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European Business Cycle Indicators

Developments in business and consumer survey data in 2011Q4

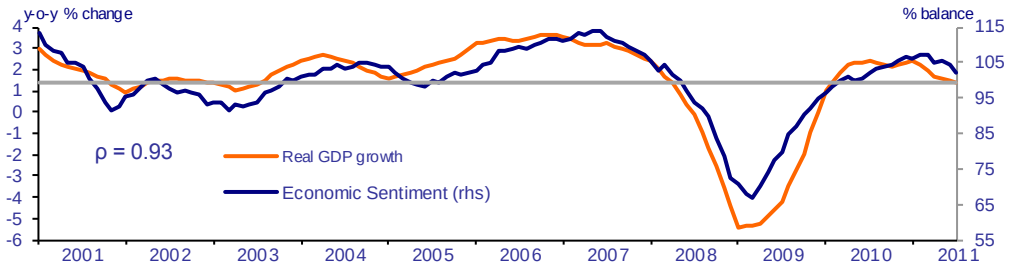
- **Broad-based deterioration in survey readings among EU Member States and across sectors points to a weakening of economic activity in 2011Q4.**
- **The deterioration reflects subdued domestic and external demand and the increasing impact of tensions on the financial markets on consumer sentiment.**
- **There were signs of improvements in some components of managers' sentiment in December.**
- **Consumers' concerns about the general economic situation and the labour market continued to increase in the last quarter, reflecting worries about financial market developments and the debt crisis.**
- **Managers in the EU reported an increase of their investment in 2011 and expect a broadly stable situation in 2012.**

Highlight: the relevance of BCS data for assessing new orders in manufacturing

This highlight section examines two major questions: 1) whether survey data track new orders and can be used as a proxy for the hard data; and 2) what is the information content of the survey data on orders (i.e. what do they actually measure). It concludes that industry survey data on orders contain relevant information to assess new orders, and that a model-based proxy - based on survey data and industrial turnover - could be built to fill in the gap left by the probable forthcoming discontinuation of the new orders index.

ESI and GDP growth for the EU

(Jan 2001 to December 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 fourth quarter of 2011, the Economic Sentiment Indicator (ESI) further dropped in both the EU and the euro area. In December, the ESI was below its long-term average in both regions, at 92.0 in the EU (1.9 points lower than in September 2011) and 93.3 in the euro area (1.7 points lower than in September 2011). The decline was, however, less pronounced than during the previous quarter and December saw preliminary and tentative signs of stabilisation in some indicators. The worsening in sentiment in the fourth quarter was widespread among EU Member States and reflected a broad-based deterioration across sectors.

Sentiment in *industry* continued to worsen in the last quarter of 2011 although the pace of deterioration eased compared with the previous quarter, and in December the confidence indicator remained broadly stable. The indicator now stands just below its long-term average. On a quarterly basis the drop was strong in all the seven largest Member States except Poland and the Netherlands that registered only a minor decrease. Compared with October 2011, the evolution of the industrial confidence indicator during the last two months in Germany remained broadly stable suggesting that the downward trend may have come to an end.

In both the EU and the euro area, the decline in industrial confidence in the fourth quarter, reflects a worsening of all the three components of the indicator (order books, stocks and production expectations). However, in December 2011, managers in both the EU and euro area became somewhat more optimistic about their production expectations. Moreover, in the euro area, managers' assessment of production trends observed during recent months and export order books (two variables which are not included in the Industrial Confidence Indicator) also improved that month. Survey results therefore suggest that manufacturers are caught between the opposing forces of persistently weak domestic demand – as signalled by continuous decreases in order books and excessive inventories – and signs of a recovery of external demand – as evidenced by an increasing export order book. Manufacturers' employment prospects remained on a downward trend in 2011Q4 in both regions, while selling-price expectations picked-up in November and December.

Quarterly survey data published in October 2011 shows that capacity utilisation continued its downward trends in both the EU and the euro area. At 80.0% in the EU and 79.7% in the euro area, capacity utilisation is below its long-term average.

During 2011Q4, sentiment in *services* worsened further in both the EU and the euro area. In December, 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' assessments of the past business situation and past evolution of demand deteriorated markedly compared with the third quarter. In the EU, also demand expectation declined during the fourth quarter but the drop was smaller than in the previous quarter. In the euro area, managers became slightly more optimistic about demand expectations in December 2011. The developments of the confidence indicator were fairly similar across countries. Of the seven largest Member States, the Netherlands, Spain, France, Poland and Italy have all seen marked deteriorations of sentiment in services during the quarter, while in the UK and Germany the decline was less pronounced.

In 2011Q4, the *retail* confidence indicator further declined. The decline 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. The retail confidence indicator, which has been almost continuously on a downward path since January 2011 in both the EU and the euro area, started to show some signs of stabilisation at the end of the year and improved somewhat in December 2011 in the EU.

In both regions, sentiment in *construction* declined further in 2011Q4 compared with 2011Q3. The worsening reflects managers'

increasing pessimism about both their order books and their firm's employment prospects. Among the large MS, in the fourth quarter 2011, the confidence improved in Italy and Spain, where the indicator however remained at very low levels. By contrast, in Germany sentiment somewhat worsened compared with the previous quarter.

Confidence among *consumers* deteriorated markedly over the fourth quarter. The indicator stands now well below its long-term average. The deterioration can be traced back to consumers' expectations about the general economic situation and to their unemployment fears. Consumers' assessment of their expected financial situation and their appraisal of expected savings 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 fourth quarter. On a more positive note, despite the fact that a growing percentage of respondents reported that this was not the right time for making major purchases, consumers' future intentions to spend more money on big-item purchases increased slightly in 2011Q4.

Finally, the last quarter of 2011 also saw a further 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 further weakening of economic activity in 2011Q4 in both the EU and the euro area. The deterioration is broad-based across sectors and countries. It reflects subdued domestic and external demand and the increasing impact of tensions on the financial markets on consumer sentiment. On a more positive note, there are improvements in some components of managers' sentiment in December. These improvements, stemming mostly from the manufacturing sector, will have to be confirmed in the months to come.

