

# European Business Cycle Indicators

## *Developments in business and consumer survey data in 2011Q2*

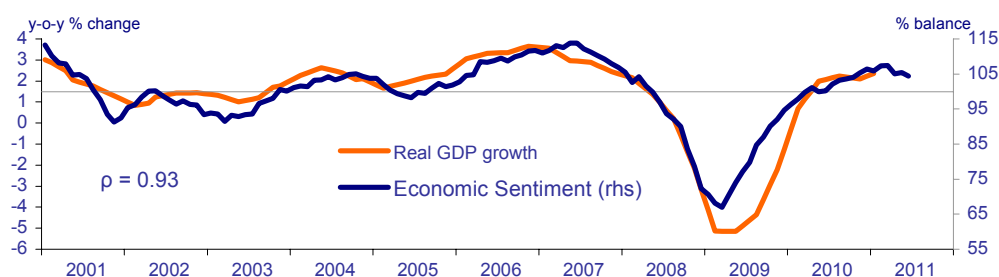
- **Survey readings suggest that the recovery lost some momentum in 2011Q2 but remains on track**
- **Mostly reflecting a softening in external demand, industry is the main driver of the overall weakening of sentiment**
- **Confidence in services remains hampered by subdued domestic demand**
- **Financial services recorded sharp losses in confidence in the second quarter**

## *Highlights*

*The first highlight in this issue of the EBCI takes a closer look at whether and how the relationship between GDP growth and the ESI has evolved over the years. Overall, the results call for caution when translating survey data into actual economic growth: the link between GDP growth and the ESI has changed over the last two decades, with two structural breaks during the past two major crises. The current level of the ESI is compatible with expanding activity but is associated with lower GDP growth rates than would have been the case before the recession.*

*The second highlight presents the results of the Spring 2011 Investment Survey, where manufacturing firms report investment spending for 2010 and their investment expectations for the current year. According to the survey, real investment in the EU declined by 0.4% in volume in 2010 compared to the previous year and is expected to grow by 11.3% in 2011. Compared with the survey conducted in autumn 2010, managers revised upwards both their 2010 assessment and their 2011 expectations.*

**ESI and GDP growth for the EU**  
(Jan 2001 to June 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.

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## 1. Recent developments in survey indicators for the EU and the euro area

In the second quarter of 2011, the Economic Sentiment Indicator (ESI) declined in both the EU and the euro area. The weakening was continuous in the euro area, while it followed a more discontinuous pattern in the EU, mostly due to large fluctuations in sentiment in the UK. The ESI now stands at 104.4 in the EU (3 points lower than in March 2010) and 105.1 in the euro area (2.2 points lower than in March 2010). However, the indicator remains above its long-term average in both regions.

The worsening in sentiment was widespread among the largest Member States and was mostly driven by downward-pointing readings in industry and, to a lesser extent, in services and retail trade, the latter two sectors exhibiting more volatile dynamics.

After the peak reached in February/March 2009, confidence in *industry* declined in the second quarter of the year in both the EU and the euro area, on the back of diminishing optimism among managers in Germany, France, Italy, Spain and the Netherlands, as well as in the UK. In both the EU and the euro area, managers revised their production expectations strongly downwards and assessed past production more negatively, too. The worsening went along with a significant deterioration in export order books, which, together with a milder drop in total order books, is an indication that a slowdown in world trade growth is a key driving force of the deterioration of manufacturing confidence. Managers' assessment of stocks increased from historically low levels, consistently with downward-revised production expectations. However, last quarter results continue to suggest that manufacturers have changed their inventory behaviour, with stock management more responsive to fluctuations in economic activity.<sup>1</sup> Manufacturers' employment prospects and selling-price expectations were also on a downward trend in 2011Q2 in both regions.

During the second quarter of 2011, sentiment in *services* worsened in the EU and, to a much lesser extent, in the euro area. The deterioration in confidence was mostly due to weakening demand expectations in both regions. Managers in the EU were also less positive about the evolution of past demand and the business situation but the deterioration of confidence was generally much more modest for backward-looking components of confidence than for forward-looking ones. Employment expectations were also on a downward trend. In June, the confidence indicator for the euro area bounced up again, on the back of strongly improved assessments and expectations in Italy and Spain. Nevertheless, the indicator remains below its long-term average in both regions.

In 2011Q2, sentiment in the *retail sector* was generally weaker than in the first quarter, but it followed different dynamics in the two regions. In the EU the indicator recorded a significant drop in April 2011, followed by two months of recovery reflecting an improvement of managers' assessment of past business activity. In contrast, in the euro area the indicator decreased in April and May before stabilising in June.

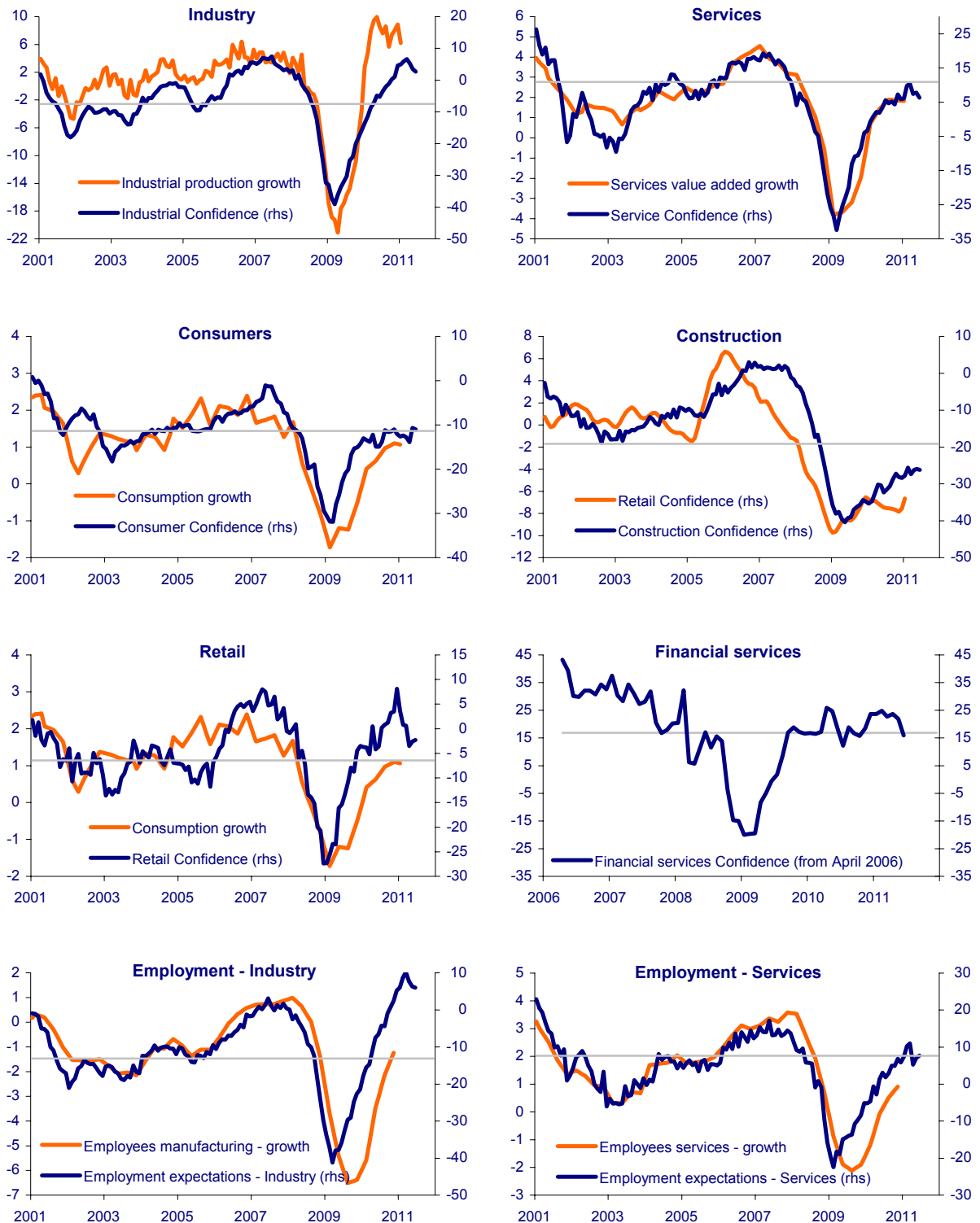
In both regions, sentiment in *construction* followed an upward trend, recovering from very low levels. The improvement was mostly due to managers' growing optimism about their order books. The indicator nevertheless remains far below its long-term average.

