EUROPEAN CENTRAL BANK

EUROSYSTEM

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ECB Survey of Professional Forecasters (SPF)[1]: description of SPF dataset

Dataset description and file structure

The purpose of this document is to explain the structure and the technical characteristics of the dataset including the individual forecasters' data series. This document serves as a manual to the files named:

- "SPF_xxxxQx.csv"

Individual spreadsheets are provided for each SPF forecast round. The files are in .csv format, a standard that is supported by most analytical software across various system platforms and can be opened by standard desktop applications, e.g. Microsoft Excel.

1 Variables

The ECB micro-data SPF contains point forecasts and expected probability distributions for four main economic indicators, and point forecasts for other variables, which in the data file are labelled 'assumptions':

1) **Inflation**

   Inflation is defined as the year on year percentage change of the Harmonised Index of Consumer Prices (HICP) published by Eurostat.

2) **Core Inflation**

   Core inflation is defined as the year on year percentage change of the Harmonised Index of Consumer Prices (HICP), excluding energy, food, alcohol and tobacco, as published by Eurostat

3) **Real GDP**

   Real gross domestic product growth is defined as the year on year percentage change of real GDP, based on standardised ESA definition.

4) **Unemployment**

   The unemployment rate refers to Eurostat's definition and it is calculated as percentage of the labour force.

5) **Other expectations ('assumptions')**

   Point forecasts of the ECB's interest rate for main refinancing operations, oil prices (USD/barrel), the USD/EUR exchange rate and annual growth in whole economy compensation per employee.

[1] If you have any questions concerning the SPF please contact ecb-spf@ecb.europa.eu

2 Forecast horizons

The SPF dataset contains forecasts for up to six different forecast horizons for each of the main macroeconomic indicators:[2]

1) a forecast for the current calendar year
2) a forecast for the next calendar year
3) a forecast for the calendar year after next
4) a longer term forecast (four calendar years ahead in the Q1 and Q2 rounds and five calendar years ahead in the Q3 and Q4 rounds)
5) a "rolling horizon" forecast for the month (for HICP inflation and the unemployment rate) and quarter (for GDP growth) one year ahead of the latest available observation (at the time of the survey)
6) a "rolling horizon" forecast for the month (for HICP inflation and the unemployment rate) and quarter (for GDP growth) two years ahead of the latest available observation (at the time of the survey).

The rolling horizons are set 1- and 2-years ahead of the period (month or quarter) for which the latest official release of a given macroeconomic indicator is available, and therefore differ across the indicators. For example, in the survey conducted in the first quarter of 2007 (after the release of the December 2006 figure for HICP inflation) the participants were asked to report their expectations for the year-on-year rate of change in the euro area HICP in December 2007 and December 2008. By then, the latest available GDP data related to the third quarter of 2006 and the latest unemployment rate figure was for November 2006. Hence, respondents were asked for their expectations for GDP in the third quarter of 2007 and 2008 and the unemployment rate in November 2007 and November 2008. In the 2007 Q2 SPF (conducted after the release of the March 2007 HICP figure), participants were asked for their expectations for the inflation rate in March 2008 and March 2009, and so on.

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[2] This is the forecast horizon structure used since the 2001 Q2 SPF round. Before that the horizons in use were the following (see also Annex 1):

1) a forecast for the current calendar year
2) a forecast for the next calendar year
3) a forecast for the calendar year after next
4) a forecast for the calendar year five years ahead
5) a "rolling horizon" forecast for the month (for HICP inflation and the unemployment rate) and the quarter (for GDP growth) one year ahead of the latest available data, at the time the survey is conducted;
6) a "rolling horizon" forecast for the month (for HICP inflation and the unemployment rate) and the quarter (for GDP growth) two years ahead of the latest available data, at the time the survey is conducted;
7) a "rolling horizon" forecast for the month (for HICP inflation and the unemployment rate) and the quarter (for GDP growth) five years ahead of the latest available data, at the time the survey is conducted.

In these earlier rounds the forecasts for the five years ahead calendar year and the five years ahead rolling horizon were asked only in the first round of each year (i.e. the Q1 SPF rounds).

The calendar year after next forecast horizon in the Q3 and Q4 rounds was introduced in 2000. It was extended to Q1 and Q2 rounds in 2013 Q1.

The forecast horizon structure for all assumptions *except for labour costs* also comprises rolling horizons and calendar year horizons, according to the following scheme[3]:

1) four consecutive quarters starting with the quarter when the survey is conducted;
2) a forecast for the next calendar year (annual average);
3) a forecast for the calendar year after next (annual average).

