts (from one to three years)  

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essentially judgement-based</td>
<td>68%</td>
<td>68%</td>
<td>74%</td>
</tr>
<tr>
<td>Model-based with judgemental adjustments</td>
<td>15%</td>
<td>18%</td>
<td>13%</td>
</tr>
<tr>
<td>Essentially model-based</td>
<td>18%</td>
<td>15%</td>
<td>13%</td>
</tr>
<tr>
<td>Responses</td>
<td>40</td>
<td>40</td>
<td>39</td>
</tr>
</tbody>
</table>

Q9c Longer-term forecasts (five years ahead)  

<table>
<thead>
<tr>
<th></th>
<th>HICP</th>
<th>GDP</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essentially judgement-based</td>
<td>71%</td>
<td>71%</td>
<td>74%</td>
</tr>
<tr>
<td>Model-based with judgemental adjustments</td>
<td>9%</td>
<td>14%</td>
<td>11%</td>
</tr>
<tr>
<td>Essentially model-based</td>
<td>20%</td>
<td>14%</td>
<td>14%</td>
</tr>
<tr>
<td>Responses</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
</tbody>
</table>

Q10 Do you compute the probability distributions only for the SPF or does your institution normally use them for other purposes (e.g. for internal/external reports)?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Only for the SPF</td>
<td>30</td>
</tr>
<tr>
<td>Also for other purposes</td>
<td>8</td>
</tr>
<tr>
<td>Responses</td>
<td>38</td>
</tr>
</tbody>
</table>
Q11 Which of the following information do you typically use to form your longer-term (five years ahead) inflation expectations?

<table>
<thead>
<tr>
<th>Information</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term inflation expectations from other surveys (e.g. Consensus Economics, Euro Zone Barometer)</td>
<td>38%</td>
</tr>
<tr>
<td>Long-term inflation expectations from financial markets (e.g. break-even inflation rates, inflation-linked swaps)</td>
<td>43%</td>
</tr>
<tr>
<td>Trends in actual inflation</td>
<td>54%</td>
</tr>
<tr>
<td>Trends in monetary aggregates</td>
<td>38%</td>
</tr>
<tr>
<td>Trends in wages</td>
<td>38%</td>
</tr>
<tr>
<td>Fiscal variables (e.g. debt-to-GDP ratios)</td>
<td>19%</td>
</tr>
<tr>
<td>The ECB’s inflation objective</td>
<td>81%</td>
</tr>
<tr>
<td>Other variables</td>
<td>14%</td>
</tr>
</tbody>
</table>

Note: Percentages do not add up to 100% as most respondents reported that they use multiple sources of information.

Q12 Relationships between forecasts of different variables

Q12a Are changes in your inflation and GDP growth forecasts dependent on one another (e.g. according to a Phillips Curve relationship)?

<table>
<thead>
<tr>
<th>Time</th>
<th>Dependency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>in the short-term (up to one year)</td>
<td>Yes</td>
<td>56%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>44%</td>
</tr>
</tbody>
</table>

Responses 43

<table>
<thead>
<tr>
<th>Time</th>
<th>Dependency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>in the medium-term (from one to three years)</td>
<td>Yes</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>30%</td>
</tr>
</tbody>
</table>

Responses 40

<table>
<thead>
<tr>
<th>Time</th>
<th>Dependency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>in the longer-term (five years ahead)</td>
<td>Yes</td>
<td>46%</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>54%</td>
</tr>
</tbody>
</table>

Responses 37
Q12b  Are changes in your unemployment and GDP growth forecasts dependent on one another (e.g. according to an Okun’s Law relationship)?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>in the short-term (up to one year)</td>
<td>31</td>
<td>11</td>
<td>42</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td>74%</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td>26%</td>
</tr>
<tr>
<td>Responses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in the medium-term (from one to three years)</td>
<td>33</td>
<td>7</td>
<td>40</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td>83%</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td>18%</td>
</tr>
<tr>
<td>Responses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in the longer-term (five years ahead)</td>
<td>23</td>
<td>14</td>
<td>37</td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td></td>
<td>62%</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td>38%</td>
</tr>
<tr>
<td>Responses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The majority of respondents who use country bottom-up approaches mainly do this for the variables GDP growth and inflation and then only use the four largest euro area countries. Most of the twelve respondents who use both approaches take one as a cross-check of the other.