Confidence among *consumers* recorded a significant drop in April 2011 in both the EU and the euro area. It subsequently improved in both regions, mainly thanks to easing unemployment fears (now at levels last seen in summer 2008), which contrasts with managers' pessimistic employment prospects. Over the last two months, consumers (especially in the EU) were also more optimistic about the expected general economic situation and their own financial situation, while scope for saving money in the months ahead did not show any improvement (remaining at levels seen in December 2010/January 2011).

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<sup>1</sup> 'Inventory behaviour since the recession', *EBCI*, April 2011.

Graph 1: Sectoral confidence indicators and reference series for the EU  
(Jan 2001 to June 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.

After an improvement in both the EU and the euro area in April 2011, confidence in *financial services* recorded a significant deterioration, which was particularly marked in June 2011. Managers in financial services revised strongly downwards their demand expectations and also expressed increasing concern about the observed development of demand in recent months. The dynamics were alike in both regions, but the decline was steeper in the euro area.

Overall, the latest survey readings suggest that the recovery remains on track, although it is losing some of its momentum. This deceleration is mostly visible in manufacturing and financial services. It reflects a softening in external demand that so far does not seem to be compensated by domestic demand, which weakened in the second quarter of 2011.

This assessment is confirmed by the economic climate tracer for both the EU and the euro area, which is heading from the expansion to the downswing quadrant (see Section 4 for further details). Furthermore, in June the turning point indicator for the euro area — which extracts the (positive or negative) surprises from new available data — stayed in ‘neutral’ territory, signalling a more uncertain phase (see Section 5 for further details).

## 2. Recent developments in selected Member States

In general, the ESI weakened in the second quarter of 2011 compared with the first quarter of 2011. Of the seven largest Member States, the Netherlands, followed by Italy, Poland and France, registered significant declines in the second quarter, while the weakening of sentiment was less pronounced in the UK and Germany. Sentiment improved in Spain,<sup>2</sup> albeit remaining at a low level. In June 2011, the ESI

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<sup>2</sup> With effect from May 2011, a number of partner institutes in the BCS programme have changed in Spain; this may have caused a break in some series. In particular, ESI developments in Spain for the second quarter have to be interpreted with due caution.

was above its long-term average only in Germany and France.

Climate tracers suggest that sentiment is heading toward the downswing phase in Germany, France and the Netherlands, while it is rather pointing to contraction in Italy (see Section 4 for further details).

Among other euro-area countries, a notable development is a marked worsening in Greece and Portugal, where economic sentiment is now at low levels.<sup>3</sup> In both countries, confidence deteriorated in all sectors and among consumers. Sentiment weakened significantly also in Sweden, albeit remaining at a very high level. Among the new Member States, the weakening of sentiment was particularly strong in Hungary and the Czech Republic. In contrast, Lithuania recorded a substantial improvement over 2011Q2, backed by buoyant sentiment in industry and construction.

**Germany’s** ESI reached a peak in December 2010. After a buoyant first quarter, sentiment fell slightly during the second quarter of 2011, but remains at a very high level. Confidence in German industry reached a historic peak in February, boosted by improving assessment of the level of order books, before dipping slightly albeit continuously since March. These dynamics reflect in particular more cautious production expectations during the second quarter of 2011. Also, confidence in services and retail trade weakened somewhat during the second quarter reflecting gloomier demand expectations, but remained well above its long-term average. In contrast, confidence among consumers stabilised, while sentiment in construction continued to grow markedly in the second quarter, reaching historic levels last seen in the early 1990s.

In **France**, economic sentiment deteriorated in the second quarter of 2011, but remains firmly above its long-term average. The decline in overall sentiment resulted from sizeable decreases in industry, retail trade and to a lesser extent in services. In contrast, confidence improved in construction and among consumers, who were more optimistic

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<sup>3</sup> Survey data on Ireland are not available.

about unemployment developments, as well as about the future general economic situation.

The **United Kingdom** reported a significant decrease in the Economic Sentiment Indicator during the second quarter. This was due to large losses in confidence in retail trade and construction, followed by industry and services. In particular, managers in industry and services expressed increasing pessimism in forward-looking questions. Confidence among consumers deteriorated also in the second quarter despite significantly decreasing unemployment fears.

In **Italy**, overall sentiment worsened in the second quarter of 2011. This resulted from lower confidence in construction, industry, and services, while sentiment in retail trade, albeit being more volatile, improved. Confidence among consumers remained broadly unchanged.

**Spain's** ESI remains the lowest among the large EU Member States, despite an upturn in sentiment in the second quarter. This improvement was the result of a rebound in services, in retail and among consumers.<sup>4</sup> These gains in confidence were partially offset by further declines in industry and in construction (now close to historic lows).