That the dynamics of the EU and euro-area economies has now become more difficult to read is also confirmed by conflicting signals from the climate tracer and the turning point indicator. The economic climate tracers of both the EU and the euro area went deeper in the contraction quadrant in December 2011 (see Annex 1 for further details). By contrast, in October, November and December, the turning point indicator for the euro area — which extracts the (positive or negative) surprises from new available data — switched to positive territory, signalling a positive change and a possibly more favourable cyclical phase for the euro-area economy (see Annex 2 for further details).

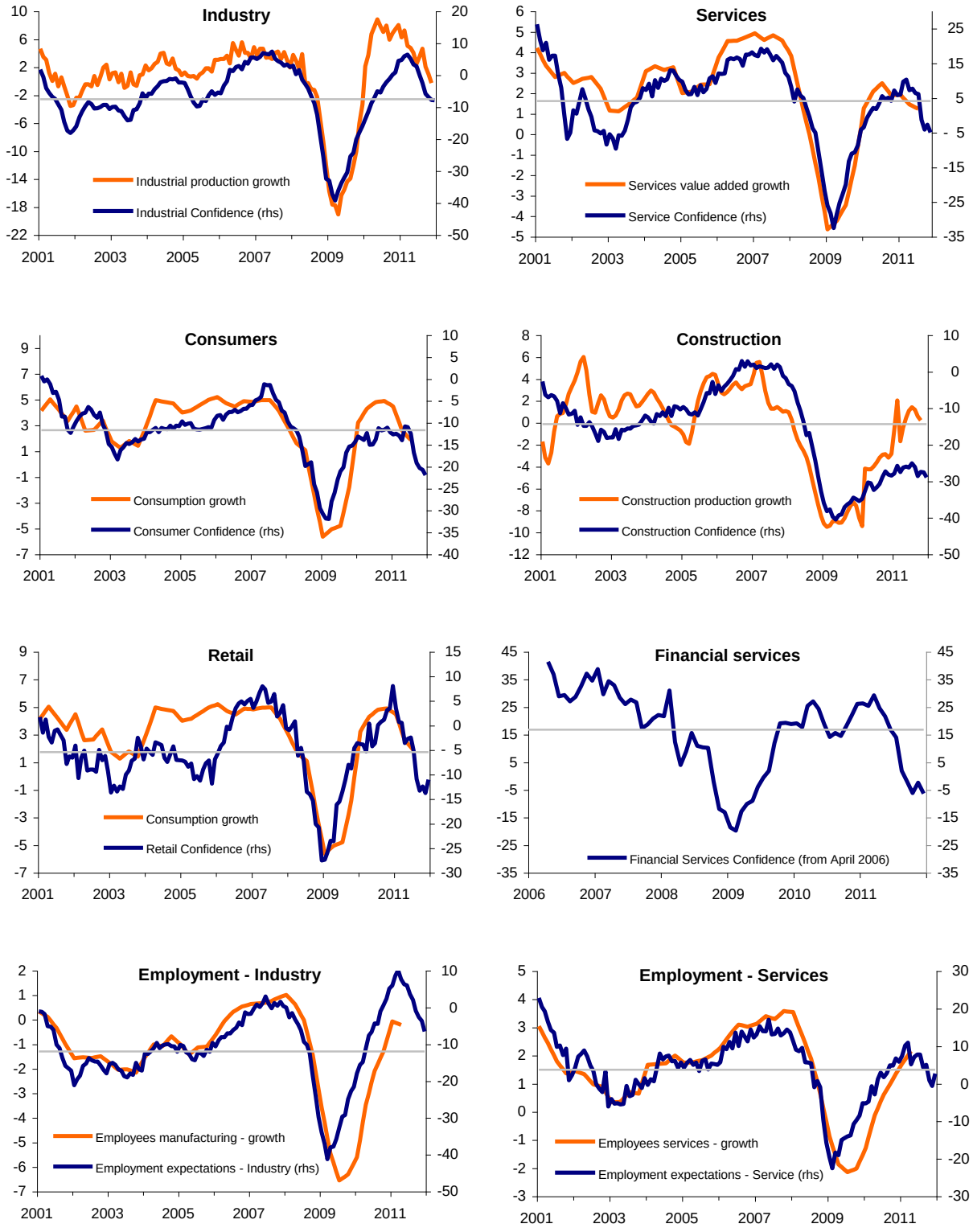
2. Recent developments in selected Member States

Against the background of a mixed sectoral picture, sentiment in **Germany** showed some signs of stabilisation in November and even a moderate pick-up in December. In terms of quarterly averages, however, the dynamics remained clearly negative with a fall in confidence compared with the quarter before in all the sectors. The largest quarterly losses in confidence occurred for manufacturing and consumers. Increased pessimism among manufacturing managers was due to significant deterioration in both the assessment of order-book levels and production expectations. Moreover, the level of stocks was assessed as being too large by a considerably higher number of managers. The worsening in consumer confidence was caused by a deterioration in households' assessment of the future general economic situation as well as by increased unemployment fears. This average quarterly picture hides, however, significant changes in the monthly dynamics in some sectors. In particular, manufacturing confidence remained flat in November and December, with production expectations even registering a pick-up over those two months. Services registered a significant recovery in confidence in December that can be traced back to both the backward and forward looking appraisals of demand.

