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European Business Cycle Indicators

Developments in business and consumer survey data in 2011Q3

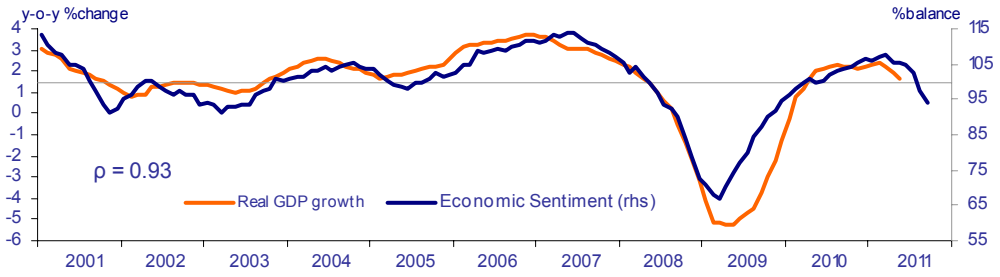
- **Broad-based deterioration in survey readings among EU Member States and across sectors points to a significant slowdown of economic activity in 2011Q3.**
- **On the back of slower global demand and subdued domestic demand, confidence in industry is continuing the downturn started in spring, while services are now also showing signs of weakness.**
- **Financial services recorded sharp losses in confidence on the back of escalating financial market tensions.**
- **Consumers' concerns about the general economic situation and the labour market have soared in recent months, reflecting worries about financial market developments and the debt crisis.**

Highlight: do survey data help in assessing employment dynamics?

The early assessment of employment (and unemployment) dynamics is of special interest at the current economic juncture, given the still fragile labour market outlook. This quarter's highlight analyses whether business and consumer survey data on employment are useful for assessing developments in the labour market early on. The analysis suggests that employment expectations in surveys track changes in employment growth both effectively and significantly earlier than the official hard statistics. Moreover, the information content of survey data can be valuable not only to nowcast or forecast employment prospects, but also to track more qualitative features of the labour market, including shortages in the labour force and consumers' unemployment expectations.

ESI and GDP growth for the EU

(Jan 2001 to September 2011 for survey data)



Note 1: The horizontal line (rhs) marks the long-term average (=100) of the sentiment indicator.
Note 2: Both ESI and GDP series are plotted at monthly frequency. Monthly GDP data are obtained by linear interpolation of quarterly data.

'European Business Cycle Indicators' provides short-term analysis based on Business and Consumer Survey data. It appears quarterly.
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1. Recent developments in survey indicators for the EU and the euro area

In the third quarter of 2011, the Economic Sentiment Indicator (ESI) dropped significantly in both the EU and the euro area. In September, the ESI was below its long-term average in both regions, at 94.0 in the EU (10.6 points lower than in June 2011) and 95.0 in the euro area (10.4 points lower than in June 2011).

The worsening in sentiment was widespread among EU Member States and reflected a broad-based deterioration across sectors. Though still above its long-term average, sentiment in *industry* has worsened constantly since its peak in February/March 2011. The drop was particularly strong over the last two months and among managers in Germany, France, the Netherlands and Italy. In both the EU and the euro area, the decline reflects a worsening of all the three components of the confidence indicator (order books, stocks and output expectations). In particular, managers' assessment of the level of order books and of their expected production for the next months has declined steeply since June 2011, and the percentage of managers assessing their stocks as too large has increased.

Managers' assessment of production trends observed during recent months and of export order books, which is not included in the Industrial Confidence Indicator, has also worsened substantially in recent months. Manufacturers are therefore likely to reduce their production further in the short term to meet the lower demand due to continuous decreases in order books and to correct excess inventories. These developments in survey data are beginning to be confirmed by hard data: industrial new orders, which are a forward looking indicator, showed a decline in orders of 0.8% m-o-m in the EU and of 2.1% in the EA in July 2011. Manufacturers' employment prospects and selling-price expectations were also on a downward trend in 2011Q3 in both regions.

Finally, quarterly survey data published in July 2011 show that capacity utilisation was down in July in both the EU and the euro area, interrupting a two-year upward trend since summer 2009. At 80.7% in the EU and 80.9% in the euro area, capacity utilisation slipped just below its long-term average.

During 2011Q3, sentiment in *services* showed a marked worsening in both the EU and the euro area. In September, the indicator stood well below its long-term average in both regions. The fall resulted from a general worsening of all three components that make up the service confidence indicator (i.e. business situation, past demand and expected demand). Managers' assessment of the past business situation and past evolution of demand deteriorated considerably compared with the second quarter of 2011, losing more than 10 points compared with June 2011. Also, demand expectation dropped markedly during the third quarter. Developments were fairly similar across countries. Of the seven largest Member States, Germany, France, Italy, the Netherlands and the UK have all seen marked deteriorations of sentiment in services in the latest three months, while in Spain and Poland the decline has been less pronounced, albeit important.

In 2011Q3, the *retail* confidence indicator declined significantly. The series has been almost continuously on a downward path since January 2011 in both the EU and the euro area. The fall, which was particularly strong in August 2011, mirrors a decline in managers' assessment of the present and expected business situation, which accompanied increased volumes of stocks and a worsening of intentions to place orders with suppliers.

In both regions, sentiment in *construction* declined in 2011Q3 compared with 2011Q2. The fragile upward trend observed since spring 2009 seems to have come to an end over the last two months. The worsening reflects both managers' decreasing optimism about their order books and their firm's employment prospects. The indicator is still well below its long-term average.

Confidence among *consumers* deteriorated markedly over the third quarter, with a very pronounced fall in August 2011. In September, it was back at the level observed in summer 2009. The recent deterioration is mainly due to very pessimistic expectations about the general economic situation and to higher

unemployment fears. Consumers' assessment of their expected financial situation and their appraisal of expected savings has also worsened. Although not included in the consumer confidence indicator, consumers' assessment of their past financial situation and of the past general economic situation was also lower in the third quarter. On a more positive note, despite the fact that a growing percentage of respondents think that this is not the right time for making major purchases, consumers' future intentions to spend more money on purchases of this kind increased slightly in 2011Q3 compared with 2011Q2.

There was a serious decrease in confidence in *financial services* – which is not included in the ESI – in both the EU and in the euro area, reflecting managers' negative assessment of the past business situation and their increased pessimism about both past and expected demand for financial services.