In the **Netherlands**, sentiment decreased sharply during the second quarter of 2011, after reaching a peak at the end of the previous quarter. This was mainly due to strong losses in services and among consumers. In particular, Dutch consumers have become much more worried about the general macroeconomic outlook and unemployment. Industry and retail trade sectors also registered gloomy performance, while construction remained roughly stable.

After the peak reached in February 2011, economic sentiment in **Poland** was on a downward trend during the second quarter of 2011, slipping just below its long-term average. The deterioration was mainly driven by weakening in industry and retail trade.

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<sup>4</sup> However, the results in services, in retail trade and among consumers have to be interpreted carefully as partner institutes have changed with effect from May 2011.

### 3. Highlight: is there a decoupling between soft and hard data?

Since its trough of March 2009, the Economic Sentiment Indicator (ESI) for the euro area has been almost continuously on an upward trend and remained firmly above the 100 threshold (long-term average) in the last 12 months. Nonetheless, this steady recovery in sentiment (with the ESI approaching its cyclical peak) has not been fully reflected in real GDP growth, which has been weaker than in past recoveries: indeed, for most quarters of 2010, signals from hard data (and notably GDP growth) have not been as strong as buoyant survey readings would have suggested.

Conflicting signals about the strength of the recovery have led some analysts to question the relationship between hard and soft indicators, and express doubts about the usefulness of survey information in predicting economic growth. More specifically, business cycle analysts and policy-makers have argued that the decoupling between sentiment (as measured by surveys) and reality (as measured by national accounts) may indicate an overshooting in confidence.

On that ground, this section focuses on two issues: first, it analyses whether and how the relationship between GDP growth and the ESI has changed over the years; then, based on the evidence obtained, it looks into what the survey readings imply for the strength of economic growth at the current juncture.

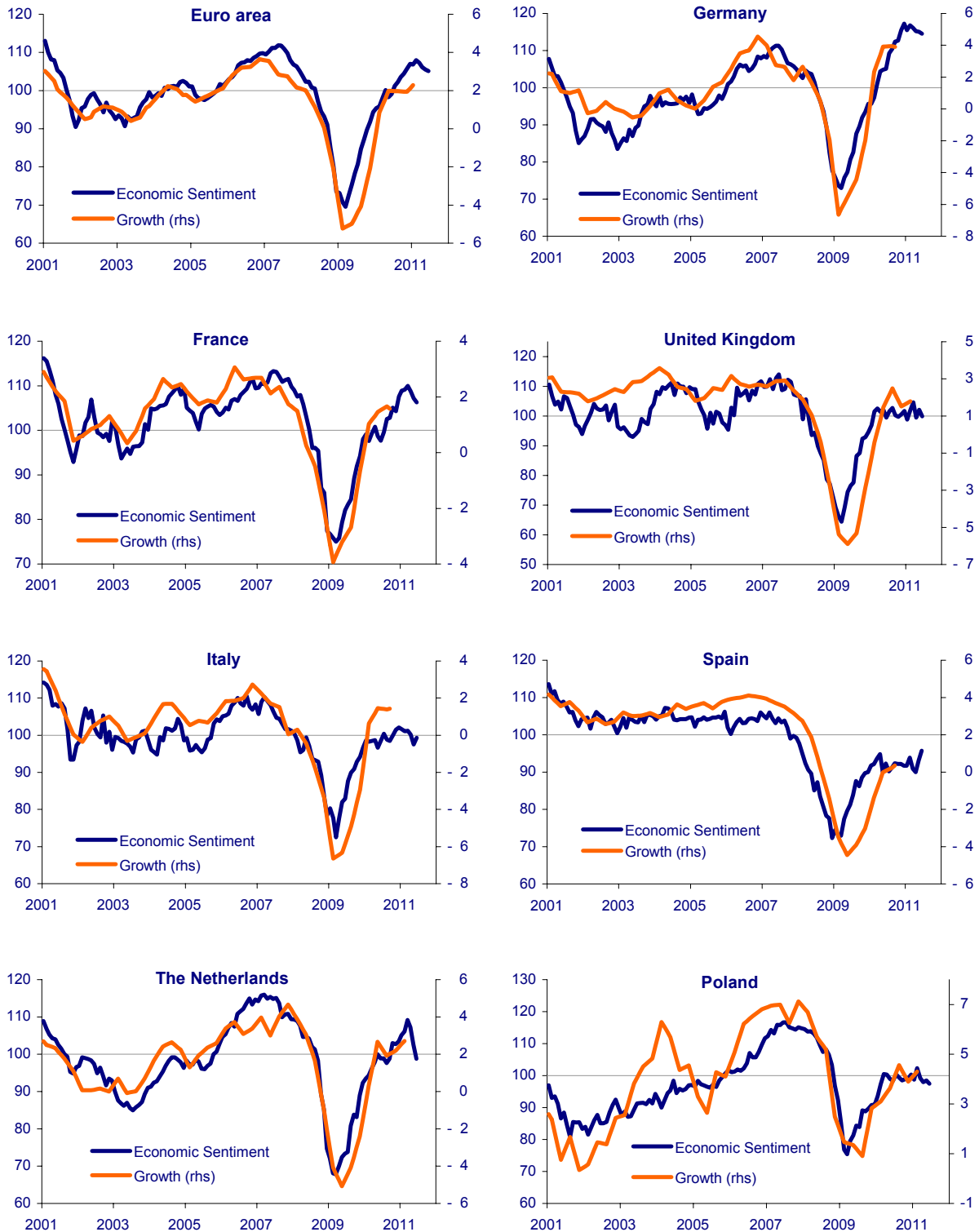
#### The relationship between GDP growth and the ESI ...

When projecting GDP growth on the basis of survey indicators (namely the ESI), one can refer to many different models and specifications. Among these, we opt for a simple and widely used model, which explains GDP growth by current and past values of the ESI.<sup>5</sup>

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<sup>5</sup> Ferrara, L., D. Guégan and P. Rakotomalahy (2010), 'GDP nowcasting with ragged-edge data: A semi-parametric modelling', *Journal of Forecasting*, 29, 186-199.

**Graph 2: Economic Sentiment Indicator — Selected EU Member States**  
(Jan 2001 to June 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.

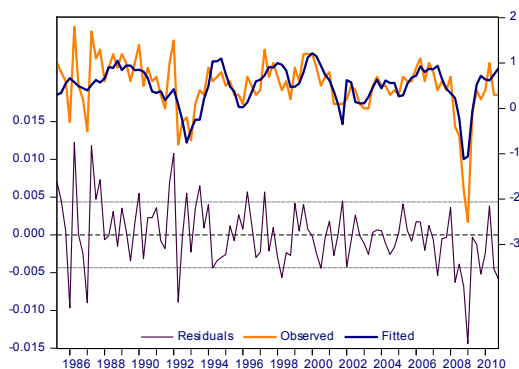
In the analysis hereafter, the following specification has been used:

$$Y_t = b_0 + b_1 ESI_t + b_2 \Delta ESI_t + u_t \quad (1)$$

where  $Y_t$  represents the GDP quarter-on-quarter growth at time  $t$ , which is assumed to depend not only on the level of the ESI at time  $t$ , but also on its first difference ( $\Delta ESI$ ); and  $u_t$  is a normally distributed white noise random variable.