In **France**, sentiment continued to decline in quarterly terms in Q4, but the drop was more moderate than in the previous quarter. The quarterly decrease in economic sentiment was the largest among the biggest Member States and was broad-based across sectors with services and industry registering the largest

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

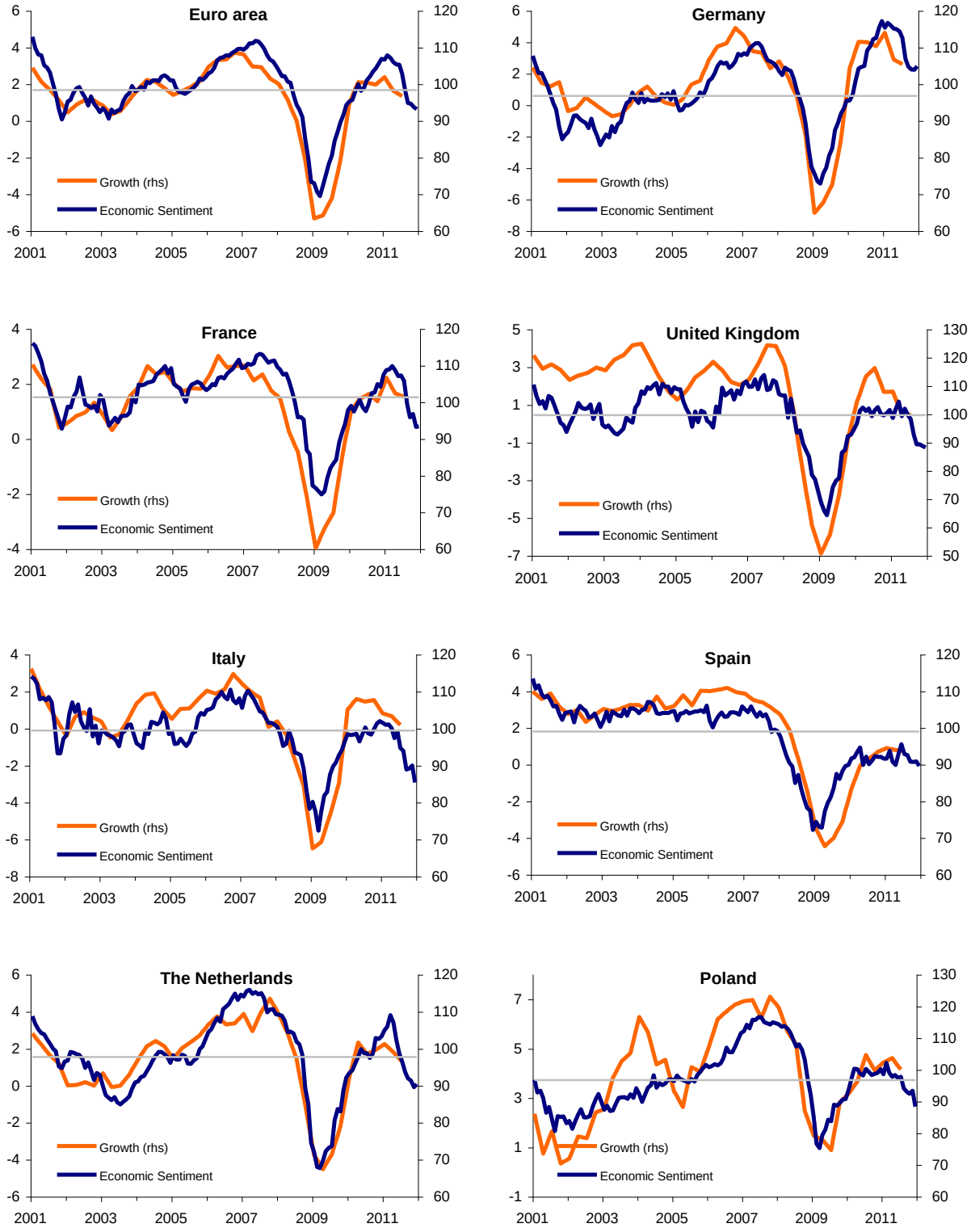
(Jan 2001 to December 2011 for survey data)



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 December 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.

losses. The confidence deterioration in manufacturing was due mainly to increased pessimism related to production expectations and to an excessive level of stocks. Confidence deteriorated sharply in services due to a weaker assessment of the past business situation and demand and, to a lesser extent, of expectations on future demand. On the consumer side, a more negative assessment of both the general economic situation and the employment perspectives caused an important drop in confidence. The monthly dynamics during the quarter was somewhat more encouraging than the average quarterly dynamics. Following a decrease in November, the ESI stabilized in December on the back of improvements in retail trade and consumer. Better assessment of the level of stocks and business expectations underpinned the rebound in retailers' confidence, while better unemployment expectations and saving perspectives boosted consumer confidence. The manufacturing and service sectors also reported improvements in some of their forward looking indicators although not for confidence as a whole. Finally, it is worth mentioning that in December managers' appraisals of future employment prospects were at the lowest levels since September 2010 in both manufacturing and services.

The **United Kingdom** reported a further drop in sentiment in the last quarter of 2011 with losses in confidence in all sectors but retail trade. Manufacturing showed the sharpest decrease in confidence mostly due to a worsening of order-book levels and production expectations. A weakening of the assessment of past business situation and future demand dampened confidence in services. Consumer confidence continued its declining path with increased pessimism over the future general economic situation and higher employment concerns. Turning to the monthly dynamics, the ESI registered a slight improvement in December. This was driven by an increase in sentiment in the retail sector on the back of a better appraisal of business developments and expectations. The manufacturing, services and consumer sectors all registered further drops that month. In manufacturing, the December drop was accounted for mostly by the assessment of order-books falling below its long-term average. The fall in services confidence in December was driven by a deterioration in past demand and increased pessimism about demand perspectives. Consumer confidence decreased mainly because of a worsening in the assessment of the general economic situation and consumers' future saving capacity.

In **Italy**, the pace of deterioration in the ESI slowed down in Q4 amid sharp fluctuations in monthly developments with slight improvements in October and November followed by an abrupt drop in December. With the exception of construction, all sectors witnessed significant loses in confidence over the quarter, with the largest loss taking place in the retail sector. In industry, the quarterly balance index on manufacturing production expectations reached its lowest level since Q1 2010. A deterioration of the assessment of past and expected demand was the main factor behind the confidence loss in services, which was particularly sharp in December. Retailers reported business expectations and stocks as the main causes of their increased pessimism. After a significant amelioration in November, consumer confidence dropped again in December with some of its components reaching historical lows (e.g. the balance on saving expectations is now at its lowest since 1990). Following a rather stable path between September and November 2011, construction confidence picked up again in December, reaching a level last recorded in November 2008.