Overall, the latest survey readings suggest a slowdown in economic activity in 2011Q3 in both the EU and the euro area. This deceleration is broad-based across sectors and countries. It reflects a slower external demand, subdued domestic demand and the increasing impact of tensions on the financial markets.

This assessment is confirmed by the economic climate tracer for both the EU and the euro area, which moved from the downswing to the contraction quadrant in September 2011 (see Annex 1 for further details). Furthermore, in July, August and September, the turning point indicator for the euro area — which extracts the (positive or negative) surprises from new available data — remained in negative territory, signalling an increase in the likelihood that the euro-area economy is in an adverse cyclical phase (see Annex 2 for further details).

2. Recent developments in selected Member States

All the largest EU Member States witnessed sizeable drops in sentiment over the third quarter of 2011, with major losses in confidence occurring in August. Among the seven largest Member States, the worsening was particularly marked in most euro-area countries (Germany, France, Italy and the Netherlands) as well as in the UK, whereas it was less pronounced in Poland and Spain. Among these 7 Member States, the ESI remained above its long-term average only in Germany in September. Similarly, climate tracers indicate that sentiment has entered the contraction phase in all the largest Member States except Germany, even though it is in the downswing phase (see Annex 1 for further details).

Among other euro-area countries, sentiment worsened sharply in Belgium, Finland and Portugal, whereas it remained broadly unchanged – albeit at very low level – in Greece[1, 2]. Sentiment also deteriorated strongly in Sweden, but stayed above its long-term average. Among the new Member States, the weakening of sentiment was particularly pronounced in Hungary.

Sentiment in **Germany** has been following a downward path since the beginning of 2011, but the speed of weakening picked up strongly in August and September, due to sizeable falls in managers' confidence and widespread concerns among consumers. However, the ESI is still above its long-term average. In industry, after a buoyant 2010, managers became increasingly cautious about their expected production prospects and less cheerful about their order books. This probably reflects a softening in external demand due to the slowdown of the global economy. Notwithstanding a bounce back in September, past production was also assessed in a more negative light. Confidence also deteriorated sharply in the services sector, suggesting that earlier improvements in domestic demand may be losing momentum. Along with these developments, German consumers expressed growing worries about the general economic situation and the labour market.

A similar deterioration in sentiment was observed in **France**, where confidence worsened strongly both in the business sectors and among consumers. The ESI is now below its long-term average. Losses in confidence

[1] Results for Greece need to be interpreted with caution, given that a declining response rate in the survey could imply a *non-respondent* or *withdrawal* bias.

[2] Survey data on Ireland are not available.

were particularly marked in industry, due to a deterioration of managers' assessment of past production and current order books, the latter indicating a sharp deterioration of demand conditions in the manufacturing sector. On the other hand, confidence in the construction sector reached a peak in June 2011 (up to a level last seen in September 2008), but has been deteriorating since then. At the same time, after a prolonged period of stability, consumer confidence dropped over the last two months on the back of growing concerns about higher unemployment fears and increased pessimism about the country's economic situation.

The **United Kingdom** reported a significant decrease in sentiment during the third quarter of 2011. This was due to broad-based losses in confidence across all the business sectors. The ESI is now below its long-term average. In industry, managers became very pessimistic about past production, and an increasing number of them assessed the level of stocks as being too large. Similar developments were observed in the services and the retail trade sectors, although in the UK these series tend to be highly volatile. On the other hand, the worsening in sentiment was less pronounced among consumers (also by comparison with other large Member States), mainly due to some easing in unemployment fears, and a more modest increase in concerns about the general economic outlook, than in the rest of the EU.

In **Italy**, where confidence has been weakening since the beginning of the year, the ESI continued to worsen in the third quarter of 2011. The deterioration was widespread across business sectors and among consumers, and it speeded up quite strongly in September at the time of the final approval of a second austerity package. Managers, especially in industry, became increasingly pessimistic about their companies' production prospects, and revised their employment intentions downwards. Pessimism among Italian consumers soared, due to growing concerns about the country's economic situation and more negative savings prospects. The only sector where confidence remained broadly unchanged was construction, which has been at a standstill for the last two years. Italy's ESI is now the lowest of the seven largest EU Member States (well below its long-term average).

In **Spain,** the weakening in sentiment in the third quarter was less pronounced than in other large EU countries, but the ESI is at a comparatively very low level. Confidence remained broadly unchanged in the retail trade sector and among consumers, probably mirroring some picking up in private consumption on the back of higher disposable income[3]. On the other hand, confidence declined in industry and in the construction sector, where it hit a historic low.