The scheme for labour costs constitutes calendar year horizons *only*, in particular the following:

1) a forecast for the current calendar year (annual average);
2) a forecast for the next calendar year (annual average);
3) a forecast for the calendar year after next (annual average);
4) a longer term forecast (four calendar years ahead in the Q1 and Q2 rounds and five calendar years ahead in the Q3 and Q4 rounds).

The SPF horizon structure for each round in 2018 is shown in Annex 2.

3 Observation types

For each of the three macroeconomic indicators there are two classes of observation types in use in the ECB SPF:

1) Point forecasts

Forecasters are asked to provide a single value or a point forecast of the variable for each of the time horizons

2) Probability distribution forecasts

Forecasters are asked to provide also a probability distribution of forecasted outcomes for each time horizon. Forecasters are asked to report the probability distribution along a set of intervals provided by the ECB for each indicator. The set of intervals varies between macroeconomic indicators and is subject to revisions whenever deemed necessary to take account of economic developments. Annex 3 shows a graphical overview of the intervals used in the different SPF rounds so far.

[3] This is the forecast horizon structure used since the 2013 Q1 SPF round. From 2002 Q1 to 2010 Q1 the assumptions in each SPF round were asked for five consecutive quarters starting with the quarter the SPF survey is conducted. For example, in 2009 Q1 SPF round the assumptions were provided for 2009 Q1, 2009 Q2, 2009 Q3, 2009 Q4 and 2010 Q1. From 2010 Q2 to 2012 Q4 the forecast for the calendar year after next was only surveyed in Q3 and Q4 rounds.

4 Column and row structure of the SPF dataset

The ECB provides the full dataset of individual forecasters' SPF forecasts in 'csv' format.

The "individual rounds' files" contain data blocks for inflation, core inflation, real GDP growth and the other expectations ('assumptions'), if these were surveyed. The forecast data have the following column structure:

1) **TARGET_PERIOD**

   This column stands for the point (or period) in time to which the forecast refers to. Depending on the macroeconomic variable, the target period is given either as year (format "yyyy"), quarter (format "yyyyQq") or month (format "yyyymmm"), where the month is a mixed-case three-character tag of calendar months in English. See section 2 on forecast horizons for details.

2) **FCT_SOURCE**

   This column stands for forecast source or forecaster ID, is the code number assigned to an individual forecaster. This number remains the same for a specific forecaster over all forecast rounds (only the subset of forecasters that were actually responding in a particular round is reported).

3) **POINT**

   This column contains the point forecast of the forecaster for the macroeconomic indicator.

4) **The following columns**

   These columns contain the probability assigned to each of the intervals of the forecasted variable. The headers of the columns specify the intervals. The coding of the intervals is explained in Annex 5.

Each file contains three tables – one for each forecasted indicator. The tables are stored on the same worksheet one below the other, each separated by one blank row. The top table contains the inflation forecasts, the middle one the GDP forecasts and the third one reports the unemployment forecasts. Data in the tables are ordered first by target period and then by forecaster ID.

The final block relates to the other expectations, for which only point forecasts are collected. This block has the following column structure:

1) **TARGET_PERIOD** (as above)
2) **FCT_SOURCE** (as above)
3) **IR**
   ECB interest rate for main refinancing operations, in percent p.a.
4) **LAB**
   year-on-year change in whole economy compensation per employee
5) **OIL**

   Oil price, in US dollars per barrel
6) **USD**

   EUR/USD exchange rate.