In **Spain**, the deterioration of sentiment over the quarter was the smallest among the biggest Member States though the pace of deterioration picked up somewhat. The deterioration was broad-based across sectors with construction as an exception. In manufacturing, managers' assessment on order-book levels was the main factor behind the confidence decrease. December saw an improvement in production expectations but was not sufficient to offset deteriorations in other components. Following marked improvements in the previous two quarters, confidence in services fell in Q4 mainly due to the assessments of the past business situation and demand. After reaching an historical low in September and a significant recovery in October, construction confidence deteriorated sharply again in December. Despite these large fluctuations, the quarterly average of

confidence in construction was at the highest level of the year 2011.

Sentiment dropped in the **Netherlands**, with all the sectors losing confidence in the fourth quarter. The most significant decreases were observed for consumers, services and retail trade. Consumers' rising unemployment fears and their increasingly negative assessment of the future general economic situation led to the largest quarterly decrease in the sector's confidence in 2011. For the ESI as a whole, December marked the first halt in the worsening pattern since April 2011, owed to a rebound in manufacturing confidence largely supported by strong production expectations.

Economic sentiment declined also in **Poland**, with the biggest quarterly losses reported in services, construction and consumer confidence. In retail confidence remained unchanged. Contrary to other large Member States, Poland showed no improvement in confidence in any sector in December. That month, consumer confidence experienced a very sharp drop, reaching its lowest level since April 2009 largely due to households' increased concerns about their future financial situation and the general economic situation.

3. Results of the autumn 2011 EU Investment Survey[1] in the manufacturing sector

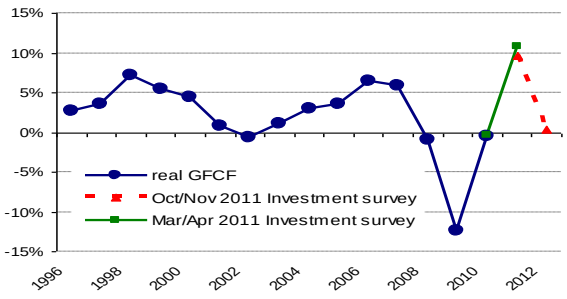
Developments in overall investment

According to the latest Investment Survey, conducted in October/November 2011, manufacturing investment in the EU is estimated to have increased by almost 10% in real terms in 2011, which is a marked improvement compared with 2010 developments (-0.3% according to the previous survey conducted in March/April 2011). The increase in investment for 2011 has been revised by 1 percentage point downwards compared with the previous Investment Survey of March/April 2011. Concerning 2012, managers expect manufacturing investments to remain broadly unchanged (see Chart 1). Results for the euro area are somewhat more pessimistic than for the EU as managers estimate investment to have risen by 7% in 2011 and project it to decrease by 2% in 2012.

For 2011, the Investment Survey appears far more optimistic than the European Commission's autumn forecasts, according to which gross fixed capital formation in the EU is estimated to have expanded by 1.9%. In contrast, for 2012 the Investment Survey is slightly more pessimistic than the European Commission's autumn forecasts, which foresees an increase of 0.8%. 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.

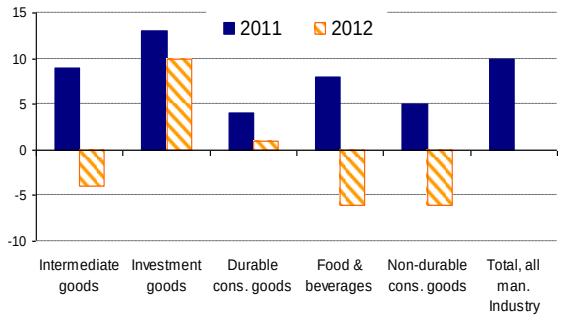
[1] The investment survey is carried out twice a year - in March/April ("spring") and in October/November ("autumn") - among companies in the manufacturing industry sector. The spring questionnaire asks for the percentage change in investment of the company from year t-2 to t-1 and from year t-1 to t. The autumn questionnaire asks for the percentage change in investment of the company from year t-1 to t and from year t to t+1. The autumn questionnaire also contains a question on the type of investment (replacement, extension, technical progress, and others) planned and a question on the factors driving investment (demand, profitability, technical factors, and others).

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



Source: Commission services.

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



Source: Commission services.

Overall, the discrepancy between growth in gross fixed capital formation (as estimated in the Commission forecasts) and growth in manufacturing investment (as measured by the survey) appears exceptionally large by historical standards. It could be partly narrowed down in forthcoming releases of the national accounts and the Investment Survey. However, part of the discrepancy is probably here to stay and may reflect large differences in investment strategies between the manufacturing sector – which has been the main engine of the largely trade driven recovery – and the rest of the economy.

Investment dynamics by sectors

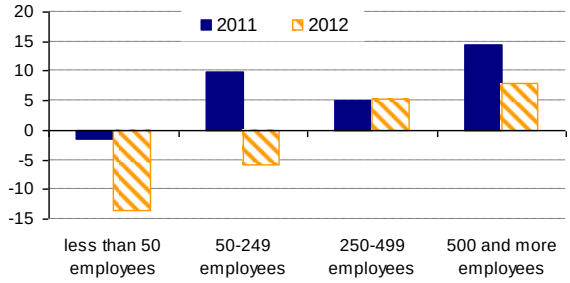
Looking at the sectoral breakdown of the survey (see Graph 2), all the sectors have registered an increase in investment in real terms in 2011; with a rise particularly marked in the investment good sector.

The outlook for 2012 is more mixed. Managers in the investment good sector are particularly optimistic, as they foresee a further increase of their investments of 10%. By contrast, managers in the intermediate and non-durable consumer goods sectors expect to decrease their investments in 2012 by, respectively, 4% and 6%. Investment in the durable goods sector should remain broadly stable.

Investment by size of enterprises

According to the survey, only small enterprises (employing less than 50 people) have experienced a contraction in manufacturing investment in 2011 (of around 1% in real terms, see Graph 3). Among the medium-sized, large and very large enterprises (respectively, those employing between 50 and 249, 250 and 499 and more than 500 people), real investment is estimated to have increased by around 10%, 5% and 14% respectively.

