# European Business Cycle Indicators

N.B.: Business survey data since May 2010 are classified in accordance with an updated version of the Nomenclature of Economic Activities (NACE Rev. 2); recent developments should therefore be interpreted with caution.

- **Economic sentiment improves further in both the EU and the Euro Area**
- **Services are the main contributor of the overall improvement**
- **Confidence in industry strengthens further mainly driven by Germany**
- **Confidence among consumers gains momentum in the euro area**
- **Special focus: Autumn Investment survey**

In November, the Economic Sentiment Indicator (ESI) improved further in both the EU and the euro area. The indicator increased strongly, climbing by 1.2 points to 105.1 in the EU and by 1.5 points to 105.3 in the euro area. These results were boosted by strong positive readings in Germany. However, these surveys are carried out mainly during the first two weeks of the month and therefore may not capture possible changes in sentiment resulting from the most recent sovereign debt tensions, which intensified in the second half of the month.

GRAPH 1a: ESI and GDP growth for the EU

$\rho_{98-09} = 0.93$

Real GDP growth
Economic Sentiment (RHS)
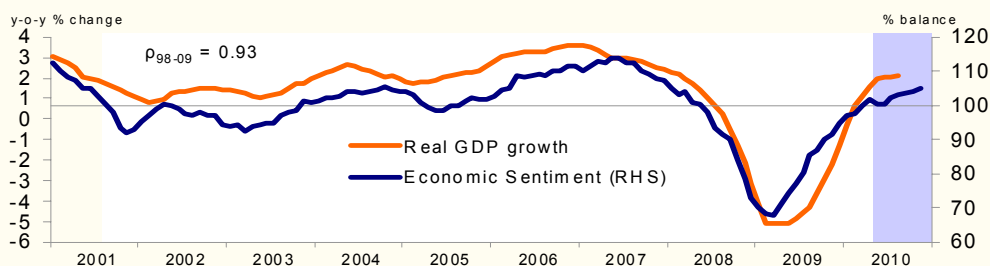
GRAPH 1b: ESI and GDP growth for the euro area

$\rho_{98-09} = 0.95$

Real GDP growth
Economic Sentiment (RHS)
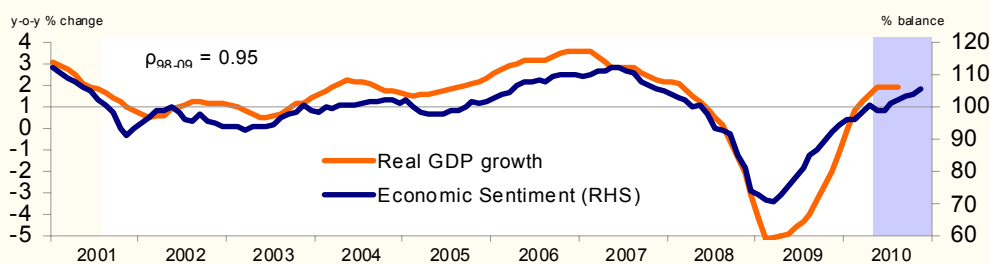
Source: European Commission

Note 1: The horizontal line (RHS) marks the long-term average of the sentiment indicator (100 = average for 1990 to 2009).
Note 2: Both series are plotted at monthly frequency. Monthly GDP data are obtained by linear interpolation of quarterly data.

Confidence in industry improved by 0.9 points in the euro area and by 0.7 points in the EU, mainly driven by buoyant German industry. Gains in industrial confidence in the euro area reflected improvements in

order books and production expectations. Export order books have also become more upbeat, in both the EU and the euro area. The recent trend in the indicator suggests that the recovery of economic activity in industry will continue in the coming months (Graph 2). However, the broad stability of recent production trends as reported by enterprises since the end of the summer suggests that industry has reached a more mature stage of its cycle. According to the six-monthly industrial investment survey, which was carried out in October and November of 2010, managers expect to increase their investment volumes by 4% in the EU and by 2% in the euro area in 2011, as compared to investment in 2010 (see the Special Focus of this issue for more detailed information).

GRAPH 2: Industrial confidence indicator and industrial production for the euro area
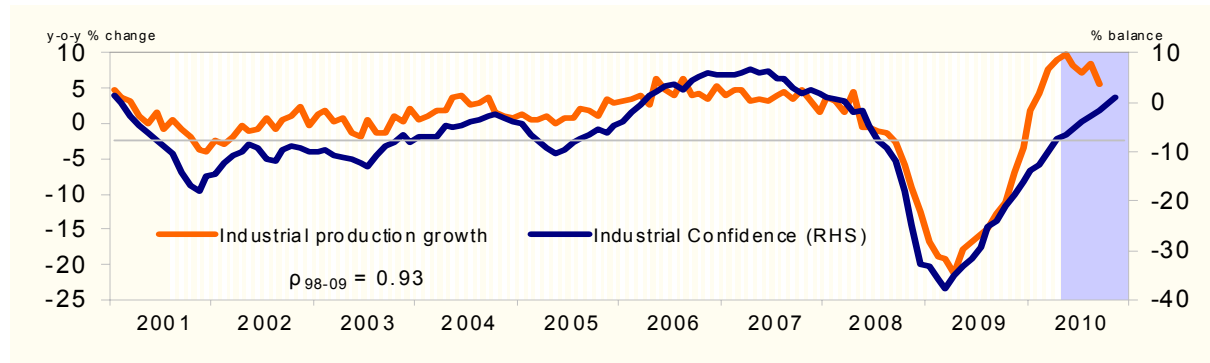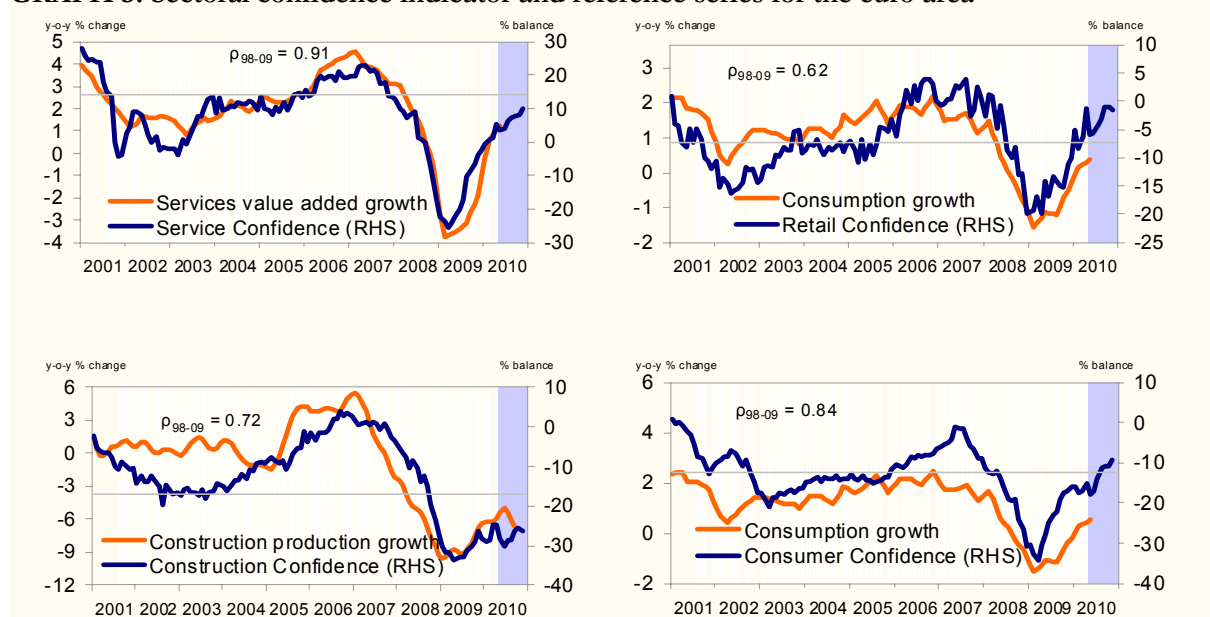