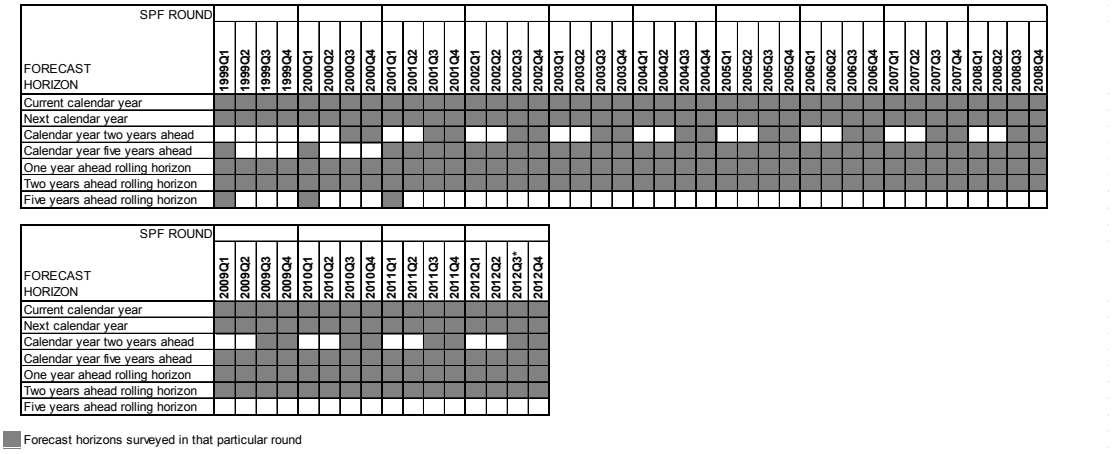
5 Corrections of the dataset

Table 5.1 Corrections made in the ECB SPF dataset*

Date of the update in the SPF dataset	SPF round affected	Forecaster ID	Variable(s) affected	Old value	New value
03 July 2009	2008 Q2	92	All	Data	Missing values
09 December 2009	2009 Q4	59	All	Missing values	Data
11 November 2010	2010 Q3	10	Unemployment, probability for the interval F10_5T10_9 “	25	20

* Please note that aggregate data are updated simultaneously with the changes in the individual data.

Annex 1 Evolution of forecast horizon structure over time

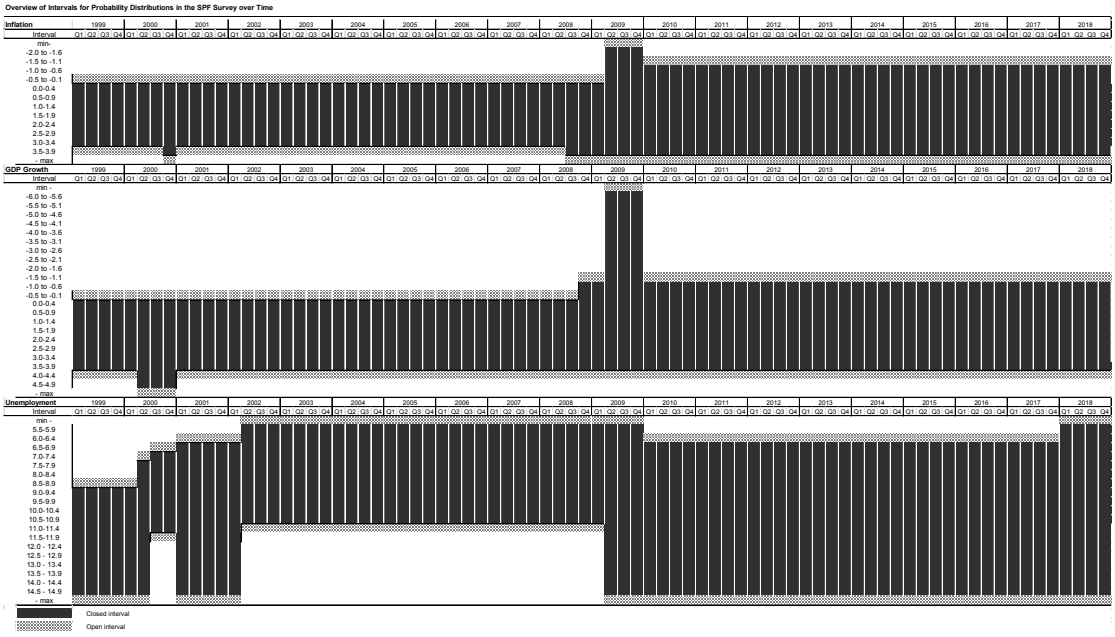


Note: There have been no further changes.