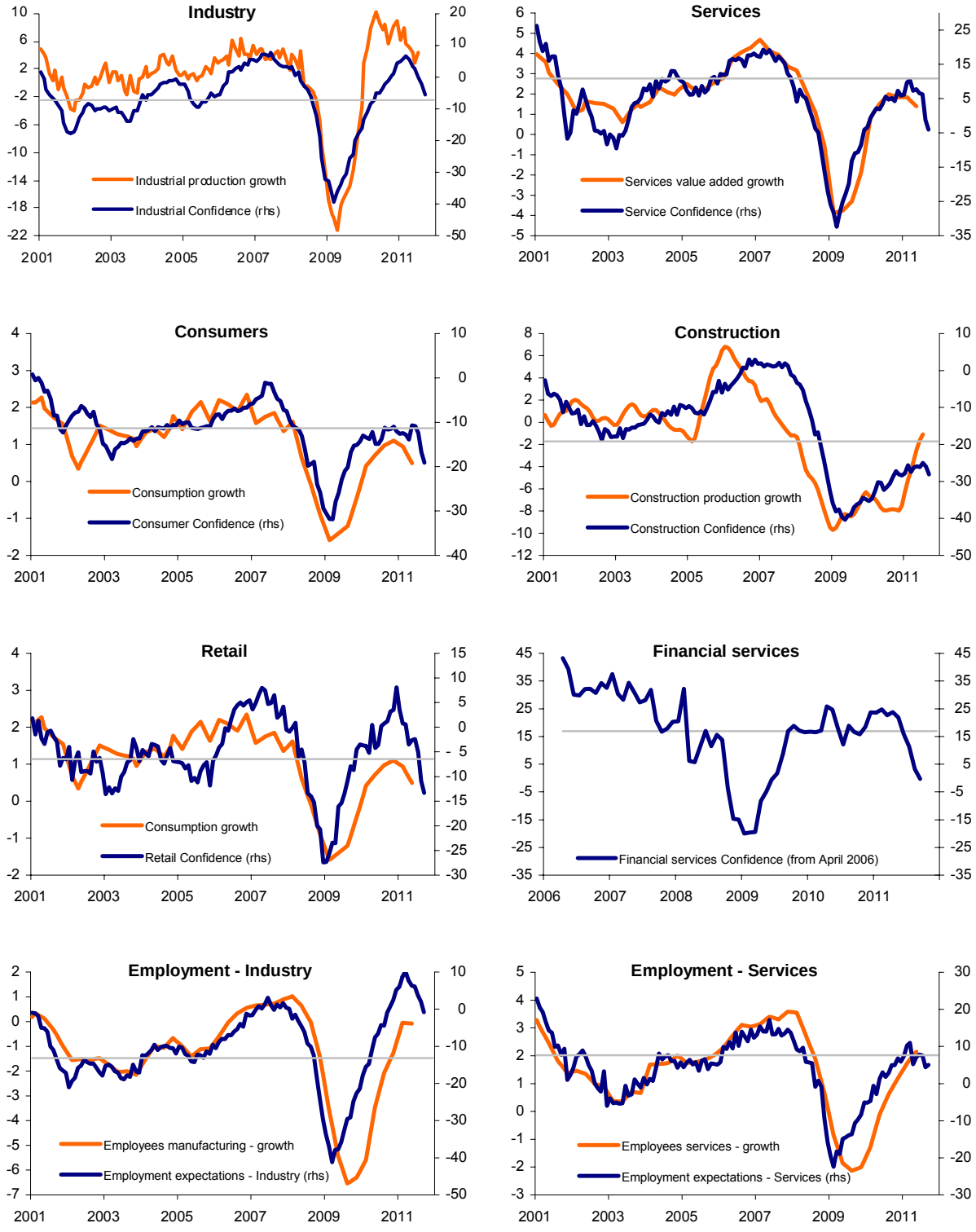
Sentiment worsened sharply in the **Netherlands**, continuing the decline which had started in spring 2011. The ESI is now below its long-term average. The deterioration was broad-based, mainly due to increasing pessimism among consumers and industrial managers. Dutch consumers have become much more worried about the country's general macroeconomic outlook and about unemployment prospects. On the industry side, both past and expected production assessments have been revised radically downwards by managers.

Economic sentiment declined in **Poland** too, but the weakening was less pronounced than in other large Member States. However, the ESI is now below its long-term average. The deterioration was mainly driven by gloomier developments in industry, especially regarding past production. At the same time, Polish consumers became more worried about labour market developments, but their assessment of the general economic situation remained more positive, allowing for a small improvement in their overall confidence.

[3] A moderate increase in Gross Disposable Income may be expected thanks to: (i) an increase in net interest income for households, and (ii) higher contribution from social transfers.

Graph 1: **Sectoral confidence indicators and reference series for the EU**

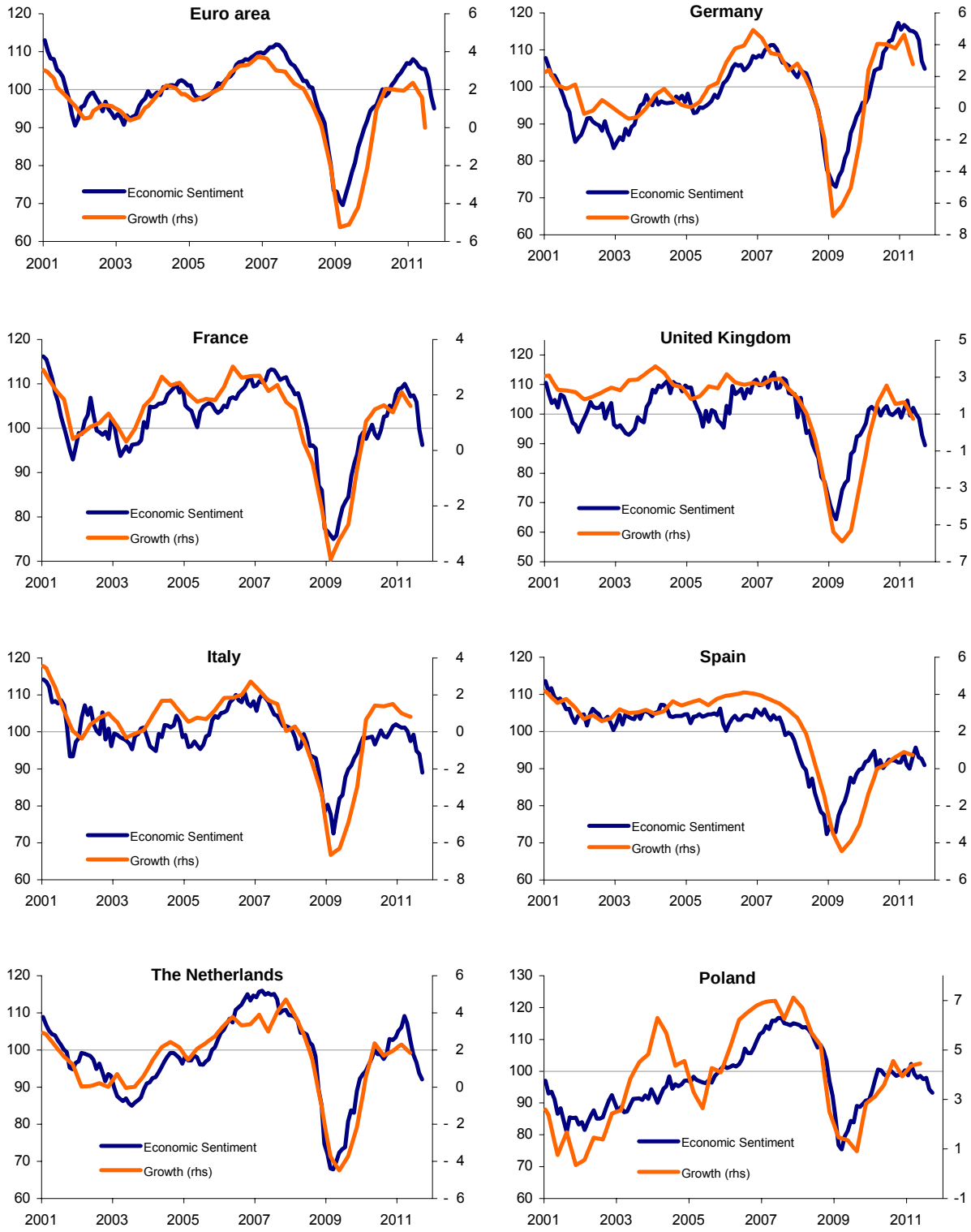
(Jan 2001 to September 2011 for survey data)



Note 1: The horizontal line (rhs) marks the long-term average of the survey indicators.
Note 2: Confidence indicators are expressed in balances of opinion and hard data in y-o-y changes. If necessary, monthly frequency is obtained by linear interpolation of quarterly data.