Source: European Commission

Note: The horizontal line marks the long-term average of the confidence indicator.

Sentiment in services increased markedly — by 2.1 in the euro area and by 3.0 in the EU — and was the main contributor to the overall gain in the ESI. Most respondents in this sector reported improved assessments of demand and business situation over the past three months. Sentiment in the retail sector decreased by 0.8 point in the EU and remained broadly unchanged in the euro area (-0.4). After improvements in September and October, sentiment in construction fell back in both regions (-0.9 the EU and -1.0 in the euro area), mainly owing to sizeable negative readings in Spain (Graph 3).

As indicated in the flash estimate released on 22 November, confidence among consumers gained momentum in the euro area (+1.5), while it increased only marginally in the EU (+0.5). Increased optimism about the general economic situation and a significant easing of unemployment fears in Germany contributed to the overall improvement. At the individual country level the picture is mixed, but a majority of countries showed an overall improvement or stabilisation in consumer confidence.

GRAPH 3: Sectoral confidence indicator and reference series for the euro area

Source: European Commission

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Economic sentiment indicators for the five largest EU Member States

In general, the ESI improved or remained broadly stable in most Member States. Of the seven largest Member States, Germany and Italy registered significant increases, while improvements were less pronounced in the UK and the Netherlands. Sentiment remained broadly stable in Spain, Poland and France. In Germany, France, the UK and the Netherlands the ESI is above its long-term average.

Germany reported the most significant increase (+2.8) in the ESI. The improvement in sentiment was broadly based among business sectors and consumers. The increase was particularly strong in retail trade (+6.2) and among consumers (+4.2), which were more optimistic about the future general economic situation and unemployment developments in Germany. Marked increases in confidence were also observed in industry (+2.2) and services (+1.8), while confidence remained broadly unchanged in construction (+0.2).

Italy also reported an increase in the ESI (+1.4). Improved confidence in services (+6.2) and construction (+2.0) was partly offset by a marked decline in retail trade. Sentiment in industry and among consumers remained roughly stable.

In Spain, sentiment remained broadly unchanged (+0.3) and the level of the ESI remains the lowest among the largest EU Member States. This situation was the result of a marked decline in construction (-11.1) and a minor decrease in consumer confidence which was more than offset by positive developments in industry (+0.4), services (+1.0) and retail trade (+2.4).

Sentiment was broadly stable also in France (-0.2). Improvements in construction (+2.0), services (+0.9) and among consumers (+0.8) contrasted with a sizeable decrease in industry (-1.1) and a dramatic decline in retail trade (-7.9). The latter reflects sharp declines in the managers' assessment of both the present and future business situation.

The UK reported a moderate increase in the sentiment indicator (+0.5). The large gain in optimism registered in services (+5.7) was almost counterbalanced by worsening sentiment in the other sectors and among consumers.