This model is easy to interpret and relies on the widely accepted assumption<sup>6</sup> that — when tracking macro-economic variables — in addition to the recorded level of the survey indicators, changes in mood from one month to another also have a significant explanatory power. Moreover, the linear model (1) enjoys in-sample statistical accuracy, as assessed through the standard battery of misspecification tests, and a fairly good fit over the long run (Graph 1).

Graph 1: Observed and fitted GDP q-o-q growth (%), euro-area (1985Q1 to 2010Q4)



... has been changing over the last two decades ...

A first simple way to check whether the relationship between the ESI and GDP growth has changed over time is to inspect the estimated residuals of model (1), testing for the presence of a structural break.

<sup>6</sup> Buffetau, S. and V. Mora (2000), ‘La prévision des comptes de la zone euro à partir des enquêtes de conjoncture’, *Note de conjoncture*, INSEE.

Table 1 shows the results obtained using the Andrews-Ploberger (AP)<sup>7</sup> and Bai-Perron (BP)<sup>8</sup> tests. These two tools are widely used in the econometric and financial literature, as they rely on general enough assumptions and yield robust results. In addition, both tests have the advantage of identifying break dates at unknown points in time (contrary to other methods, such as the Chow stability test, which only allows specified break dates to be tested that are chosen on the basis of a visual inspection of the data, economic priors, etc.).

Table 1: Break dates

	Sample period	Break date
AP test	1985Q1 – 2011Q1	2007Q2/Q3
BP test	1985Q1 – 2011Q1	2008Q1/Q2
AP test	1985Q1 – 2006Q4	1992Q1/Q2
BP test	1985Q1 – 2006Q4	1992Q1/Q2

Over the whole sample period, the AP test identifies a structural break between the second and third quarters of 2007, which is the time when the ESI began to enter the downward phase related to the unfolding economic crisis. In the same sample period, the BP test finds a break between the first and second quarters of 2008, which in turn is the time when GDP negative q-o-q growth values were observed for the first time during the latest downturn. Therefore, both tests suggest that relationship (1) between the ESI and GDP growth has changed in the latest crisis.

When the sample is restricted to the period 1985Q1-2006Q4, another structural break is found (by both tests) at the time of the 1992 recession. All in all, it seems that both the two major recessions of the last two decades have been associated with a comparable significant change in the relationship between sentiment indicators and economic growth.

The question arises whether the above results can be mainly explained by the well-known

<sup>7</sup> Andrews, D. W. K. and W. Ploberger (1994), ‘Optimal tests when a nuisance parameter is present only under the alternative’, *Econometrica*, pp. 1383-1414.

<sup>8</sup> Bai, J. and P. Perron (2003), ‘Computation and analysis of multiple structural change models’, *Journal of Applied Econometrics*, pp. 1-22.



existence of non-linearity<sup>9</sup> at times of very deep recession, and therefore reflect only temporary and spurious breaks. Remarkably, the same breaks (and dates) are found also when adopting a non-linear specification<sup>10</sup> of the relationship between the ESI and GDP growth. This suggests that, even allowing for the presence of non-linearity, something stronger and lasting (e.g. a structural break in the link between the ESI and GDP growth) has occurred. This finding is confirmed by the fact that the inclusion in model (1) of dummy variables (equal to 1 as from the break dates) yields statistically significant results, with negative estimated coefficients. As a consequence, the dummy terms lower permanently the estimated impact of a change in the ESI on GDP growth.<sup>11</sup>

### ... as mirrored in time-varying models

To better understand the possible structural changes in the relationship between the ESI and GDP growth, alternative, more flexible econometric methods are applied to estimate this relationship. To that end, two different strategies are followed.

First, one can estimate an OLS rolling regression, which makes it possible to check for changes in the regression coefficients over time. The idea behind this technique is to run an OLS regression — with the specification in model (1) — over a rolling window of  $n$  observations (with fixed  $n$ ). Eventually, this

yields a vector of estimated coefficients, possibly changing over time.

Alternatively, one can estimate a time-varying-parameter model (TVP), i.e. a regression model with time varying coefficients:<sup>12</sup>

$$Y_t = b_{0,t} + b_{1,t} \cdot \text{ESI}_t + b_{2,t} \Delta \text{ESI}_t + v_t \quad (2)$$

where  $b_{j,t} = b_{j,t-1} + \varepsilon_{j,t}$  ( $j = 0, 1, 2$ ).

The advantage of the TVP model compared to the rolling regression is that it does not depend on the choice of  $n$ . Moreover, the varying coefficients are meant to capture possible non-linearities or time variations in the structure of the model itself. The coefficients, modelled as random walks,<sup>13</sup> are estimated using a state-space representation of a TVP model and Kalman filtering.

When applied to the relationship between GDP growth and the ESI in the euro area, both approaches (i.e. rolling regression and TVP model) give evidence that the magnitude of the constant and of the ESI's estimated coefficient have changed significantly over the past two decades. The conclusion holds for both the linear and the non-linear specification of the model. This implies that for a given level of the ESI, the projected GDP growth did vary over the last decades.

### How strong is economic growth when the ESI equals 100?

A simple way to visualise the time-changing relationship between the ESI and GDP is to plot the annual GDP growth corresponding to a level of 100 (long-term average) in the ESI. The projected value, obtained by plugging 100 in model (1), yields a *long-term* GDP growth, which is time-varying. This feature contrasts with the common practice of associating a level of 100 in the ESI with a fixed rate of

<sup>9</sup> Whereas there is no lower bound to a rate of contraction of GDP, there is a lower limit to confidence indicators due to the fact that, once 100% of respondents report deterioration, no further loss in the confidence indicator is possible.

<sup>10</sup> In order to take into account the non-linear feature of the relationship between survey indicators (S) and output growth, it is possible to replace S by  $S \times |S|$  in the model's specification, as proposed in 'Note de conjoncture de l'INSEE, juin 2009'.

<sup>11</sup> A similar analysis of the link between survey data and GDP has recently been conducted by the Kiel Institute for Germany's data ([http://www.ifw-kiel.de/wirtschaftspolitik/konjunkturprognosen/konjunkt/2011/konjunkturprognosen\\_deutschland\\_1-11.pdf](http://www.ifw-kiel.de/wirtschaftspolitik/konjunkturprognosen/konjunkt/2011/konjunkturprognosen_deutschland_1-11.pdf)). While the overall finding about a change in the relationship and the presence of a structural break are confirmed also on German data, the timing of the break is different (2003Q1).