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



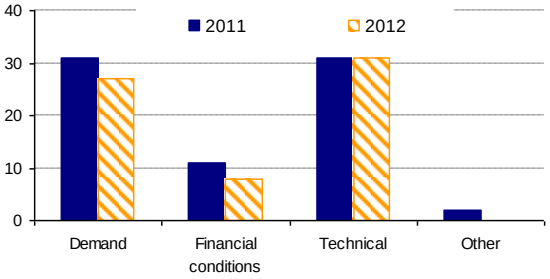
Source: Commission services.

A more pessimistic picture is projected for 2012 for the entire sample but with significant differences among enterprises of the different size. Small and medium-sized enterprises expect a decrease of their investments by around, respectively, 14% and 6% that year, while large and very-large enterprises project to lift their investments by 5% and 8%, respectively.

Factors influencing investments

The autumn Investment Survey also provides information on the factors influencing investment, namely: demand, financial conditions, technical factors (e.g. technological factors and the availability of labour) and other factors (e.g. taxation and the possibility of moving production abroad). In both 2011 and 2012 technical factors are the main drivers of investment in the EU, followed by demand and, albeit to a lesser extent, financial conditions (see Graph 4). Demand and financial conditions are estimated to be less supportive in 2012 than in 2011.

Graph 4: **Factors influencing manufacturing investments** in the EU (balance statistic*)

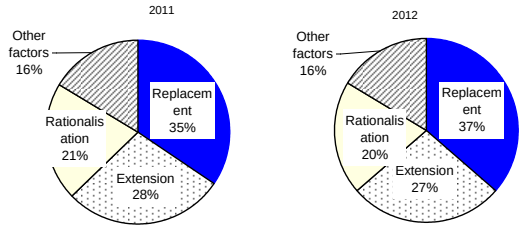


*Balances are the weighted averages of the percentages of answers describing each factor as 'very stimulating' (coefficient 1), 'stimulating' (0.5), 'limiting' (-0.5) and 'very limiting' (-1).
Note: Data for Italy are under verification and not included in the totals.
Source: Commission services.

Investment structure

In the context of the autumn Investment Survey, firms are also asked to assign their investment spending to four categories: replacement of worn-out plant or equipment, extension of production capacity, investment designed to streamline production (rationalisation), and other investment objectives (pollution control safety, etc.). In both 2011 and 2012, the largest share of investments went (or is planned to go) to replacement. The next largest share is earmarked for extension in both 2011 and 2012. Investment to streamline production comes third. In 2012, the share of investments used for replacement should increase slightly at the expense of both rationalisation and extensions purposes.

Graph 5: **Investment structure** (percentage of total investment)

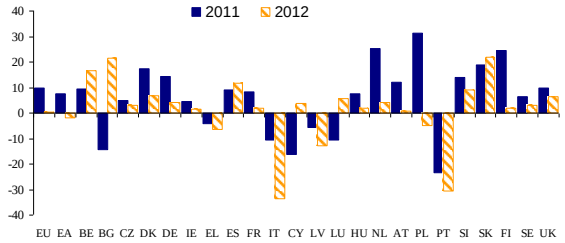


Source: Commission services.

Developments by country

The picture at country level is rather mixed. The majority of the EU Member States estimate that manufacturing investment has grown in 2011 and expect it to grow further in 2012. However, the increases should be less pronounced in 2012 than in 2011, while the decreases are expected to be more severe (see Graph 6).

Graph 6: **Surveyed change of manufacturing investments in the EU Member States** (annual changes in %)

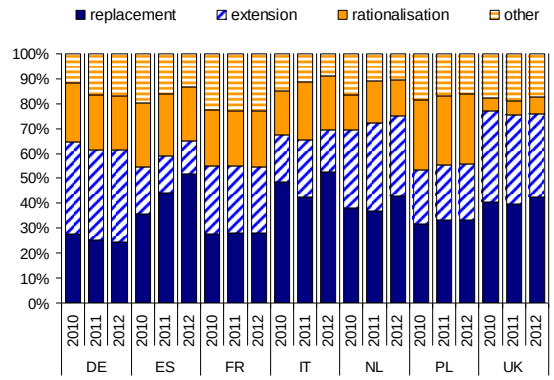


Note: Estonia, Latvia and Romania figures are missing, as the corresponding data are still under verification.
Source: Commission services.

In the largest Member States, managers report that manufacturing investment increased in 2011 by 14% in Germany, by 10% in the UK, by 9% in Spain, by 6% in France, by 25% in the Netherlands and by 31% in Poland. Only Italian managers report a decrease in 2011, of 10%. For 2012, managers in the largest Member States expect their investments to increase by 12% in Spain, by 7% in the UK, by 4% in Germany and the Netherlands and by

2% in France, while they project a very sharp contraction of 34% in Italy.

Graph 7: **Structure of manufacturing investments in the big Member States in 2010, 2011 and 2012** (share in %)

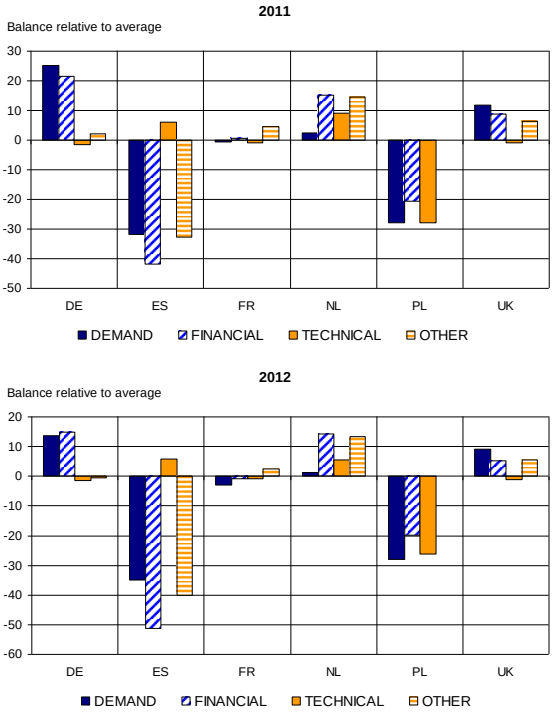


Source: Commission services.