Annex 2 Scheme of the SPF horizon structure for 2018 survey rounds

			Survey horizons					
Round		Variables	Current calendar year	Next calendar year	Calendar year after next	One year ahead	Two years ahead	Longer term
2018 Q1	Economic indicators	Inflation				December 2018	December 2019	
		Unemployment	2018	2019	2020	November 2018	November 2019	2022
		GDP				2018Q3	2019Q3	
	Underlying economic factors	Labour costs	2018	2019	2020			2022
			Quarter t	Quarter t+1	Quarter t+2	Quarter t+3	Next year	Calendar year after next
		ECB's interest rate (main refinancing operations)						
		Brent crude oil prices (US dollars)	2018Q1	2018Q2	2018Q3	2018Q4	2019	2020
		USD/EUR exchange rate						
2018 Q2	Economic indicators	Inflation				March 2019	March 2020	
		Unemployment	2018	2019	2020	February 2019	February 2020	2022
		GDP				2018Q4	2019Q4	
	Underlying economic factors	Labour costs	2018	2019	2020			2022
			Quarter t	Quarter t+1	Quarter t+2	Quarter t+3	Next year	Calendar year after next
		ECB's interest rate (main refinancing operations)						
		Brent crude oil prices (US dollars)	2018Q2	2018Q3	2018Q4	2019Q1	2019	2020
		USD/EUR exchange rate						
2018 Q3	Economic indicators	Inflation				June 2019	June 2020	
		Unemployment	2018	2019	2020	May 2019	May 2020	2023
		GDP				2019Q1	2020Q1	
	Underlying economic factors	Labour costs	2018	2019	2020			2023
			Quarter t	Quarter t+1	Quarter t+2	Quarter t+3	Next year	Calendar year after next
		ECB's interest rate (main refinancing operations)						
		Brent crude oil prices (US dollars)	2018Q3	2018Q4	2019Q1	2019Q2	2019	2020
		USD/EUR exchange rate						
2018 Q4	Economic indicators	Inflation				September 2019	September 2020	
		Unemployment	2018	2019	2020	August 2019	August 2020	2023
		GDP				2019Q2	2020Q2	
	Underlying economic factors	Labour costs	2018	2019	2020			2023
			Quarter t	Quarter t+1	Quarter t+2	Quarter t+3	Next year	Calendar year after next
		ECB's interest rate (main refinancing operations)						
		Brent crude oil prices (US dollars)	2018Q4	2019Q1	2019Q2	2019Q3	2019	2020
		USD/EUR exchange rate						

Annex 3 Changes in intervals for probability distribution forecasts



Notes: There have been no further changes. Expected probability distributions for HICP excluding energy, food, alcohol and tobacco were introduced in Q1 2017 and follow exactly the same structure as expected probability distributions for HICP. A probability assigned to an open interval stands for the probability that the variable's outcome will be larger (or smaller) than the lower (upper) interval boundary.

Annex 4 Assumptions and SPF rounds when they were asked in the questionnaire

SPF ROUND / ASSUMPTION VARIABLE	1999Q1	1999Q2	1999Q3	1999Q4	2000Q1	2000Q2	2000Q3	2000Q4	2001Q1	2001Q2	2001Q3	2001Q4	2002Q1	2002Q2	2002Q3	2002Q4	2003Q1	2003Q2	2003Q3	2003Q4	2004Q1	2004Q2	2004Q3*	2004Q4
ECB refinancing interest rate													■	■	■	■	■	■	■	■	■	■	■	■
Oil price													■	■	■	■	■	■	■	■	■	■	■	■
USD/EUR exchange rate													■	■	■	■	■	■	■	■	■	■	■	■
Labour costs																							■	■

■ Assumption asked in particular round SPF questionnaire.

Note: There have been no further changes.

Annex 5 Description of the observation type code

The following list explains the observation type codes. For the intervals, each forecaster assigns a probability for the forecasted variable to fall within the given interval. The sum of these probabilities is required to sum up to 100 (deviations occur in some cases at the 5th decimal place or lower).

FCT_TOPIC	FCT_BREAKDOWN	DESCRIPTION
HICP	POINT	Inflation expectations; year-on-year change in HICP; point forecast
HICP	TN2_0	Inflation expectations; year-on-year change in HICP; probability for interval < -2.0 %
HICP	TN1_0	Inflation expectations; year-on-year change in HICP; probability for interval < -1.0 %
HICP	FN2_0TN1_6	Inflation expectations; year-on-year change in HICP; probability for interval from -2.0 to -1.6 %
HICP	FN1_5TN1_1	Inflation expectations; year-on-year change in HICP; probability for interval from -1.5 to -1.1 %
HICP	FN1_0TN0_6	Inflation expectations; year-on-year change in HICP; probability for interval from -1.0 to -0.6 %
HICP	FN0_5TN0_1	Inflation expectations; year-on-year change in HICP; probability for interval from -0.5 to -0.1 %
HICP	T0_0	Inflation expectations; year-on-year change in HICP; probability for interval < 0.0 %
HICP	F0_0T0_4	Inflation expectations; year-on-year change in HICP; probability for interval 0.0 - 0.4 %
HICP	F0_5T0_9	Inflation expectations; year-on-year change in HICP; probability for interval 0.5 - 0.9 %
HICP	F1_0T1_4	Inflation expectations; year-on-year change in HICP; probability for interval 1.0 - 1.4 %
HICP	F1_5T1_9	Inflation expectations; year-on-year change in HICP; probability for interval 1.5 - 1.9 %
HICP	F2_0T2_4	Inflation expectations; year-on-year change in HICP; probability for interval 2.0 - 2.4 %
HICP	F2_5T2_9	Inflation expectations; year-on-year change in HICP; probability for interval 2.5 - 2.9 %
HICP	F3_0T3_4	Inflation expectations; year-on-year change in HICP; probability for interval 3.0 - 3.4 %
HICP	F3_5T3_9	Inflation expectations; year-on-year change in HICP; probability for interval 3.5 - 3.9 %