Graph 2: **Economic Sentiment Indicator — Selected EU Member States**

(Jan 2001 to September 2011 for survey data)



Note 1: The horizontal line marks the long-term average (=100) of the sentiment indicator.
Note 2: Confidence indicators are expressed in balances of opinion and GDP in y-o-y changes. Both variables are plotted at monthly frequency. Monthly GDP data are obtained by linear interpolation of quarterly data.

3. Highlight: do survey data help in assessing employment dynamics?

Business and consumer survey data are important tools for analysing the business cycle with two major advantages over hard data: first, confidence surveys are available earlier than hard data and subject to only limited revisions; second, surveys can help track features of the business cycle (including companies' and households' expectations) that are difficult to measure with hard data.

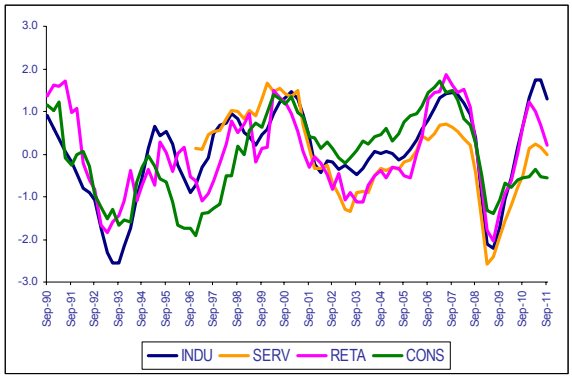
For that reason, this highlight section discusses the usefulness of business and consumer survey (BCS) data in assessing labour market developments. The information contained in the BCS about managers' employment plans can be particularly valuable, given that the release of hard employment data is significantly delayed with respect to the publication of the BCS data (Eurostat publishes aggregate and sectoral employment figures about 2.5 months and 4 months after the end of the period concerned respectively).

Moreover, the early assessment of employment (and unemployment) dynamics is of special interest at the current economic juncture, which is characterised by a still fragile labour market outlook, with employment growth recovering only timidly and the unemployment rate remaining at high levels after the financial crisis[4].

Employment expectations …

Under the Joint Harmonised EU Programme of Business and Consumer Surveys (BCS), managers' employment expectations are surveyed[5] – on a monthly basis – in industry, services, retail trade and construction (Graph 1), whereas past developments in employment are traced only in the services sector.

Graph 1: **Employment expectations, euro-area (normalised balances, 1990Q1-2011Q3)**



Note: monthly survey data are converted into quarterly data by averaging the balances over 3 months.

The surveys' dynamics mirror the business cycle and the lagged nature of developments in the labour market fairly closely, with strong slumps in employment expectations in the aftermath of the two major crises (early nineties and 2008-'09), and ensuing rebounds along with the recovery of economic activity.

Although employment expectations follow fairly similar patterns across the business sectors, it is important to understand how they relate to actual employment developments at sectoral level. For this purpose, BCS data are matched with employment data extracted from the quarterly national account at main sector breakdowns[6].

… match hours worked in the manufacturing sector …

Under normal circumstances, developments in head-count employment are closely linked to those in hours worked. However, in periods of contracting economic activity, it is often easier to put adjustments in place at the "intensive margin[7]". This is precisely what happened during the last crisis, when euro-area firms

[4] European Commission (2011), "Labour Market Developments in Europe", http://ec.europa.eu/economy_finance/publications/european_economy/2011/pdf/ee-2011-2_en.pdf

[5] The question reads: *How do you expect your firm's total employment to change over the next 3 months?*

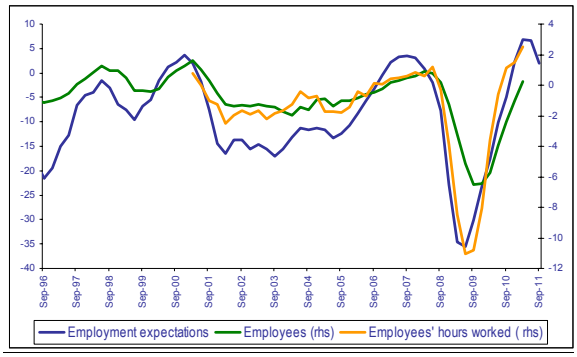
[6] For the services sector, survey figures are compared to data for market services (branches G-K in Nace1.1, i.e. wholesale, retail trade, hotels and restaurant, transports, financial intermediation, real estate, renting and business activities, etc.). It is unfortunately not possible to extract employment data solely for the retail trade sector.

[7] Adjustments taking place in hours worked.

reacted to declining demand mainly by cutting individual work time.

In this respect, it is worth noting that, while manufacturers' employment expectations exhibit a strong co-movement with developments in both the number of employees and the number of hours worked overall, during the last recession they mainly tracked the strong decline in the number of hours worked (Graph 2). When managers were asked about their employment plans, they answered in terms of the adjustment in hours worked rather than in terms of hiring/firing intentions.

Graph 2: **Manufacturing – Employment expectations, number of employees and employees' hours worked, euro-area (1996Q1-2011Q3 for survey data)**



Note: monthly survey data are converted into quarterly data by averaging the balances over 3 months.
Employment expectations are expressed in balances and the number of employees and hours worked in y-o-y changes in %.

The forward-looking nature of the survey question raises the question of a possible leading property of employment expectations with respect to the reference series (the y-o-y growth in hours worked per employee). To test whether employment expectations can be useful (in the short term) to forecast employment growth, an autoregressive model – AR(1) – is taken as benchmark. Table 1 shows results from an out-of-sample analysis over the period 2006Q1-2011Q3 (estimation period 2001Q1 - 2005Q4). The forecast performance of the models is assessed through the Harvey *et al.* test[8], which compares the loss function of the different models with that of the benchmark AR(1) model.