The structure of investment in 2011 varies across countries (see Graph 7). Nevertheless, in all the largest Member States but Germany, the investment spending was mainly geared at replacement needs. In Germany investments were mainly driven by extension needs, which was the second driving force of investment in France, the Netherlands and the UK. In Spain, Italy and Poland the second motive for investment after replacement needs was the streamlining of production, while in Germany this second motive was replacement needs. In 2012, the structure of investment in the large Member States is expected to remain broadly unchanged.

Graph 8 shows which factors are stimulating or limiting investment in the largest Member States in 2011 and 2012. In 2011, demand and financial conditions are considered as stimulating investments in Germany, the Netherlands and the UK, while managers in Spain, Poland consider them as limiting factors. Technical factors seem to be limiting investment in Poland, while they are stimulating factors in the Netherlands. Finally, other factors (e.g. taxation and the possibility of moving production abroad) are seen as very limiting in Spain, and as stimulating in the Netherland and the UK. This pattern remains broadly similar for 2012.

Graph 8: **Factors influencing manufacturing investment decisions in 2011 and 2012** (balance statistic)



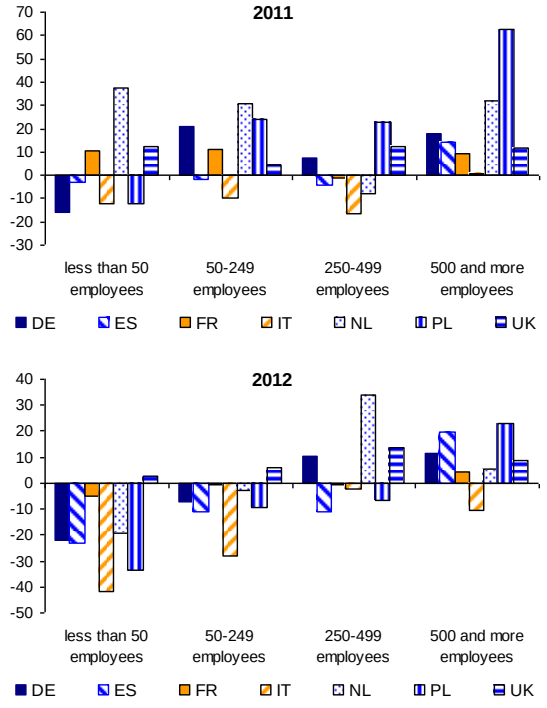
Note: Data for Italy are under verification and not included in the graphs.
Source: Commission services.

Looking at the breakdown by size of enterprises across countries, in 2011, very large enterprises have experienced a rise in investment in all large Member States, while the picture across large, medium and small size firms is mixed (see Graph 9). Among large enterprises, only German, Polish and UK firms have seen an increase in investment in 2011, while medium-sized Spanish and Italian enterprises and small German, Spanish, Italian and Polish firms have reported negative developments in investment. In 2012 managers of very large firms in all the large EU Member States, except Italy, foresee a further rise in investment, while the situation is expected to be visibly more negative for medium and small-sized enterprises in all large EU Member States.

All in all, results from the autumn Investment Survey in the manufacturing sector indicate that, after the sharp contraction registered in 2009 and the almost zero-growth observed in 2010, investment has increased strongly in

2011 and is expected to remain broadly flat again in 2012. The positive results for 2011 are broad-based across sectors and company sizes. A major exception is small enterprises, where managers report a contraction of investment in 2011. The outlook for 2012 is more mixed. A contraction in investment is expected in the intermediate and non-durable good sectors, and across small and medium-sized enterprises. Even though investment projections appears to be more volatile among small companies than in larger ones, the autumn investment survey points at important structural differences in the shape of the recovery across company sizes.

Graph 9: **Surveyed change of manufacturing investments in large EU Member States by size** (annual changes in %)



Source: Commission services.

4. Highlight: the relevance of BCS data for assessing new orders in manufacturing

Eurostat currently publishes monthly statistics on industrial new orders in the EU and the euro area as whole, and in the individual Member States. The Joint Harmonised EU Programme of Business and Consumer Surveys (BCS) also includes information related to orders and order books. In the light of European Statistical System plans to stop compulsory collection of industrial new orders statistics, and then the ensuing discontinuation of the series publication, this section takes a closer look at the information contained in the BCS data and analyses the statistical relationships between the hard and the survey data.

In the BCS, managers in industry are asked two different types of questions on orders: one, managers' assessment of the current level of order books is surveyed on a monthly basis[2], and two, past developments in orders are surveyed on a quarterly basis[3]. Both questions are asked also with reference to the non-domestic market (export orders). Developments in export orders are surveyed in terms of expectations over the next 3 months.

This highlight section examines in particular two major questions: 1) whether survey data track new orders and can be used as a *proxy* for the hard data; and 2) what is the information content of the survey data on orders (i.e. what do they actually measure). It concludes that industry survey data on orders contain relevant information to assess new orders, and that a model-based proxy of new orders could be built by exploiting the monthly survey series on order books along with hard statistics on industrial turnover.

[2] The question reads: *Do you consider your current overall order books to be: more than sufficient (above normal) /sufficient (normal) /less than sufficient (below normal).*

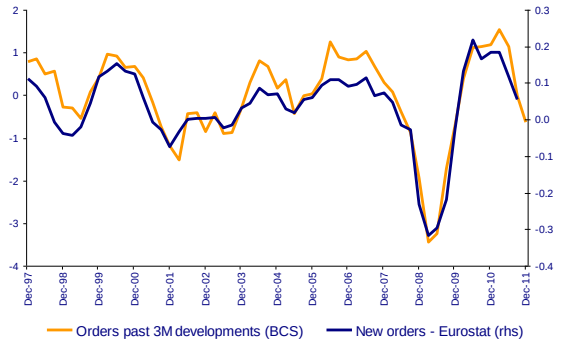
[3] The question reads: *How have your orders developed over the past 3 months? Increased /unchanged/ decreased.*

Quarterly survey figures on orders' developments track reasonably well new orders …

To assess the link between managers' appraisal of developments in their companies' orders and the corresponding hard statistics, BCS data are matched with new orders index data, extracted from Eurostat short-term statistics. Namely, two series are taken in consideration: industrial total new orders and industrial new orders from the non-domestic market (export)[4]. Both series are released monthly, about 50 days after the end of the reference month.