FCT_TOPIC	FCT_BREAKDOWN	DESCRIPTION
HICP	F3_5	Inflation expectations; year-on-year change in HICP; probability for interval >= 3.5 %
HICP	F4_0	Inflation expectations; year-on-year change in HICP; probability for interval >= 4.0 %
RGDP	POINT	Growth expectations; year-on-year change in real GDP; point forecast
RGDP	TN1_0	Growth expectations; year-on-year change in real GDP; probability for interval less than -1.0 %
RGDP	TN6_0	Growth expectations; year-on-year change in real GDP; probability for interval less than -6.0 %
RGDP	FN6_0TN5_6	Growth expectations; year-on-year change in real GDP; probability for interval from -6.0 to -5.6 %
RGDP	FN5_5TN5_1	Growth expectations; year-on-year change in real GDP; probability for interval from -5.5 to -5.1 %
RGDP	FN5_0TN4_6	Growth expectations; year-on-year change in real GDP; probability for interval from -5.0 to -4.6 %
RGDP	FN4_5TN4_1	Growth expectations; year-on-year change in real GDP; probability for interval from -4.5 to -4.1 %
RGDP	FN4_0TN3_6	Growth expectations; year-on-year change in real GDP; probability for interval from -4.0 to -3.6 %
RGDP	FN3_5TN3_1	Growth expectations; year-on-year change in real GDP; probability for interval from -3.5 to -3.1 %
RGDP	FN3_0TN2_6	Growth expectations; year-on-year change in real GDP; probability for interval from -3.0 to -2.6 %
RGDP	FN2_5TN2_1	Growth expectations; year-on-year change in real GDP; probability for interval from -2.5 to -2.1 %
RGDP	FN2_0TN1_6	Growth expectations; year-on-year change in real GDP; probability for interval from -2.0 to -1.6 %
RGDP	FN1_5TN1_1	Growth expectations; year-on-year change in real GDP; probability for interval from -1.5 to -1.1 %
RGDP	FN1_0TN0_6	Growth expectations; year-on-year change in real GDP; probability for interval from -1.0 to -0.6 %
RGDP	FN0_5TN0_1	Growth expectations; year-on-year change in real GDP; probability for interval from -0.5 to -0.1 %
RGDP	T0_0	Growth expectations; year-on-year change in real GDP; probability for interval < 0.0 %
RGDP	F0_0T0_4	Growth expectations; year-on-year change in real GDP; probability for interval 0.0 - 0.4 %
RGDP	F0_5T0_9	Growth expectations; year-on-year change in real GDP; probability for interval 0.5 - 0.9 %
RGDP	F1_0T1_4	Growth expectations; year-on-year change in real GDP; probability for interval 1.0 - 1.4 %
RGDP	F1_5T1_9	Growth expectations; year-on-year change in real GDP; probability for interval 1.5 - 1.9 %
RGDP	F2_0T2_4	Growth expectations; year-on-year change in real GDP; probability for interval 2.0 - 2.4 %
RGDP	F2_5T2_9	Growth expectations; year-on-year change in real GDP; probability for interval 2.5 - 2.9 %
RGDP	F3_0T3_4	Growth expectations; year-on-year change in real GDP; probability for interval 3.0 - 3.4 %
RGDP	F3_5T3_9	Growth expectations; year-on-year change in real GDP; probability for interval 3.5 - 3.9 %
RGDP	F4_0T4_4	Growth expectations; year-on-year change in real GDP; probability for interval 4.0 - 4.4 %
RGDP	F4_5T4_9	Growth expectations; year-on-year change in real GDP; probability for interval 4.5 - 4.9 %
RGDP	F4_0	Growth expectations; year-on-year change in real GDP; probability for interval >= 4.0 %