Table 1: **Root mean squared errors of forecasts – Manufacturing (y-o-y growth in hours worked)**

Models	RMSE
AR(1)	0.041
AR(1) + Empl. expectations$_t$	0.026 *
AR(1) + Empl. expectations$_{t-1}$	0.038 *

Note: * indicates that the RMSE is significantly lower than the RMSE from the benchmark AR(1) model

The above results suggest that employment expectations improve the predictive power of the simple autoregressive model, as they significantly reduce its forecast errors. On the other hand, the contribution of lagged employment expectations is only modest. This suggests that survey data do a much better job of now-casting industrial employment (i.e. estimating employment in the current quarter) than of forecasting industrial employment a quarter ahead, although leading properties are not totally absent. In any event, as survey figures of the reference hard series are released much earlier, the results confirm the usefulness of the expectations series with regard to employment growth.

… and track head-count employment in the services sector equally well

In general, employment expectations in the services sector exhibit a very strong[9] correlation with developments in head-count employment, and a slightly weaker correlation with hours worked. However – as in the case of manufacturing – during the recent recession, along with the decoupling between the two employment hard series, managers' expectations in services tracked the fall in hours worked better than the decline in the number of employees.

The strong co-movement – over the whole sample period – between the survey series and head-count employment series is confirmed by

[8] The Harvey *et al.* test is a modified version of the Diebold–Mariano test, used to check in small samples the null hypothesis of no difference between loss functions of two different models. See: Harvey D. I., Leybourne S. J., and Newbold P. (1997): *Testing the equality of prediction Mean Square Errors*, International Journal of Forecasting, 13, 281-291.

[9] Even higher than in the manufacturing sector.

the results of the out-of-sample analysis (Table 2), which show that adding employment expectations into an AR(1) model greatly reduces the magnitude of the forecasting errors.

Table 2: **Root mean squared errors of forecasts – Services (y-o-y growth in number of employees)**

Models	RMSE
AR(1)	0.022
AR(1) + Empl. expectations$_t$	0.006 *
AR(1) + Empl. expectations$_{t-1}$	0.017 *

Note: * indicates that the RMSE is significantly lower than the RMSE from the benchmark AR(1) model

In addition, the average errors in the models forecasting employment growth in the services sector (Table 2) are significantly lower than those obtained for the manufacturing sector (Table 1). Given that total employment in the euro area depends more on services than on the other business sectors, the above findings suggest that data on employment expectations can be particularly valuable in assessing total labour market developments early on. As for the manufacturing sector, the contribution of lagged employment expectations is only modest, suggesting that survey data are better suited to now-casting employment (i.e. estimating employment in the current quarter) than to forecasting it a quarter ahead.

Labour force shortages dynamics

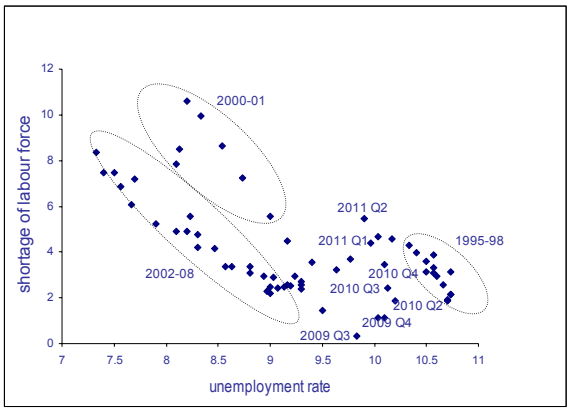
The information content of survey data can be valuable not only in terms of employment prospects, but also to track more qualitative features of the labour market.

In this respect, survey series describing the shortage of labour force[10] in the euro area are especially worthwhile, given that the official[11] job vacancy rate series is relatively short (starting in 2003Q3), still provisional and not available at main sectors breakdown. Series of labour shortage surveys, on the other hand, have been available for the euro area since the early nineties for both the manufacturing and the construction sector, and since 2003 for services.

Labour shortage survey data can be considered as a proxy of the number of job vacancies posted by the firms, and as such they can be put in relationship with the unemployment rate and exploited to assess the stance of the Beveridge curve[12]. Indeed, the correlation of the survey series with the hard data on job vacancies over the short available sample is remarkably high (at about 0.8 for industry and services, and above 0.9 for the construction sector).

Graph 3 shows the empirical relationship (e.g. the Beveridge curve) between the (total) unemployment rate and the survey-based indicator of job vacancies for the manufacturing sector. While the Beveridge curve showed an inward shift during the period 2000-08, which can be read as a sign of improved labour matching, during 2010-'11 the share of managers reporting a shortage of labour force steadily increased, despite the still high unemployment rate (at around 10%): this could be indicative of a deterioration in the process of matching labour supply with demand.

Graph 3: **Beveridge curve: manufacturing, euro-area (1995Q1 to 2011Q3, in %).**



Note: shortage of labour force figures are derived from the answers to the question "factors limiting the production" in the manufacturing sector.

[10] The question reads: *What main factors are currently limiting your production?* and lists "shortage of labour force" among the possible answers.

[11] As released by Eurostat.

[12] See, for instance, *The spectre of structural unemployment in Europe*, GS European Weekly Analyst, July 2010; and *Post-crisis unemployment developments: US and EU approaching?*, ECFIN Economic Brief, May 2011.

A similar dynamic has recently been observed in the services sector, where the proportion of companies reporting labour as a limiting factor has started to increase since late 2010, despite a persistently high level of unemployment. This combined evidence from the manufacturing and the services sector, therefore seems to point to a weakening in labour matching, which – if further confirmed – may imply greater risk of structural unemployment in the euro area.

Consumers' unemployment fears

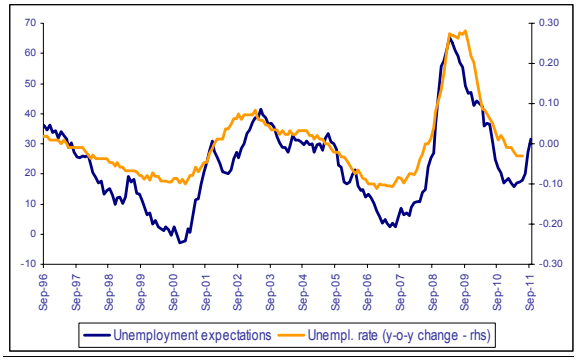
Besides employment expectations and labour shortage assessments on the business side, BCS data also contain information about consumers' unemployment fears[13].