GRAPH 4: ESI and GDP growth (year-on-year) for the five largest EU Member States
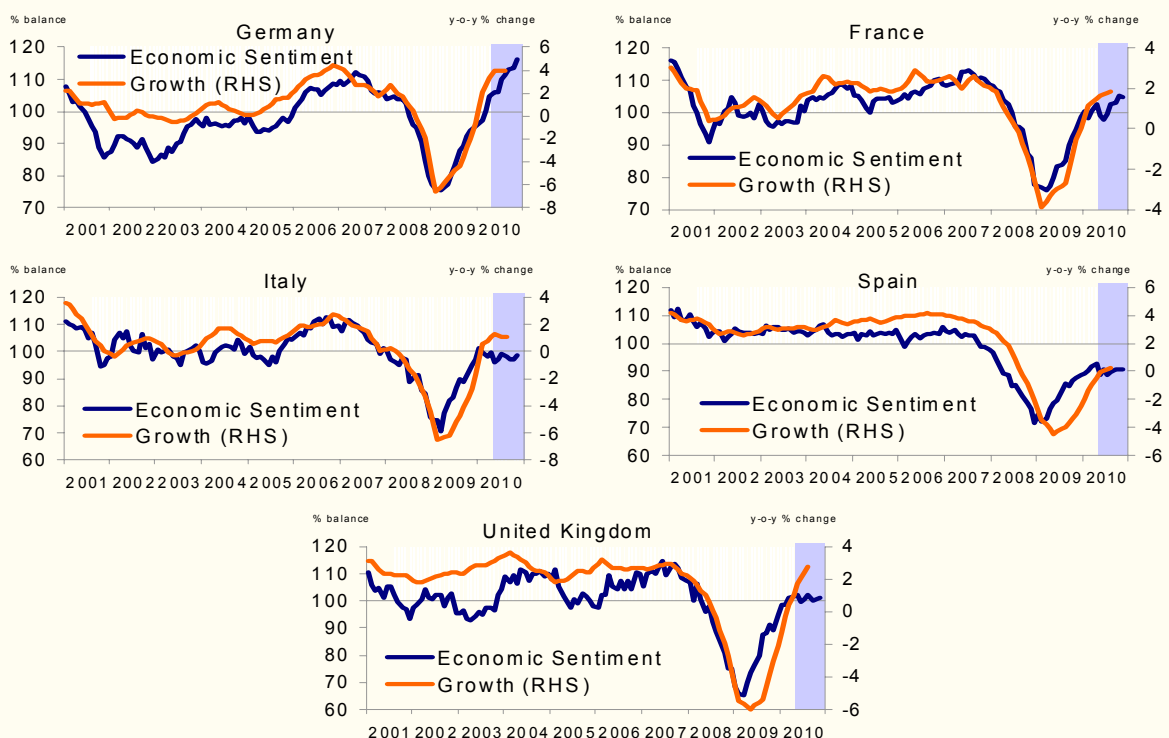
Note: The horizontal line marks the long-term average of the sentiment indicators.
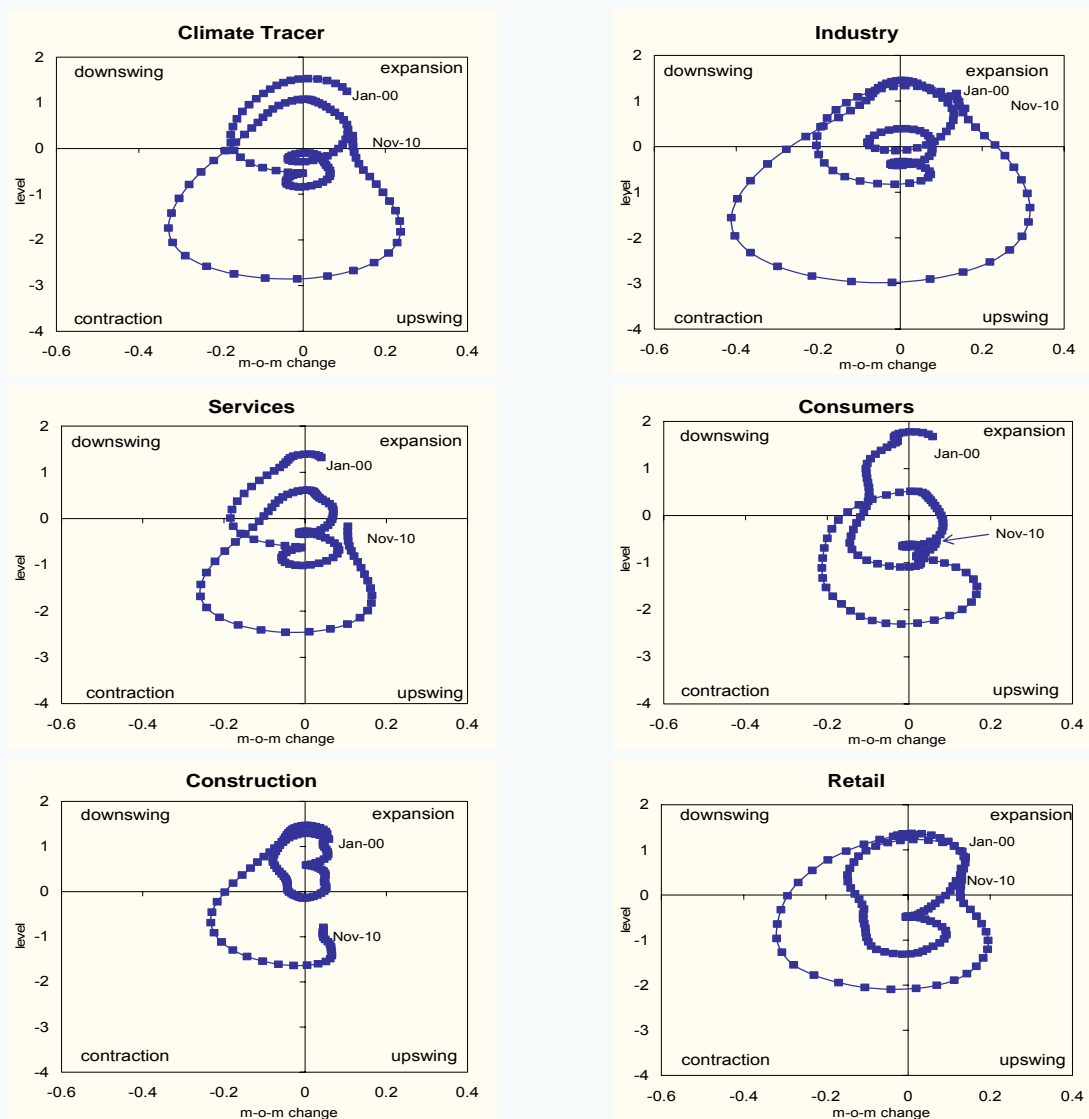
The economic climate tracer

Graph 5a shows the economic climate tracer (and its sectoral components) for the euro area. The graph distinguishes between four phases of the business cycle — represented by its four quadrants — namely 'expansion' (top right), '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.

Based on NACE Rev. 2 input data since May 2010 and NACE Rev. 1 data until April, the economic climate tracer for the euro area is currently in the expansion quadrant. The climate tracers for industry and the retail trade are firmly in the expansion quadrant, while consumers and construction are still in the upswing phase, with construction lagging behind. Services are also still in the upswing phase but, owing to the strong gains registered in November, are now close to the border with the expansion quadrant.

> This section shows the economic climate tracer (ECT): both cyclical movements (Graphs 5a and 5b) and its most recent values across sectors (Graph 6). The economic climate tracer is compiled from a larger set of series than the ESI and involves a smoothing step (see Annex 1 for details). As a consequence, the resulting message may differ from the analysis set out in previous sections.

GRAPH 5a: Economic climate tracer across sectors, euro area

Source: European Commission

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Graph 5b displays the economic climate tracer for the five largest Member States in the EU. Germany is firmly in the expansion phase, and is followed by France. The UK is also in the expansion area but just above the border with the upswing phase. Italy and Spain are still in the upswing quadrant, with Spain lagging behind.