Overall, at euro-area level[5], there is a marked co-movement between the quarterly survey series expressing managers' appraisal of orders' developments and hard statistics on new orders (Graph 1).

Graph 1: **Orders developments over the past 3 months (normalised balances) and total new orders index; euro-area industry (1997Q1 to 2011Q4)**



Note: monthly Eurostat data are converted into quarterly by averaging the balances/figures over 3 months. New orders are expressed in y-o-y changes.
Source: Commission services.

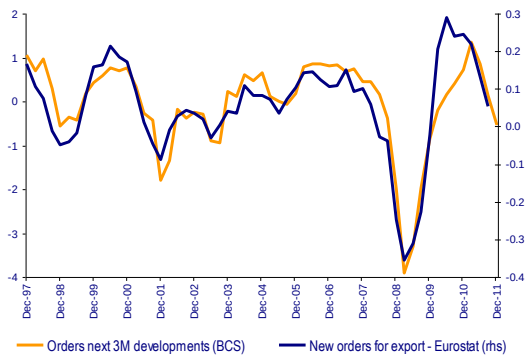
More specifically, the balance series on developments of the orders observed over the past 3 months is highly correlated with the y-o-y changes[6] in new orders (correlation coefficient = 0.94).

During the economic crisis, the survey balance of orders' past developments tracked well both the sharp fall in new orders and the ensuing rapid recovery (over the period 2008Q1 – 2011Q4 the correlation coefficient rises to 0.98). Since the beginning of 2011, both soft and hard indicators on orders have been pointing downwards, signalling a slowdown in economic activity.

At the country level, high correlation (i.e. greater than 0.75) between the survey series and the new orders index can be found for most of the larger Member States (DE, FR, IT, ES, NL).The correlation is lower in only a few cases (CZ and SK). Following the pattern observed for the euro area as a whole, correlation between soft and hard data raised quite significantly since 2007 across almost all the countries.

All the above findings are broadly confirmed for the non-domestic component of new orders, too (Graph 2). The balance series on export order expectations over the next 3 months mirrors the y-o-y evolution in the index of new orders for non-domestic market on the whole period (correlation equal to 0.88) and also during the crisis (correlation equal to 0.90), although it did not reflect fully the magnitude of export orders' upturn in 2010H1.

Graph 2: **Export orders developments over the next 3 months (normalised balances) and non-domestic new orders index; euro-area industry (1997Q1 to 2011Q4)**



Note: monthly data are converted into quarterly by averaging the balances/figures over 3 months. New orders are expressed in y-o-y changes.
Source: Commission services.

Overall, the survey series of orders track fairly well y-o-y changes in the new orders series of Eurostat. This is further verified through a

[4] Eurostat datacode: sts_inno_m and sts_innond_m,.
[5] This highlight focuses on results for the euro area. However, the main findings in term of correlation hold also for the EU.
[6] The correlation with q-o-q changes in new orders is weaker (equal to 0.5 on the whole sample period).

regression exercise (over two different estimation periods), which also tests the leading performance of the survey series.

The regression results (Table 1) confirm that the survey series fit the new orders hard data rather well, although the goodness of fit is not fully satisfactory. In particular the degree of residuals' autocorrelation is rather high. Moreover, the fit improved markedly during the period 2008-2011, raising doubts about the robustness of the estimated relationships. Finally, the survey series does not have any leading properties with respect to Eurostat's new orders index (but it does not seem to lag it either).

Table 1: **New orders index - Goodness of fit statistics**

Explanatory variables	R^2	DW
Orders past developments $_t$ *	0.75*	1.07*
Orders past developments $_{t-1}$ *	0.41*	0.68*
Orders past developments $_t$ **	0.89**	1.31**
Orders past developments $_{t-1}$ **	0.61**	0.68**

Note: estimates based on quarterly data
* Estimation period: 1997Q1 – 2007Q4
** Estimation period: 1997Q1 – 2011Q4

Broadly similar findings hold for the non-domestic market (Table 2), though the goodness of fit between the survey series on expected developments in export orders and Eurostat's foreign new orders is less satisfactory than reported for the total market.

Table 2: **Foreign new orders index - Goodness of fit statistics**

Explanatory variables	R^2	DW
Export orders expected developments $_t$ *	0.72*	0.87*
Export orders expected developments $_{t-1}$ *	0.35*	0.78*
Export orders expected developments $_t$ **	0.77**	0.69**
Export orders expected developments $_{t-1}$ **	0.44**	0.54**

Note: estimates based on quarterly data
* Estimation period: 1997Q1 – 2007Q4
** Estimation period: 1997Q1 – 2011Q4

… but they also reflect managers' overall mood about the cycle

Although survey data on orders' developments are relatively closely correlated with new orders hard statistics, the above results show that the fit is not fully satisfactory. This suggests that the survey series may actually reflect something more than just the new orders dynamics. In particular, the improved fit during the latest crisis period could point to the presence of a cyclical component in the formation of managers' answers about orders' developments.

In order to better understand the mechanism behind managers' appraisal of orders' developments, a number of equations were estimated relating survey series to new orders hard data and additional (either hard or soft) business cycle-related variables (BC) as shown below. The tested business cycle variables include industrial production, industrial turnover and past/expected production (from the surveys):

$$\text{Orders develop}_{(t,\,BCS)} = f(\text{New Orders}_t, BC_t) \quad (1)$$

Overall, all the estimated models show that there is a broad business cycle component (significantly positive) in the formation of managers' appraisal of their orders. In other words, when managers report an increase (decrease) in their orders, this can be explained not only by an actual increase (decrease) in new orders but also by increased optimism (pessimism) about the cyclical stance. In particular, among the different estimated models, the one including past production (Table 3) improves significantly the fit between new orders (hard) and orders' developments (surveys).