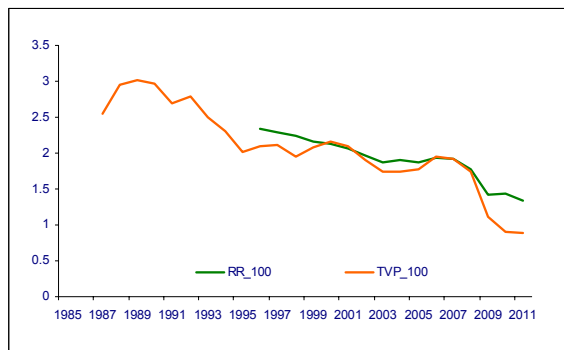
<sup>12</sup> Nelson, C. R. and C. Kim (1988), 'The time-varying-parameter model as an alternative to ARCH for modelling changing conditional variance: the case of the Lucas hypothesis', *NBER Technical Working Papers*, No 70.

<sup>13</sup> This is a widely used assumption that has the advantage of reducing the number of parameters to be estimated.

economic growth (for example, the 1985-2010 average annual rate).

Both the rolling regression and the TVP model show that there has been a continuous change in the relationship between GDP growth and the ESI, with a downward tendency: e.g. a level of 100 in the ESI today implies a lower annual GDP growth than it implied 10 or 20 years ago (Graph 2).

Graph 2: Projected annual GDP growth (%) corresponding to a level of 100 in the ESI, euro area (1985 to 2011)



Note: RR\_100 and TVP\_100: outcome from rolling regression and TVP model, respectively.

Focusing on the projections from the TVP model,<sup>14</sup> three main additional findings seem worth considering.

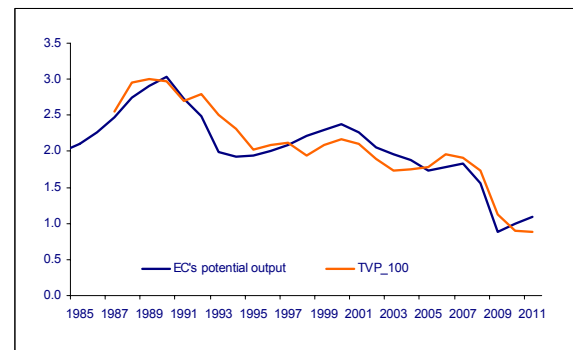
First, the relationship has not changed at a steady pace, but has rather experienced two structural breaks at the time of the two major crises (early 1990s and 2008).

Second, the TVP-projected annual GDP growth does match fairly well the pattern of the Commission's estimates of potential output (Graph 3). This is rather surprising, as the TVP projections are fully data-driven, while the calculation of potential output relies on (strong) economic theory assumptions, following a production function approach. This feature suggests that business and consumer surveys can be used beyond their usual short-

<sup>14</sup> The rolling regression has the disadvantage of losing — by design — the estimation of the coefficients for the first  $n$  observations (with  $n = 45$  quarters in our specification). This hampers the possibility to assess how the studied relationship changed in the period 1985-1995.

term forecasting purposes to gauge changes in long-term growth. Applied to the current situation, survey indicators would suggest that the euro-area economy has shifted onto a lower growth path in the aftermath of the crises. This explanation would be in line with several empirical studies that point to significant and lasting losses in GDP growth and potential output as a legacy of financial and economic crises.<sup>15</sup>

Graph 3: Annual potential GDP growth (%), euro area (1985 to 2011)



Source: EC's AMECO database and our computations

Third, a by-product of the above analysis is the conclusion that survey-based figures should be read in terms of growth cycle. In other words, the ESI tracks the cyclical fluctuations in economic activity around its long-term (varying) trend. At individual level, this might reflect changes in the behaviour of respondents, whose optimism and/or pessimism thresholds are likely to be time-varying, too. For example, at the current juncture of subdued demand at firm level, managers are likely to give positive assessments even in the presence of rather small observed/expected improvements.

Overall, the above results call for caution when translating survey data into actual economic growth. While the current level of the ESI (well above its long-term average) is compatible with the reading of expanding activity, it also hints at lower growth rates than those implied in the pre-recession period.

<sup>15</sup> European Commission — DG ECFIN (2009), 'Impact of the current economic and financial crisis on potential output', *Occasional Papers* No 43.

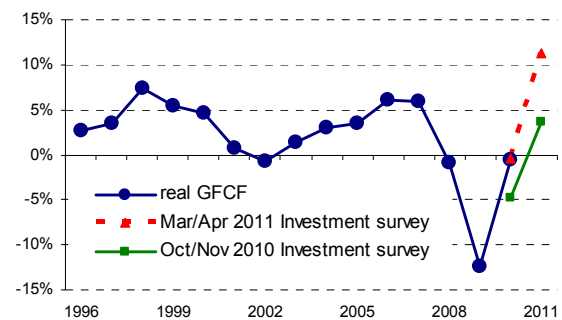
A caveat is, however, necessary. Most of the change in the relationship between the ESI and GDP growth over the past decade took place abruptly during the latest crisis (as shown in Graph 3), when confidence was subject to temporary measurement problems.<sup>16</sup> In addition, the observed decoupling relies mostly on end-of-sample results, which are usually estimated less robustly. Thus, further observations are needed to confirm the results shown in this section.

#### 4. Highlight: results of the spring 2011 EU Investment Survey in the manufacturing sector

##### Developments in overall investment

According to the latest Investment Survey, manufacturing investment in the EU declined by 0.4% in volume in 2010, which is a significant improvement on the sharp contraction registered in 2009 (-12.2% according to managers' latest estimate in spring 2010).<sup>17</sup> Concerning 2011, manufacturers expect a strong increase in investments of around 11.3%. Compared with the previous survey conducted in October/November 2010, managers revised upwards both their 2010 assessment (by around 3.6 pp) and 2011 expectations (by about 7.3 pp) (see Graph 1). Results for the euro area are somewhat less strong as managers reported a larger drop of 3.3% in investment in 2010 but expected an increase of 9.8% for 2011.

Graph 1: Growth in real gross fixed capital formation (GFCF) and surveyed change of investments in the EU (annual changes in %)



Source: Commission services.

For 2010, the Investment Survey is in line with Eurostat official figures, which show a decrease of 0.6% in gross fixed capital formation. In contrast, for 2011 the Investment Survey is far more optimistic than the European Commission's spring forecasts, according to which gross fixed capital formation in the EU should expand by 2.5% this year. It is nevertheless important to bear in mind that the Investment Survey covers only investment by manufacturing companies and therefore only 40% of total gross fixed capital formation in the economy.