GRAPH 5b: Economic climate tracer for the five largest EU Member States
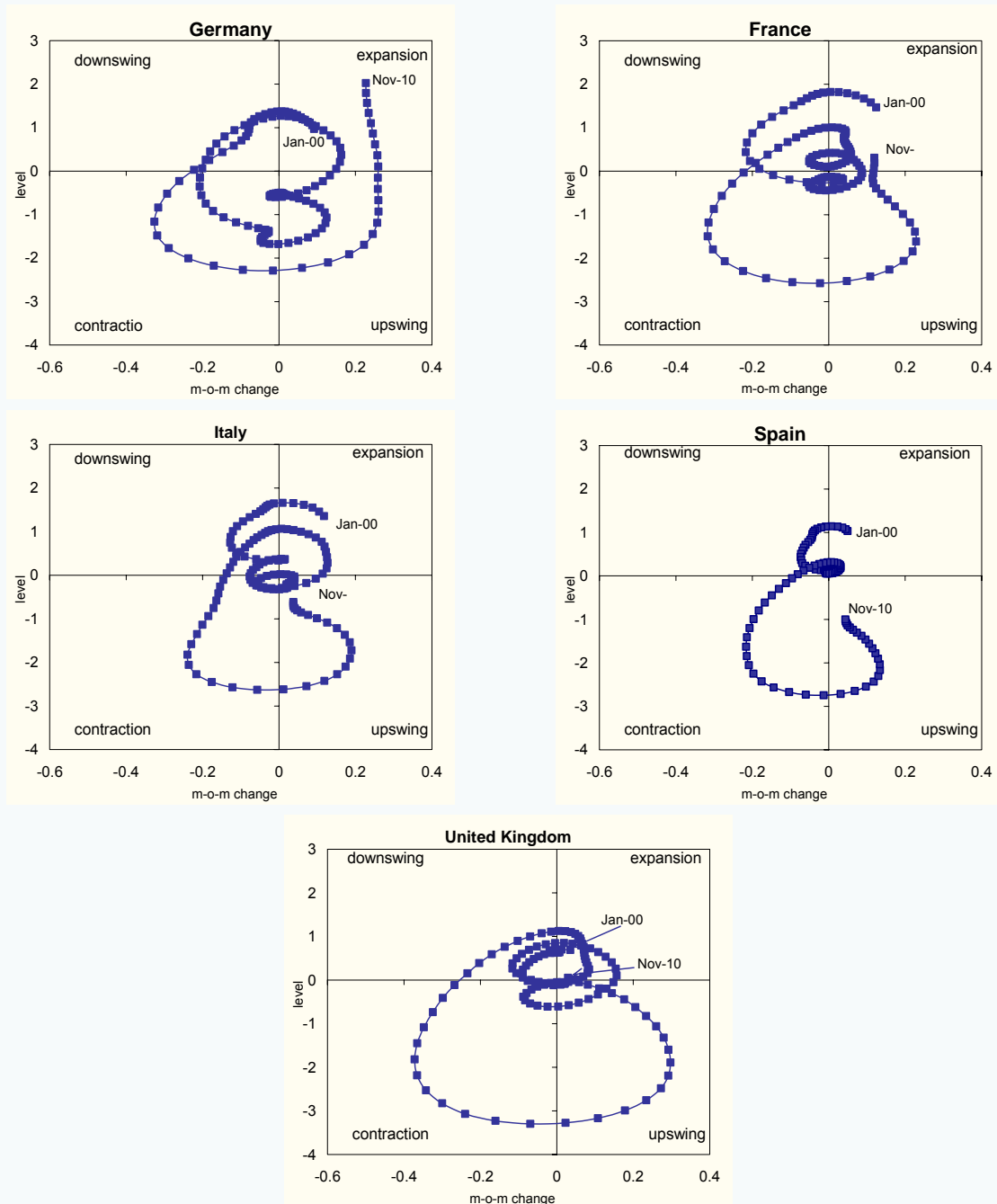
Source: European Commission

Graph 6 shows the latest values for the climate tracer, broken down by sector. Germany is firmly in the lead, with all sectoral climate tracers in the expansion quadrant. The picture is more contrasted for the other countries. In particular, industry is in the expansion quadrant in the UK, France and Spain. The same is true for retail trade in both France and the UK. The climate tracer of the services sector is in the expansion phase in Germany and France, while it remains on the border between the contraction and the upswing area in Italy, Spain and the UK. The consumer climate indicator is in the contraction phase in Italy (although close to the border with the upswing area) and the UK is in the upswing quadrant — but just near the border with the contraction area — in France and Spain.