FCT_TOPIC	FCT_BREAKDOWN	DESCRIPTION
RGDP	F5_0	Growth expectations; year-on-year change in real GDP; probability for interval >= 5.0 %
UNEM	POINT	Expected unemployment rate; percentage of labour force; point forecast
UNEM	T5_5	Expected unemployment rate; percentage of labour force; probability for interval < 5.5 %
UNEM	T6_5	Expected unemployment rate; percentage of labour force; probability for interval < 6.5 %
UNEM	T7_0	Expected unemployment rate; percentage of labour force; probability for interval < 7.0 %
UNEM	T7_5	Expected unemployment rate; percentage of labour force; probability for interval < 7.5 %
UNEM	T9_0	Expected unemployment rate; percentage of labour force; probability for interval < 9.0 %
UNEM	F5_5T5_9	Expected unemployment rate; percentage of labour force; probability for interval 5.5 - 5.9 %
UNEM	F6_0T6_4	Expected unemployment rate; percentage of labour force; probability for interval 6.0 - 6.4 %
UNEM	F6_5T6_9	Expected unemployment rate; percentage of labour force; probability for interval 6.5 - 6.9 %
UNEM	F7_0T7_4	Expected unemployment rate; percentage of labour force; probability for interval 7.0 - 7.4 %
UNEM	F7_5T7_9	Expected unemployment rate; percentage of labour force; probability for interval 7.5 - 7.9 %
UNEM	F8_0T8_4	Expected unemployment rate; percentage of labour force; probability for interval 8.0 - 8.4 %
UNEM	F8_5T8_9	Expected unemployment rate; percentage of labour force; probability for interval 8.5 - 8.9 %
UNEM	F9_0T9_4	Expected unemployment rate; percentage of labour force; probability for interval 9.0 - 9.4 %
UNEM	F9_5T9_9	Expected unemployment rate; percentage of labour force; probability for interval 9.5 - 9.9 %
UNEM	F10_0T10_4	Expected unemployment rate; percentage of labour force; probability for interval 10.0 - 10.4 %
UNEM	F10_5T10_9	Expected unemployment rate; percentage of labour force; probability for interval 10.5 - 10.9 %
UNEM	F11_0T11_4	Expected unemployment rate; percentage of labour force; probability for interval 11.0 - 11.4 %
UNEM	F11_5T11_9	Expected unemployment rate; percentage of labour force; probability for interval 11.5 - 11.9 %
UNEM	F12_0T12_4	Expected unemployment rate; percentage of labour force; probability for interval 12.0 - 12.4 %
UNEM	F12_5T12_9	Expected unemployment rate; percentage of labour force; probability for interval 12.5 - 12.9 %
UNEM	F13_0T13_4	Expected unemployment rate; percentage of labour force; probability for interval 13.0 - 13.4 %
UNEM	F13_5T13_9	Expected unemployment rate; percentage of labour force; probability for interval 13.5 - 13.9 %
UNEM	F14_0T14_4	Expected unemployment rate; percentage of labour force; probability for interval 14.0 - 14.4 %
UNEM	F14_5T14_9	Expected unemployment rate; percentage of labour force; probability for interval 14.5 - 14.9 %
UNEM	F11_0	Expected unemployment rate; percentage of labour force; probability for interval >= 11.0 %
UNEM	F11_5	Expected unemployment rate; percentage of labour force; probability for interval >= 11.5 %
UNEM	F12_0	Expected unemployment rate; percentage of labour force; probability for interval >= 12.0 %

FCT_TOPIC	FCT_BREAKDOWN	DESCRIPTION
UNEM	F15_0	Expected unemployment rate; percentage of labour force; probability for interval >= 15.0 %
ASSU	IR	Point forecast of ECB's interest rate (main refinancing operations)
ASSU	OIL	Assumption for oil prices (USD)
ASSU	USD	Assumption for USD/EUR exchange rate
ASSU	LAB	Assumption for labour costs; annual rate of change in whole economy compensation per employee

Notes: Expected probability distributions for HICP excluding energy, food, alcohol and tobacco were introduced in Q1 2017 and follow exactly the same structure as expected probability distributions for HICP.