The euro-area consumer survey series has an overall strong correlation with the y-o-y changes in unemployment (data from the Labour Force Survey), suggesting that consumers mainly express adaptive expectations, based on the change in the unemployment rate that they have observed during the previous 12 months.

Whereas there have been episodes in the past where consumers have mistakenly assessed the situation of the labour market (mainly by being more optimistic than the hard data warranted), it seems that over the last cycle the escalation in consumers' unemployment fears has gone along very closely with the rise in unemployment (Graph 4).

On the other hand, the marked easing in unemployment fears seen in 2009 was, to some extent, premature and excessive given the actual developments in the unemployment rate. This suggests a phase of over-optimism on the consumers' side in the early stages of the recovery, which has however come to an end in recent months.

Graph 4: **Consumers' unemployment fears and unemployment rate, euro-area (1996M9 to 2011M9 for survey data)**



Note: Unemployment fears are expressed by balances and the unemployment rate in y-o-y differences (in pp).

Latest developments

After having peaked in the first quarter of 2011, managers' employment expectations in the manufacturing and the services sector have been softening again in recent months. In the construction sector, whose recovery has been much more subdued, employment expectations have been broadly unchanged since mid-2010. These patterns are mirrored in consumers' unemployment fears, which after having eased for two years (March 2009 – March 2011) have since worsened again.

The latest September survey data confirm the patterns observed since Spring 2011, with a further deterioration in managers' employment expectations in the manufacturing, services and construction sectors and, on the other hand, a larger number of consumers being worried about the job market.

Given the now- and fore-casting properties of employment expectations, the latest developments in the survey-based indicators seem to suggest that the positive momentum in the labour market generated by the recovery since 2009 is losing steam. In addition, surveys hint at a worsening in the matching of labour supply with demand since the crisis. Overall, the labour market outlook looks fragile, with increasing risks of unemployment becoming entrenched.

[13] The question reads: *How do you expect the number of people unemployed in this country to change over the next 12 months?*

Annex 1: The Economic Climate Tracer

The graphs below show the economic climate tracer for the EU (including sectoral components), the euro area and the seven largest EU Member States.

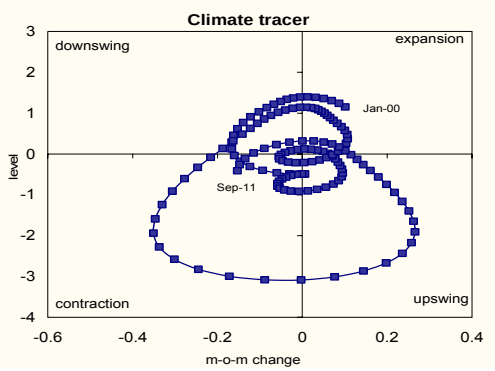
The series levels are plotted against their first differences (m-o-m changes), so that each chart depicts — at the same time — the current stance of the sector/country and its most recent dynamics. Series are smoothed to eliminate short-term fluctuations.

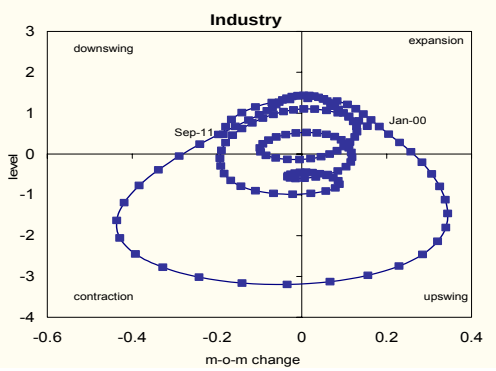
The four quadrants of the graphs enable four phases of the business cycle to be distinguished:

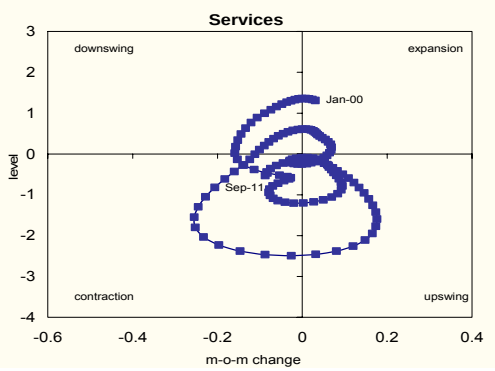
- 'expansion' (top right quadrant),
- 'downswing' (top left),
- 'contraction' (bottom left), and
- 'upswing' (bottom right).

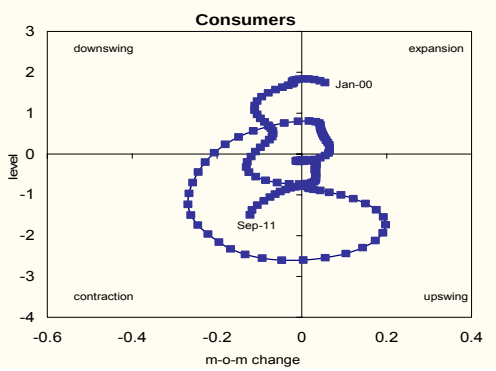
Cyclical peaks are positioned in the top centre of the graph, and troughs in the bottom centre.

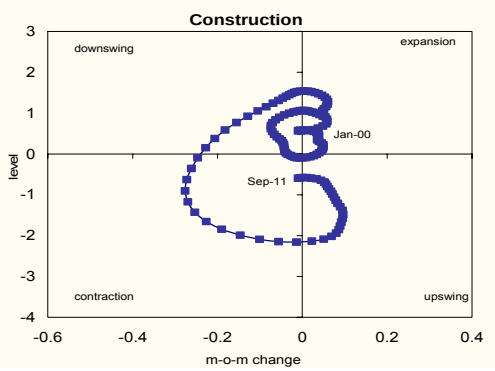
Economic climate tracer across sectors, EU