**GRAPH 6: Sectoral breakdown of the climate tracer for the five largest EU Member States**

Source: European Commission

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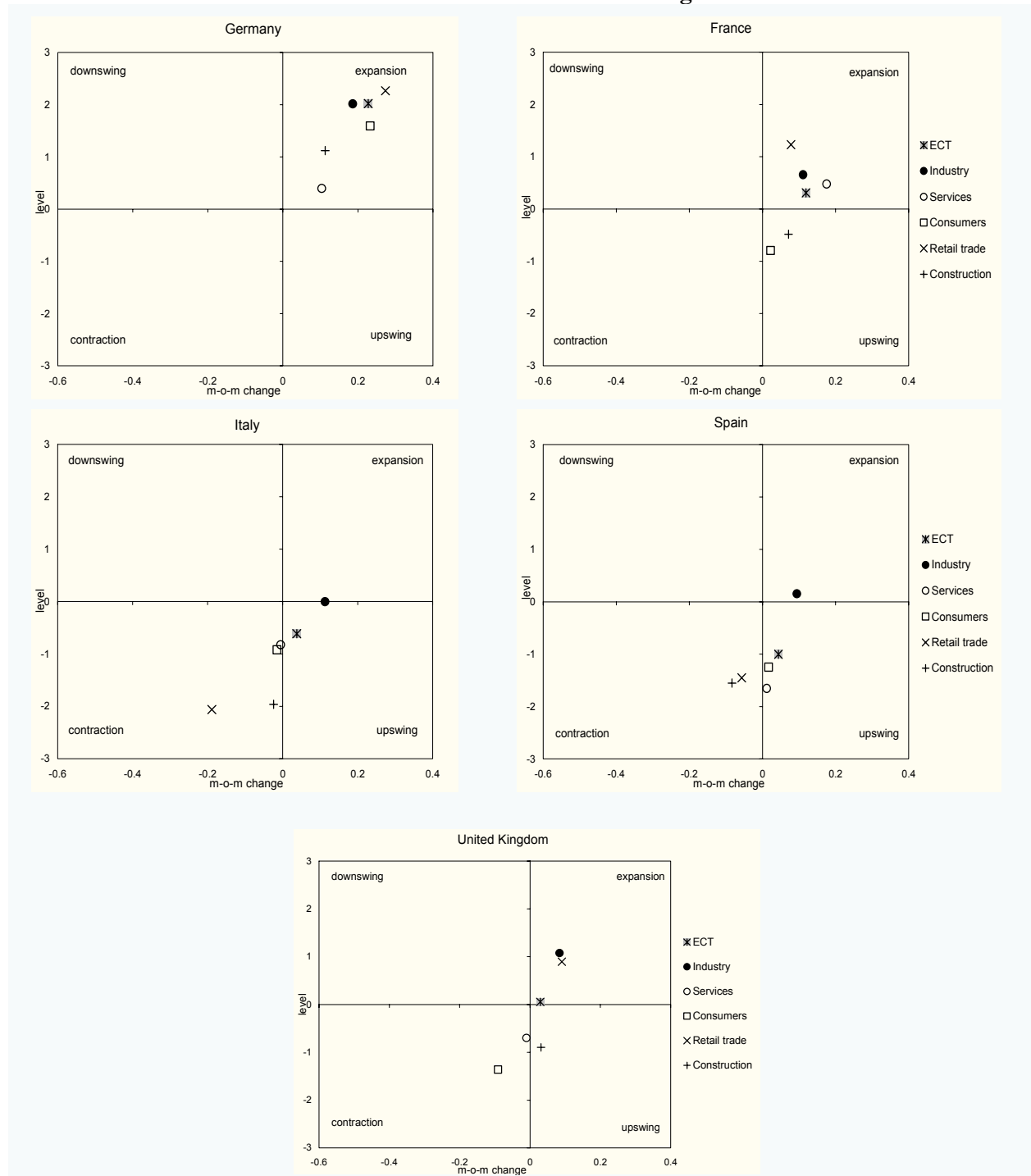
Euro area turning point index

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) remained very high in November at 0.97.

By design, the computation of the turning point aims to extract the surprises — positive or negative — from new information in the surveys. As confidence has picked up again, the TPI therefore reveals a positive change and signals a possible favourable cyclical phase, suggesting that GDP growth (q-o-q) is likely to be above the rate of potential growth in 2010Q4 (see Annex 1 for details).

GRAPH 7: Turning point index for the euro area
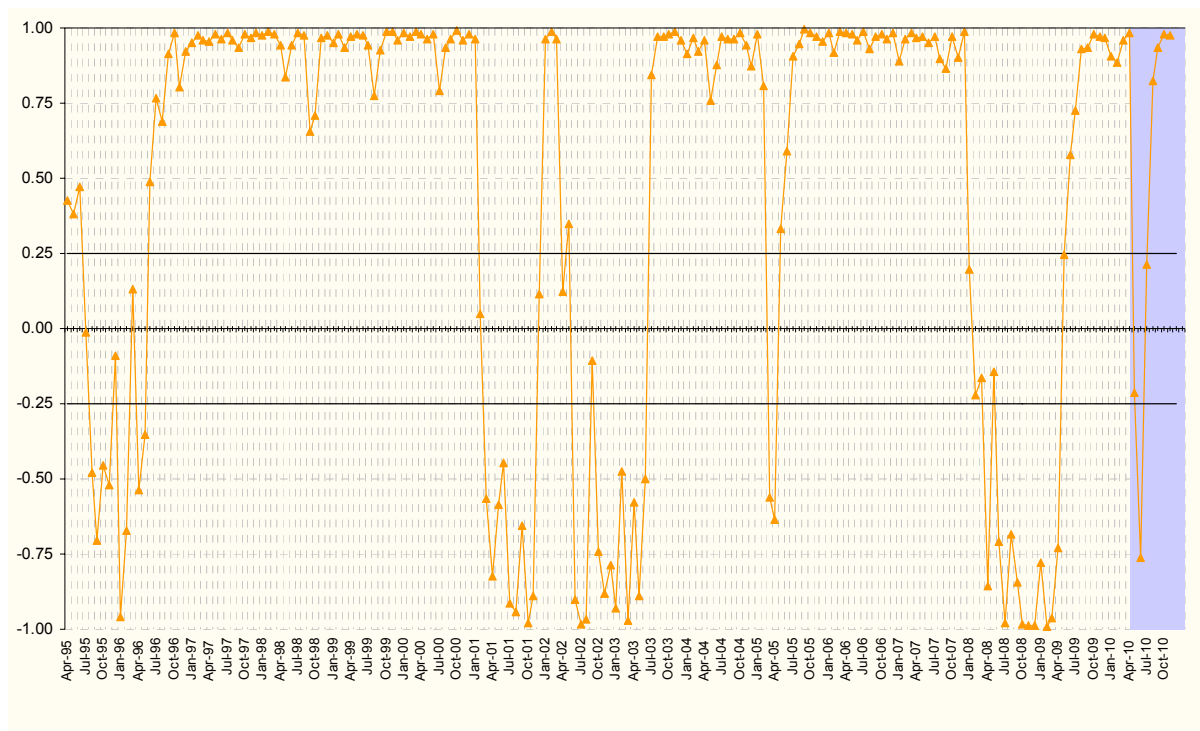
Source: European Commission

Results of the autumn EU investment survey in the manufacturing sector
by **Roberta Friz**

This month's special focus presents the results of the latest Investment survey for the EU and large Member States, conducted in October and November 2010.

In this survey, firms are requested to reveal their investment expectations for the current year and the next year.

Developments in investment expectations

According to the latest Investment survey, investment in the EU is expected to shrink by almost 4% in 2010, which is an improvement compared with developments in 2009 (an actual drop of -12.1% and an expected drop of 18% in the previous survey conducted in March/April 2010). The drop in investment for 2010 is expected to be 2 percentage points more than in the previous survey[1] (see Chart 1). Concerning 2011, managers expect an increase in investments of around 4%. Results for the euro area are somewhat more pessimistic, as managers anticipate an overall drop of 9% in investment in 2010 and an increase of 2% for 2011.