Q13  How do you compute your forecasts for the euro area?

<table>
<thead>
<tr>
<th></th>
<th>Directly for the euro area as a whole</th>
<th>By aggregating country/regional forecasts</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>33</td>
<td>24</td>
<td>37</td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responses</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Two respondents who reported that they publish all of their forecasts commented that these would only be accessible to their clients.
Q15  Do you conduct dedicated evaluations of the accuracy of your forecasts?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>32</td>
<td>74%</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>Responses</td>
<td>43</td>
</tr>
</tbody>
</table>

Q15a  If yes, at what frequency?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yearly</td>
<td>14</td>
<td>44%</td>
</tr>
<tr>
<td>Quarterly</td>
<td>11</td>
<td>34%</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Responses</td>
<td>32</td>
</tr>
</tbody>
</table>

Note: Percentages do not add up to 100% as one respondent checked both “Yearly” and “Quarterly”.

Q15b  If yes, how do you conduct the evaluation?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Formally</td>
<td>20</td>
<td>65%</td>
</tr>
<tr>
<td>(e.g. computing forecast error statistics)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informally</td>
<td>11</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>Responses</td>
<td>31</td>
</tr>
</tbody>
</table>

Q16  Do you use the aggregate results of the ECB SPF for your own purposes?

Q16a  Do you use the aggregate point forecasts?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>19</td>
<td>43%</td>
</tr>
<tr>
<td>Yes, previous results provide input to my own SPF forecasts</td>
<td>18</td>
<td>41%</td>
</tr>
<tr>
<td>Yes, I use them for other purposes such as internal or external reports</td>
<td>19</td>
<td>43%</td>
</tr>
<tr>
<td></td>
<td>Responses</td>
<td>44</td>
</tr>
</tbody>
</table>

Note: Percentages do not add up to 100% as two respondents reported that they use the point forecasts both for the SPF and for other purposes.

Q16b  Do you use the aggregate probability distributions?

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>32</td>
<td>73%</td>
</tr>
<tr>
<td>Yes, previous results provide input to my own SPF forecasts</td>
<td>5</td>
<td>11%</td>
</tr>
<tr>
<td>Yes, I use them for other purposes such as internal or external reports</td>
<td>8</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>Responses</td>
<td>44</td>
</tr>
</tbody>
</table>

Note: Percentages do not add up to 100% as one respondent reported that he uses the probability distributions both for the SPF and for other purposes.
Q17  Would you be able to provide forecasts for the following HICP exclusion measures?

<table>
<thead>
<tr>
<th>HICP excluding food and energy</th>
<th>Yes</th>
<th>27</th>
<th>64%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>15</td>
<td>36%</td>
</tr>
<tr>
<td>Responses</td>
<td></td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HICP excluding energy</th>
<th>Yes</th>
<th>22</th>
<th>56%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>17</td>
<td>44%</td>
</tr>
<tr>
<td>Responses</td>
<td></td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other exclusion measures</th>
<th>Yes</th>
<th>6</th>
<th>23%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>20</td>
<td>77%</td>
</tr>
<tr>
<td>Responses</td>
<td></td>
<td>26</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The two most-mentioned other exclusion measures (twice each) were HICP excluding food, energy, alcohol and tobacco and HICP excluding changes in administered prices and indirect taxes.*

Q18  Interpretation of longer-term forecasts

Q18a  Can your longer-term forecast (five years ahead) of real GDP growth be interpreted as your estimate of potential output growth?

<table>
<thead>
<tr>
<th>Yes</th>
<th>25</th>
<th>68%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>12</td>
<td>32%</td>
</tr>
<tr>
<td>Responses</td>
<td></td>
<td>37</td>
</tr>
</tbody>
</table>

Q18b  Can your longer-term forecast (five years ahead) of the unemployment rate be interpreted as your estimate of the non-accelerating inflation rate of unemployment (NAIRU) or an otherwise defined structural unemployment rate?

<table>
<thead>
<tr>
<th>Yes</th>
<th>19</th>
<th>53%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>17</td>
<td>47%</td>
</tr>
<tr>
<td>Responses</td>
<td></td>
<td>36</td>
</tr>
</tbody>
</table>

*Note: Most of the respondents who replied “No” commented that the forecast horizon of five years ahead is too short for a steady state to be reached.*