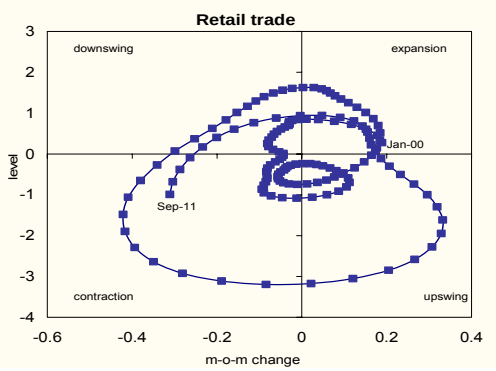




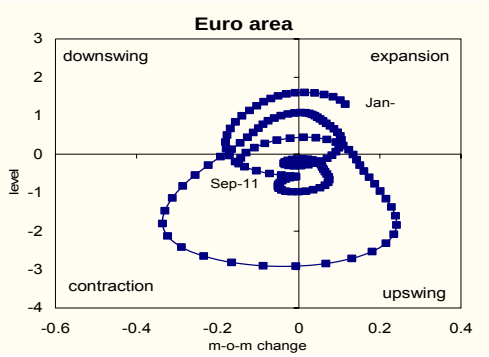


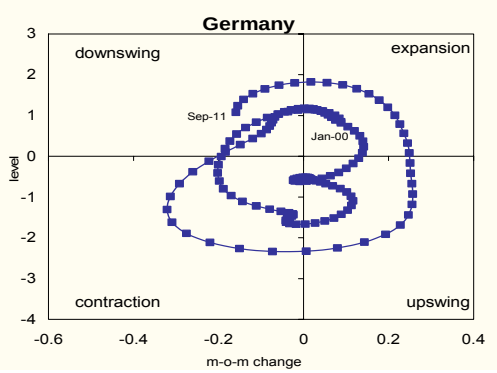


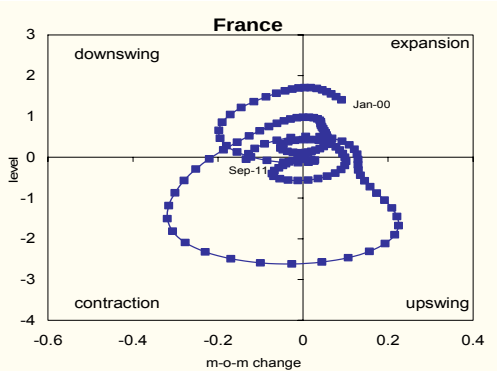


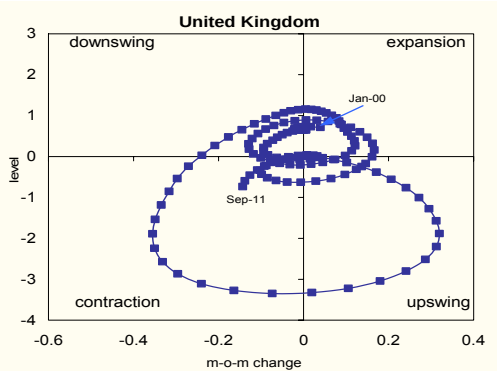


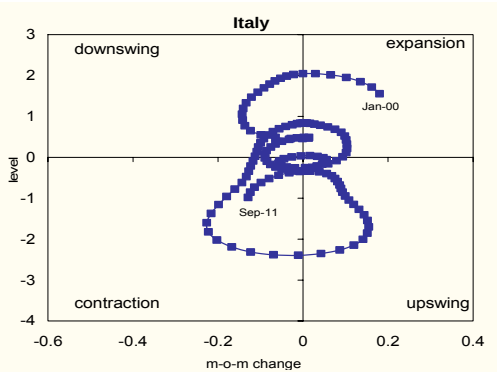
Economic climate, largest EU Member States