Overall, the Investment survey paints a picture that is broadly consistent with the European Commission's autumn forecasts, according to which gross fixed capital formation in the EU is due to contract by 0.6% in 2010 (up from -12.1% in 2009) and expand again by 2.5% in 2011. 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.

Chart 1: Growth in Real Gross Fixed Capital Formation (GFCF) and surveyed change of investments in the EU, annual percentage changes
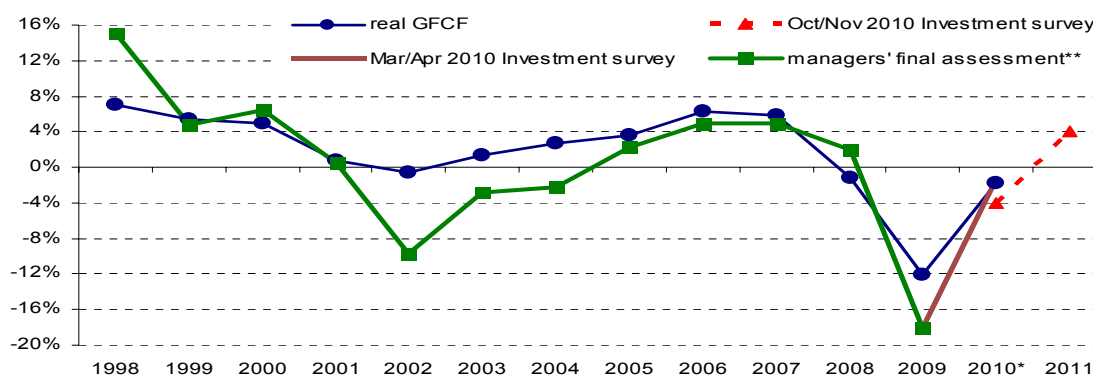
* 2010 GFCF is based on the first half of 2010 (compared with the first half of 2009).
** Managers' assessment of investment in year t done in the March/April Investment surveys of the year t+1.
*** In order to compare surveyed changes of investment to real investment growth, as measured by gross fixed capital formation (GFCF), the surveyed percentage change of investment is deflated by the deflator of equipment investment in the AMECO database.
Source: Commission services.


[1] The two surveys should be broadly comparable; however, one should bear in mind that there has been a change of nomenclature between the two surveys. More information on NACE revision and Business surveys is available in the Special Topic of the May 2010 issue of the European Business Cycle Indicators http://ec.europa.eu/economy_finance/publications/cycle_indicators/2010/pdf/ebci05_en.pdf).

Investment dynamics by sector

Looking at the breakdown by sector (see Chart 2), the envisaged cut in investment spending in 2010 affects all sectors, although it is likely to be more drastic for the Intermediate goods sector, with a decline of 5%. In the Consumer goods industry, investment by the Motor vehicle sector is likely to contract by 2%.

The outlook for 2011 is more optimistic. All sectors, except Durable consumer goods, are expected to increase investment in 2011. Managers in the Durable consumer goods sector are expecting a further 5% drop, while managers in the Motor vehicle sector anticipate an increase of 14%.

**Chart 2: Surveyed change of investments in the EU by sectors, annual percentage changes**

Autumn 2010 Investment survey
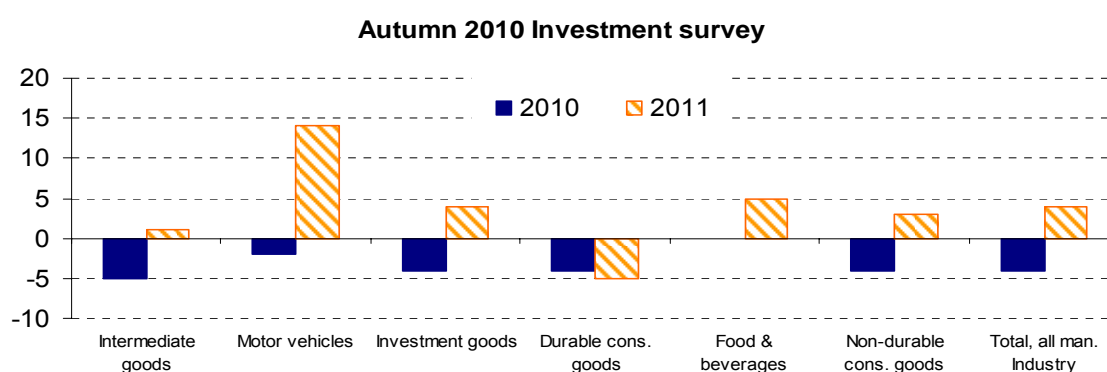
Source: Commission services.

Investment by class of enterprises

According to the survey, enterprises of all sizes are likely to experience contractions in investment in 2010 (see Chart 3), but the decline is expected to be more severe among either small or very large enterprises (respectively, those employing fewer than 50 or more than 500 people), with a decline of around 5% in both segments. Also, medium and large companies (employing between 50 and 500 people) plan to reduce investment in 2010 (by 4%). As for 2011, small enterprises expect to decrease their investments further by an additional 12%, while medium, large and very large enterprises plan to increase their investments by 1%, 3% and 11% respectively.

**Chart 3: Surveyed change of investments in the EU by company size, annual percentage changes**

Autumn 2010 Investment survey

Source: Commission services.

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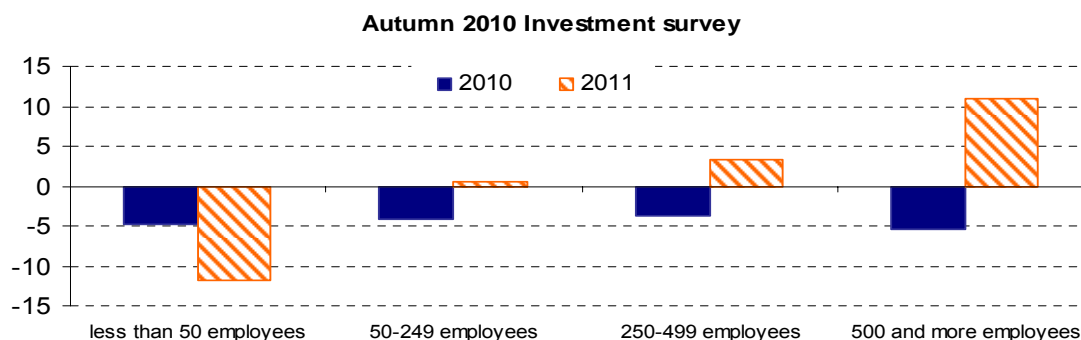
Factors influencing investments

The Investment survey also provides information on the factors influencing investment, namely: (i) demand, (ii) financial conditions, (iii) technical factors (e.g. technological factors and the availability of labour) and (iv) other factors (e.g. taxation and the possibility of moving production abroad). While technical factors remain a prominent motivation, both demand and improving financial conditions are seen as increasingly important drivers for investment in 2010 and 2011 (see Chart 4).