##### Investment dynamics by sectors

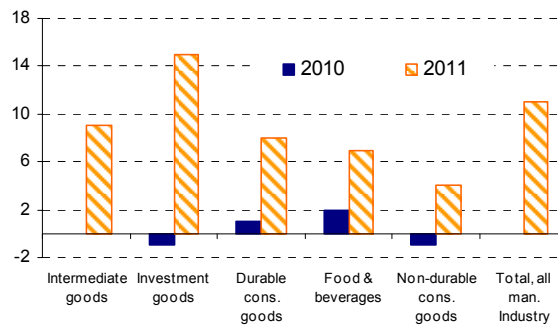
Looking at the sectoral breakdown of the survey (see Graph 2), the sectors of investment goods and non-durable consumer goods both registered a drop in investment of 1% in real terms in 2010. In contrast, investment increased that year in the durable consumer goods sector and the food and beverage sector by, respectively, 1% and 2%. Investment in the intermediate goods sector remained broadly stable.

The outlook for 2011 is for a broad-based recovery in all sectors. Managers in the investment goods sector are particularly optimistic, as they foresee an increase of 15%.

<sup>16</sup> See footnote 9.

<sup>17</sup> Manufacturers' estimate of investment growth in 2009 was broadly in line with Eurostat's official estimate of growth in gross fixed capital formation that year (-12.4%).

Graph 2: Surveyed change of investments in the EU by sectors (annual changes in %)



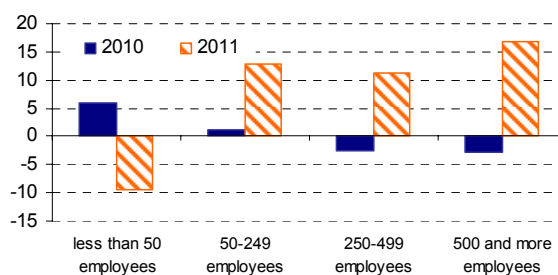
Source: Commission services.

### Investment by size of enterprises

According to the survey, only large and very large enterprises (employing more than 250 people) experienced contractions in investment in 2010 (of around 3% in real terms, see Graph 3). Among small and medium-sized enterprises (respectively, those employing less than 50 and between 50 and 249 people), real investment increased by around 6% and 1% respectively.

A very different picture is painted for 2011. Small enterprises expect to reduce their investments by around 10% that year, while medium, large and very-large enterprises expect to raise their investments by 13%, 11% and 17%, respectively.

Graph 3: Surveyed change of investments in the EU by company size (annual changes in %)



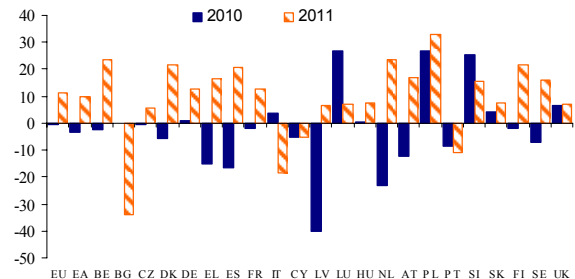
Source: Commission services.

### Developments by country

The decrease in investment for the EU as a whole in 2010 also took place in around half of the Member States, while for 2011 the increase anticipated at EU level will be broad-based,

with gains in most of the Member States (see Graph 4).

Graph 4: Surveyed change of investments in the EU Member States (annual changes in %)(1)



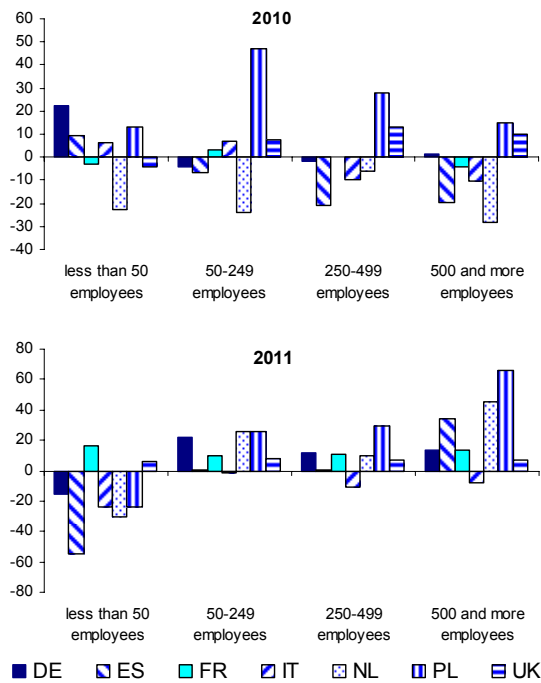
(1) Figures for Estonia, Latvia and Romania are missing, as the corresponding data are still under verification. No investment survey is conducted in Ireland.

Source: Commission services.

In the largest Member States, managers assessed their investments in 2010 as having increased by 1% in Germany, by 4% in Italy, by 6% in the UK and by 27% in Poland, while they reported a contraction in Spain (-17%), the Netherlands (-12%) and France (-2%). For 2011, managers in the largest Member States expect their investments to increase by 33% in Poland, by 24% in the Netherlands, by 21% in Germany and Spain, by 13% in France and by 7% in the UK. Only Italian managers expect a decrease in 2011, of 18%.

Looking at the breakdown by size of enterprises across countries, large and very large enterprises experienced a contraction in investment in most large Member States, while the picture across small and medium-sized firms was mixed (see Graph 5). Small French, Dutch and UK firms and medium-sized German, Spanish and Dutch enterprises reported negative developments in investment while, among large enterprises, only Polish and UK firms reported a clear increase in investment in 2010. In 2011, the situation is expected to be visibly more positive across medium-sized, large and very large enterprises, while managers in small firms in all the large EU Member States, except France and the UK, foresee a contraction of investment.

Graph 5: Surveyed change of investments in large EU Member States by size (annual changes in %)



Source: Commission services.

All in all, results from the Spring Investment Survey in the manufacturing sector indicate that, after the sharp contraction registered in 2009, investment remained broadly stable in 2010 and is expected to increase strongly in 2011. The positive results for 2011 are broadly based across countries, sectors and company sizes. A major exception is small enterprises, where after significant growth in 2010, managers expect investment to contract sharply in 2011. It could be that investment projections are more volatile among small companies than in larger ones. However, a closer analysis will be necessary if the forecast pattern is confirmed in the next survey (to be released in October/November 2011) as it would indicate the existence of deep structural differences in the shape of the recovery across company sizes. The autumn survey (which covers a broader range of questions than the spring survey) will also provide more information on the possible drivers of these differences, including the role of demand, access to credit and technological factors.