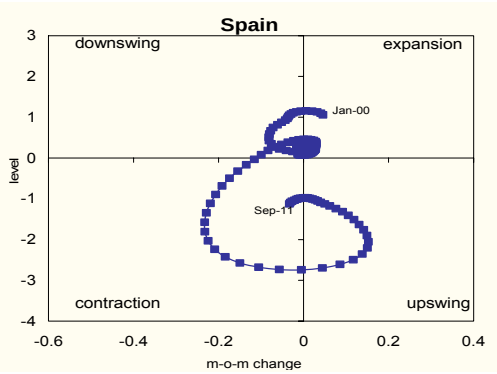


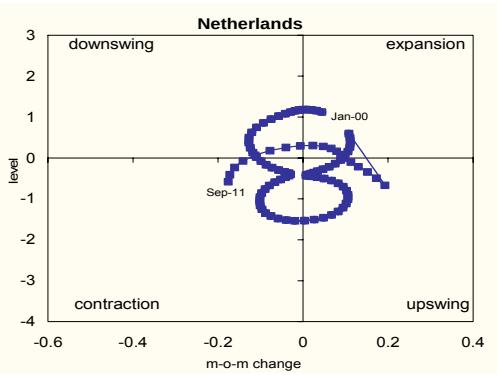


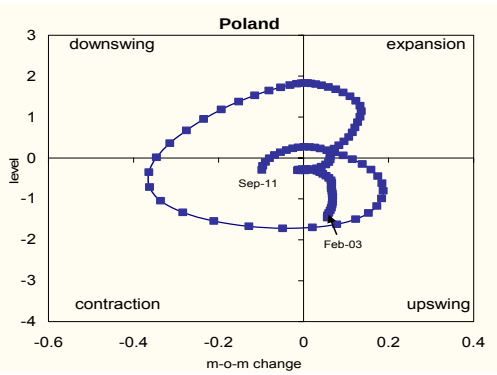












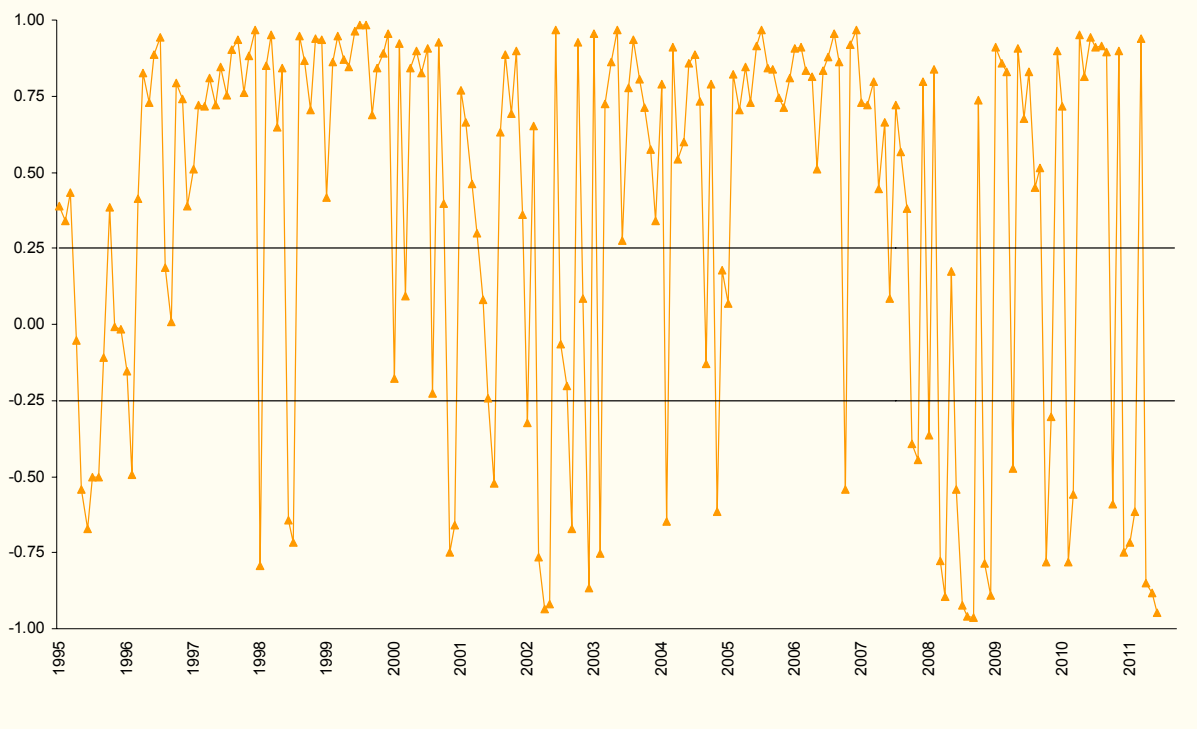
Annex 2: Euro-area turning point index

The turning point index — based on a Markov switching model — estimates the difference between high- and low-regime probabilities.

On the basis of the latest survey data for the euro area, the turning point index (TPI) declined to -0.95 in September 2011, after two consecutive months in negative territory.

By design, the computation of the turning point aims to extract the surprises — positive or negative — from new information in the surveys. Over the third quarter of 2011, confidence deteriorated strongly across all the sectors. Therefore, the innovations within the framework of the AR modelling method are interpreted as negative. The TPI now stands very close to -1, pointing to a highly increased risk of being in an adverse cyclical phase.

Turning point index for the euro area



Annex 3: Reference series

The reference series are from Eurostat, via Ecowin:

Confidence indicators	Reference series (volume/year-on-year growth rates)
Total economy (ESI)	GDP, seasonally- and calendar-adjusted
Industry	Industrial production, working day-adjusted
Services	Gross value added for the private services sector, seasonally- and calendar-adjusted
Consumption	Household and NPISH final consumption expenditure, seasonally- and calendar-adjusted
Retail	Household and NPISH final consumption expenditure, seasonally- and calendar-adjusted
Building	Production index for building and civil engineering, trend-cycle component

Economic Sentiment Indicator

The economic sentiment indicator (ESI) is a weighted average of the balances of replies to selected questions addressed to firms and consumers in five sectors covered by the EU Business and Consumer Surveys Programme. The sectors covered are industry (weight 40%), services (30%), consumers (20%), retail (5%) and construction (5%).

Balances are constructed as the difference between the percentages of respondents giving positive and negative replies. The Commission calculates EU and euro-area aggregates on the basis of the national results and it seasonally adjusts the balance series. The indicator is scaled to have a long-term mean of 100 and a standard deviation of 10. Thus, values greater than 100 indicate above-average economic sentiment and vice versa. Further details on the construction of the ESI can be found at:

Methodological guides - Surveys – DG ECFIN website

Long time series of the ESI and confidence indicators are available at:

Survey database – DG ECFIN website

Economic Climate Tracer

The economic climate tracer is a two-stage procedure. The first stage consists of building economic climate indicators. These are based on principal component (PC) analyses of balance series (s.a.) from the surveys conducted in industry, services, building, the retail trade and among consumers. In the case of industry, five of the monthly questions in the industry survey are used as input variables (employment and selling-price expectations are excluded). For the other sectors the number of input series is as follows: services: all five monthly questions; consumers: nine questions (price-related questions and the question about the current financial situation are excluded); retail: all five monthly questions; building: all four monthly questions. The economic climate indicator (ECI) is a weighted average of the five PC-based sector climate indicators. The sector weights are equal to those underlying the economic sentiment indicator (ESI), i.e. industry 40%; services 30%; consumers 20%; construction 5%; and retail trade 5%. The weights were allocated on the basis of two broad criteria: the representativeness of the sector in question and historical tracking performance in relation to GDP growth.

In the second stage of the procedure, all climate indicators are smoothed using the HP filter in order to eliminate short-term fluctuations of a period of less than 18 months. The smoothed series are then standardised to a

common mean of zero and a standard deviation of one. The resulting series are plotted against their first differences. The four quadrants of the graph, corresponding to the four business cycle phases, are crossed in an anti-clockwise movement. The phases can be described as: above average and increasing (top right, 'expansion'), above average but decreasing (top left, 'downswing'), below average and decreasing (bottom left, 'contraction') and below average but increasing (bottom right, 'upswing'). Cyclical peaks are positioned in the top centre of the graph and troughs in the bottom centre.

Markov Switching Turning Point Index

The purpose of the turning point index model, based on the work of Grégoir and Lenglart (2000),[14] is to identify economic growth trends in the euro area, using all the confidence indicators derived from the surveys of industry, services, building, and consumers as input. This model is symmetric in signalling turning points. TPI values within the ± 0.25 range imply stabilisation, when the pace of activity is around its potential (the signals received are very varied and indicate no clear-cut upward or downward movement). The economy is performing a soft landing or soft take-off, depending on whether the previous period was marked by acceleration or deceleration. By contrast, the signal is very consistent when TPI values are very close to or reach ± 1: the cyclical phase is deemed to be clearly favourable or unfavourable; economic activity is in a period of sharp acceleration (or sharp deceleration or even contraction).

[14] Grégoir, S. and Lenglart, F. (2000), 'Measuring the probability of a business cycle turning point by using a multivariate qualitative hidden Markov model', *Journal of Forecasting*, 19.