**Chart 4: Factors influencing investments, balance statistics***
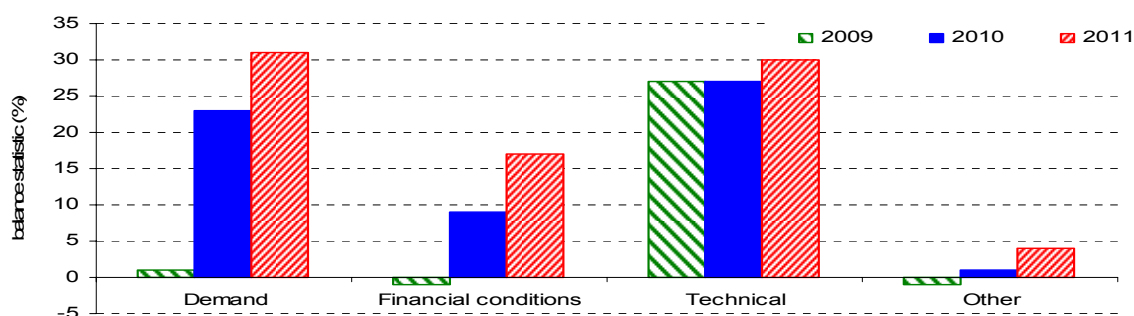
*Balances are the weighted averages of the percentages of answers describing each factor as 'very stimulating' (coefficient 1), 'stimulating' (0.5), 'limiting' (-0.5) and 'very limiting' (-1). The answers which do not mention any of these descriptions are not taken into account in calculating these percentages.
Source: Commission services.

Investment structure

In the context of the Investment survey, firms are also asked to assign their investments to four categories: (i) replacement of worn-out plant or equipment, (ii) extension of production capacity, (iii) investment designed to streamline production (rationalisation), and (iv) other investment objectives (pollution control, safety, etc.). In both 2010 and 2011, the largest share of investments goes to replacement. The share of investment earmarked for extension is expected to remain in second place in both 2010 and 2011. Nevertheless this is an increase compared with 2009, when extension accounted for only around 26 % of investment. This is in line with the fact that capacity utilisation increased after sinking to its historically lowest level in 2009[2]. Investment to streamline production is expected to be the third factor.

Chart 5: Investment structure, percentage of total investment
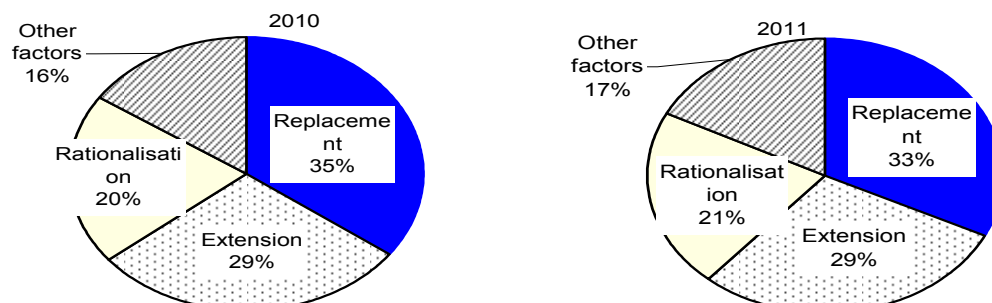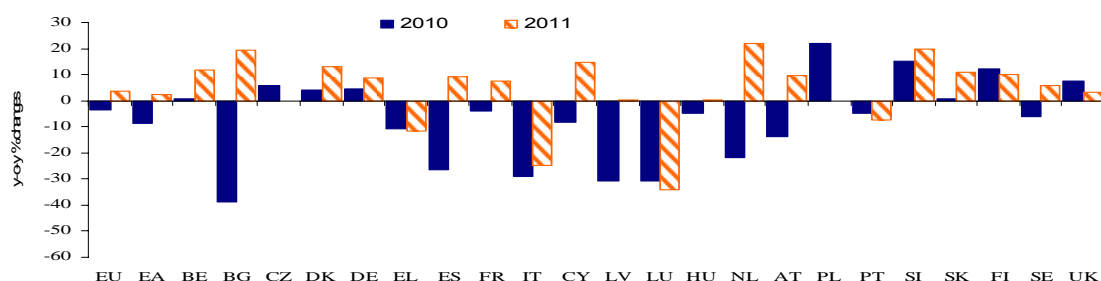

Source: Commission services.

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[2] Companies in the manufacturing sector are asked on a quarterly basis to indicate at which percentage of their production capacity they are operating.

Special focus

Developments by country

The further decrease in investment which is expected for the EU as a whole in 2010 will also take place in around half of the Member States, while for 2011 the increase expected at the EU level will be broad-based, with gains in most of the Member States (see Chart 6).

In the largest Member States, managers' expect their investment in 2010 to increase by 5% in Germany, by 8% in the UK and by 22% in Poland, whereas they anticipate a further contraction in Italy (-29%), Spain (-26%), the Netherlands (-22%) and France (-4%). For 2011, managers in the largest Member States expect their investments to increase by 22% in the Netherlands, by 9% in Germany and Spain, by 8% in Poland, by 7% in France and by 3% in the UK. Only the Italian managers expect a further decrease of 25% in 2011.