**Annex 1: The Economic Climate Tracer**

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

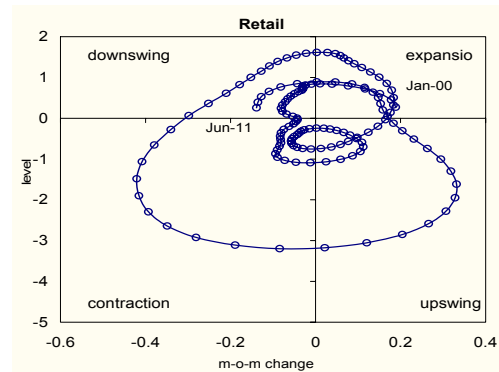
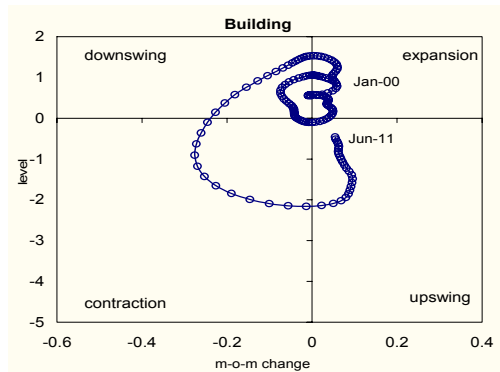
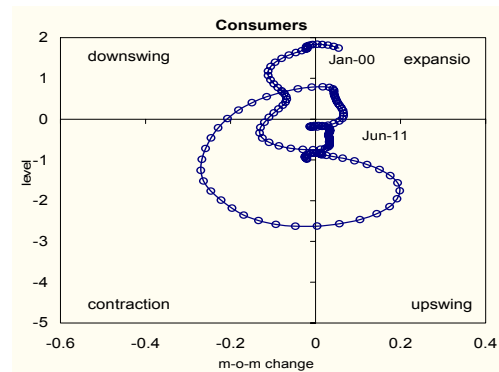
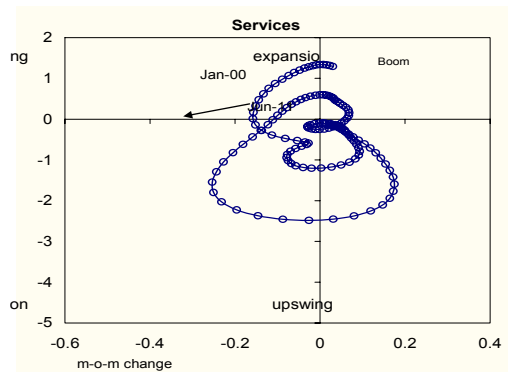
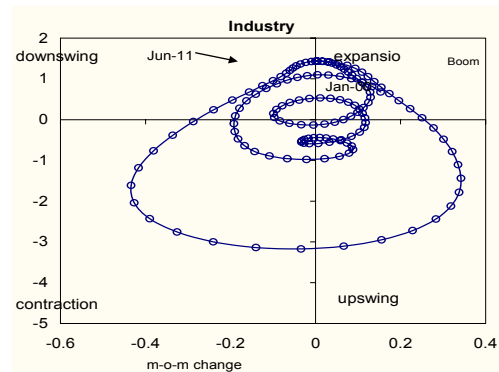
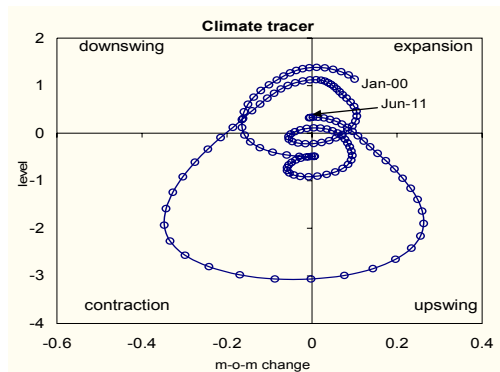
The series levels are plotted against their first differences (m-o-m changes), so that each chart depicts — at the same time — the current stance of the sector/country and its most recent dynamics. Series are smoothed to eliminate short-term fluctuations.