Chart 6: Surveyed change of investments in the EU Member States, annual percentage changes
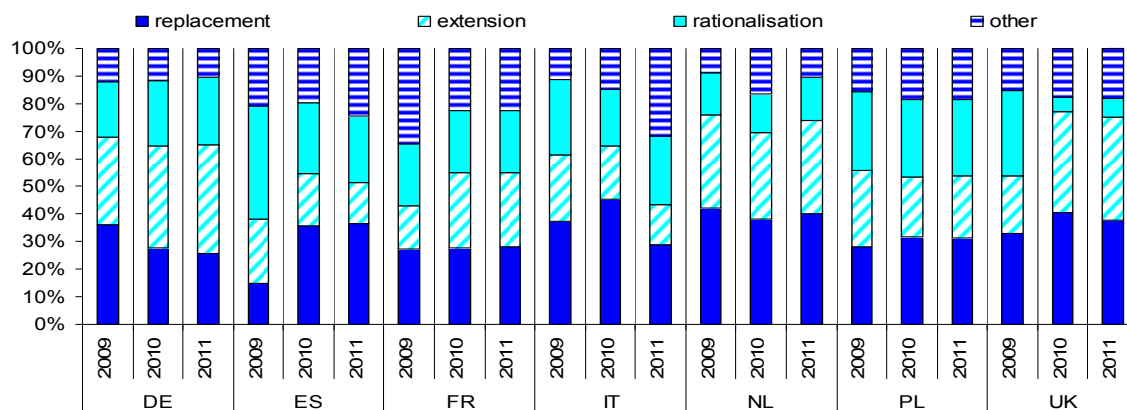

Source: Commission services.

Note: Estonia, Latvia and Romania figures are missing, as the corresponding data are still under verification. No investment survey is conducted in Ireland.

The structure of investment in 2010 varies across countries (see Chart 7). Nevertheless, in all the largest Member States except for Spain and Italy, the expected investment mainly serves replacement or extension needs. In Spain and Italy, investments should be mainly driven by replacement and rationalisation needs. In 2011, the structure of investment in the large Member States is expected to remain broadly unchanged. In Spain, however, we can observe a shift of investment from capacity extension towards other factors and, in Italy, from replacement to other factors such as pollution control, safety, etc.

Chart 7 Structure of investments in the big Member States in 2009, 2010 and 2011, share in %

Source: Commission services.

Chart 8 shows which factors are stimulating or limiting investment in the largest Member States in 2010 and 2011. In 2010, technical factors seem to be the main driver of investment in all Member States except Spain and UK. Demand is generally seen as the second most important driver, except in Italy and in the UK where it dominates. This pattern remains broadly stable for 2011, although the role of demand as a stimulating factor is expected to increase.

Chart 8 Factors influencing investment decisions in 2010 and 2011
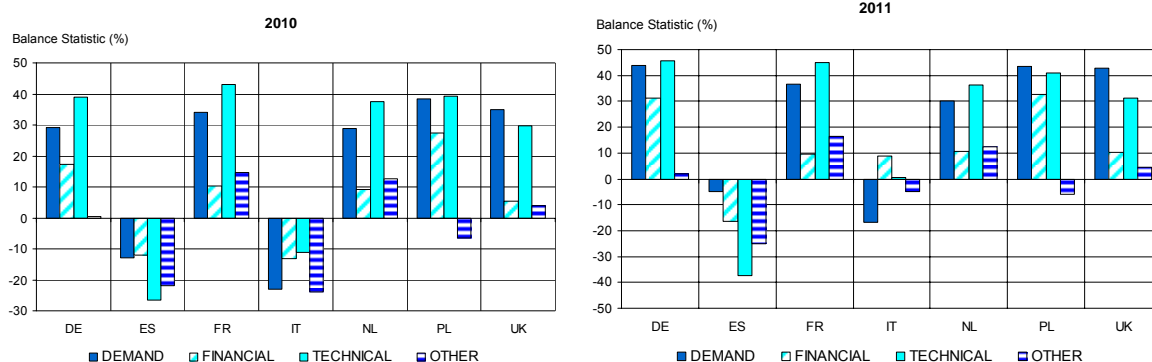
Source: Commission services.

Looking at the breakdown by size of enterprises (see Chart 9) across countries, the situation in 2010 appears broadly negative across all size categories. Only small, medium and very large enterprises in Germany, medium, large and very large firms in Poland, medium-sized firms in France and all-size enterprises in the UK report an increase in their investment in 2010. In 2011 the situation is more mixed across countries and enterprise size. Small companies, in particular, expect to cut investment in all of the observed Member States, except France and the UK.

Chart 9: Surveyed change of investments in by size, annual percentage changes
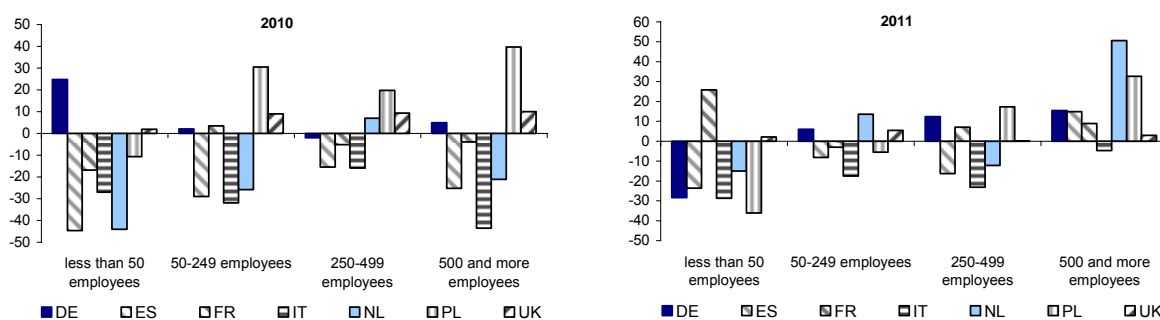
Source: Commission services.

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

Note: Monthly data are obtained by linear interpolation of quarterly data.

Economic Sentiment Indicator

The economic sentiment indicator (ESI) is a weighted average of the balances of 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:
http://ec.europa.eu/economy_finance/db_indicators/surveys/method_guides/index_en.htm
Long time series of the ESI and confidence indicators are available at:
http://ec.europa.eu/economy_finance/db_indicators/surveys/time_series/index_en.htm.

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, 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. In the case of the euro area, the first principal component explains between 65% (retail) and 92% (industry) of the variance of the input balance series in question.

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)[3], 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, retail trade and consumers. 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 draw 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).

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[3] 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.