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

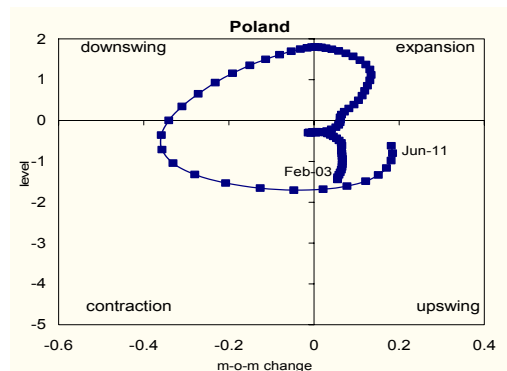
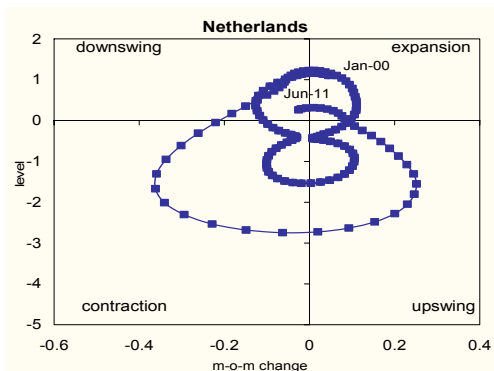
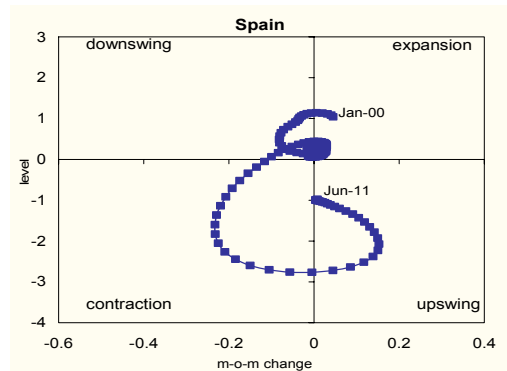
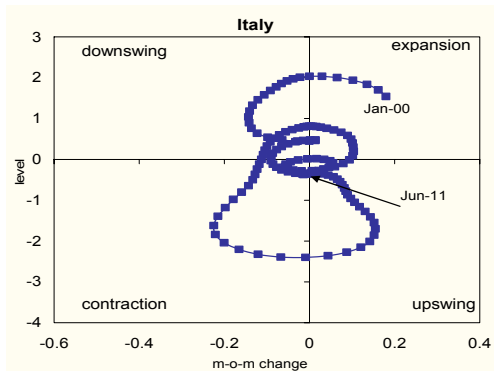
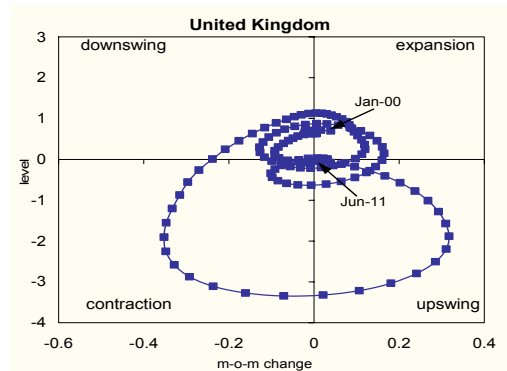
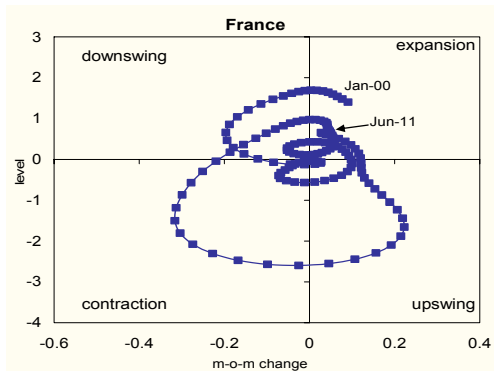
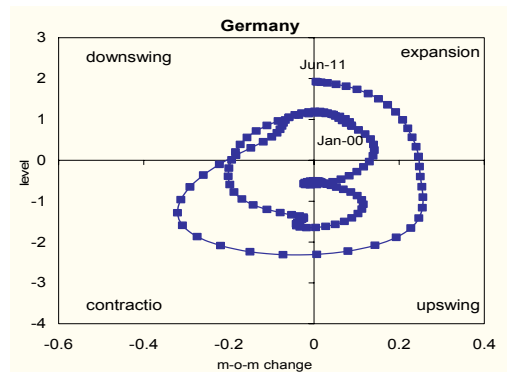
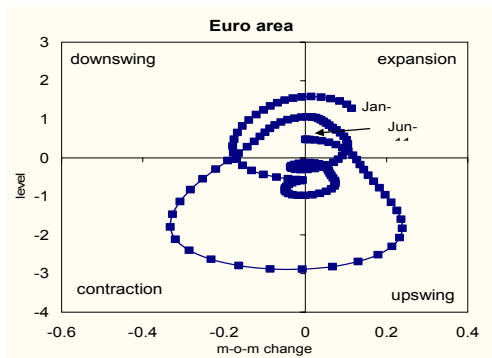
- ‘expansion’ (top right quadrant),
- ‘downswing’ (top left),
- ‘contraction’ (bottom left), and
- ‘upswing’ (bottom right).

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

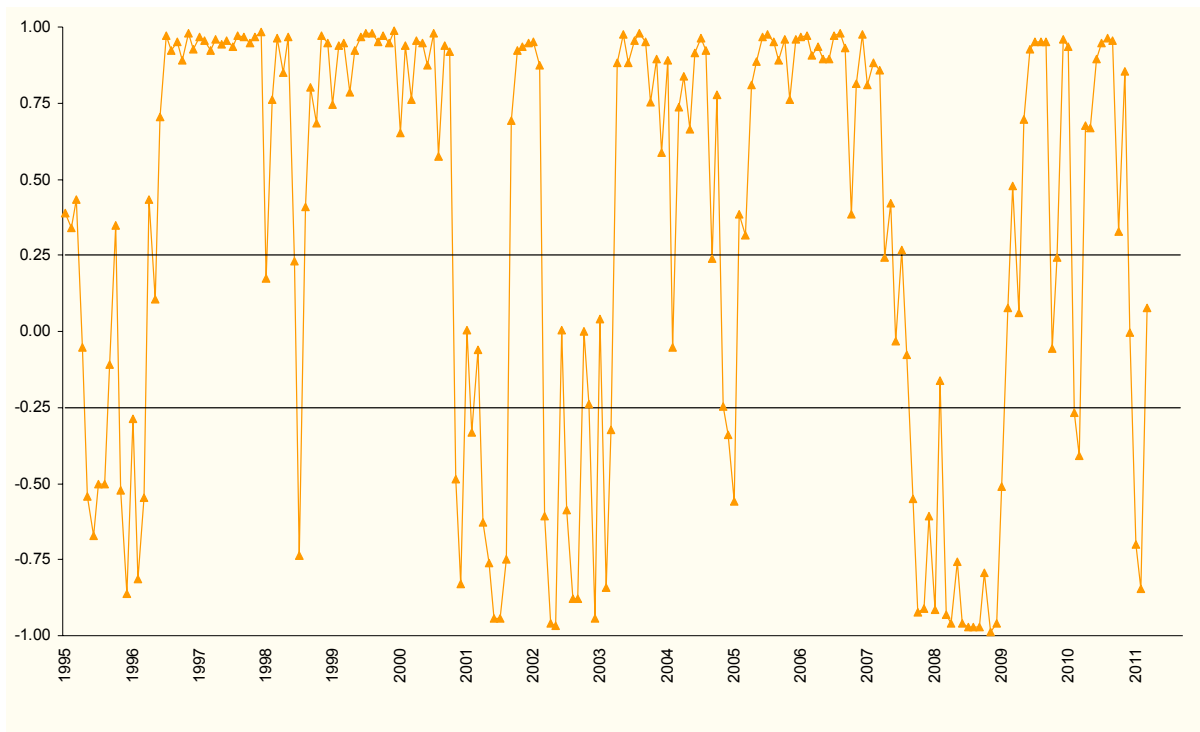


**Annex 2: Euro-area turning point index**

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) improved to 0.07 in June, 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. In June, confidence in services and building improves while the deterioration in industry slows down. Therefore, the innovations within the framework of the AR modelling method are interpreted as positive. Therefore, the TPI increases and now stands in ‘neutral’ territory, signalling an uncertainty phase.

**Turning point index for the euro area**





### Annex 3: Reference series

The reference series are from Eurostat, via Ecwin:

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 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 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-step procedure. The first consists of building economic climate indicators. They 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: 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 equal 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 broadly on the basis of two criteria: the representativeness of the sector in question and historical tracking performance vis-à-vis GDP growth.

In the second step 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 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),<sup>18</sup> is to identify economic growth trends in the euro area, using as input all the confidence indicators derived from the surveys of industry, services, building, and consumers. This model is symmetric in signalling turning points. TPI values within the  $\pm 0.25$  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 draw very close to or reach  $\pm 1$ : 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).

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<sup>18</sup> 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.