Table 3: **Managers' appraisal of developments in orders - Goodness of fit statistics**

Explanatory variables	R^2	DW
New orders	0.89	1.35
New orders + past production	0.95	1.55

Note: estimates based on quarterly data
Estimation period: 1997Q1 – 2011Q3

Monthly survey figures on order books provide useful complementary information

One drawback in exploiting the survey series on orders' developments for business analysis is that these survey data are released on a quarterly basis, whereas the Eurostat's new orders index is monthly. Given that the new orders index is published about 50 days after the end of the reference month, while surveys on orders developments are published at the end of the first month of each quarter, this means that – for a given quarter – the Eurostat's hard data provides more up-to-date information during the last two months of the quarter.

Survey data on order books area available on a monthly basis and can be used as a complement to quarterly survey data on orders. For this purpose, however, it is necessary to know what the survey data on the level of order book actually measure.

From an economic point of view, the change in order books Δ(OB) results from new orders (NO) minus sales (S) and cancelled orders (C), as depicted in the following accounting identity:

$$\Delta(OB) = NO - S - C \qquad (2)$$

To check whether the identity holds for monthly survey data on order books, we regress the change in survey order books (converted at the quarterly frequency) on Eurostat's index of industrial turnover as a *proxy* of the sales, and either on Eurostat's new orders or survey data on orders (no data is unfortunately available on cancelled orders).

Results shown in Table 4 suggest that the accounting identity broadly holds. This is quite clear when using Eurostat's data on new orders as a regressor: in that case, the estimated coefficients for new orders and sales are equal but with opposite signs, which allows to write down the following identity:

$$\Delta(OB_{survey}) = \lambda(NO - S) + \varepsilon \qquad (3)$$

where the estimated λ can be interpreted as a normalising constant and the residual term ε accounts for cancelled orders. This result confirms that when managers are surveyed about the level of their order books, their answers in fact mirror the accounting identity between orders, new orders and sales. Contrary to what can be observed for the survey series on orders' developments, managers' assessment of order books does not incorporate any cyclical component. This hints to a possible advantage of using monthly data on the level of order books over the quarterly data on orders' developments.

Table 4: **Change in order books - Estimated coefficients and goodness of fit**

New orders	Sales (turnover)	R^2	DW
1.43	-1.43	0.78	1.67
(*0.12*)	(*0.16*)		
0.60	-0.52	0.45	0.88
(*0.12*)	(*0.21*)		

Note: the model in the first row is estimated using NO from hard statistics, while the model on the second row is built on "new orders" from survey series. Standard errors are reported in brackets.
Estimation period: 1997Q1 – 2011Q3

A viable solution to replace the (likely) discontinued new orders index

The above findings suggest that the survey series on order books are actually very close to the economic/accounting concept of orders. It seems therefore natural to try to fill in the gap left by the forthcoming discontinuation of the new orders index by exploiting these survey series, which also have the advantage of being released monthly (while surveys on orders' developments are quarterly).

Building on the accounting identity probed in the previous section, it is possible to estimate the model for new orders:

$$NO = \beta_1 \Delta(OB_{BCS}) + \beta_2 \text{ Turnover} + \varepsilon \qquad (4)$$

on monthly data, exploiting the monthly availability of both order books survey series and industrial turnover hard series (Table 5).

Table 5: **New orders proxy - Estimated coefficients and goodness of fit**

Δ(OB)	Turnover	R^2	DW
0.64	1.04	0.78	1.50
(*0.11*)	(*0.04*)		

Note: Note: estimates based on monthly data. Standard errors are reported in brackets.
Estimation period: 1997M1 – 2007M11

The above estimated coefficients can be used to construct a proxy of new orders month by month. This "new orders proxy" is highly correlated with Eurostat's new order index, and its fit can be considered more than satisfactory (Graph 3).

Graph 3: **New orders index and new orders proxy; euro-area industry (coefficients estimated over 1997M1 – 2007M11)**

Note: New orders are expressed in y-o-y % changes.
Correl (actual new orders, new orders_proxy) = 0.95.
Source: Commission services.

Conclusions

Industry survey data on orders contain relevant information to assess new orders. The analysis illustrated in this highlight points at two alternatives to replace Eurostat's new order index when/if it will be discontinued. First, one could use the survey series on orders' developments in place of the new orders index. This series indeed tracks fairly well the y-o-y changes in new orders. This solution has however two drawbacks: 1) it depends on data released only on a quarterly basis; 2) the survey series on orders' developments reflects a significant cyclical component besides actual new orders. Alternatively, one could build a model-based proxy of new orders, by exploiting the monthly survey series on order books and hard statistics on industrial turnover. The advantage of this second solution is that it can be implemented on a monthly basis, and therefore ensures the same timeliness of the new orders index, as currently released. Moreover, the survey series on order books turns out to be closer to the economic/ accounting concept of orders, than the series on orders' developments and does not seem to be distorted by cyclical movements not directly related to orders.

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.

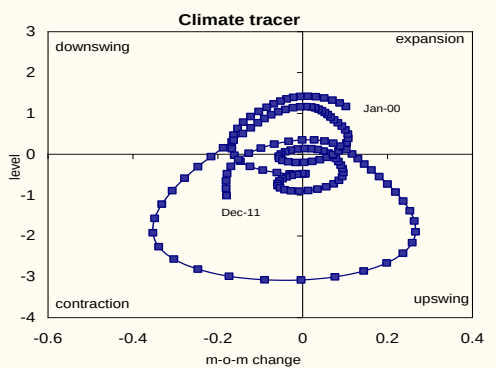
The series levels are plotted against their first differences (m-o-m changes), so that each chart depicts — at the same time — the current stance of the sector/country and its most recent dynamics. Series are smoothed to eliminate short-term fluctuations.

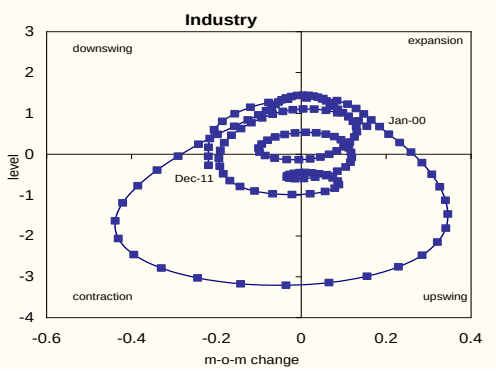
The four quadrants of the graphs enable four phases of the business cycle to be distinguished:

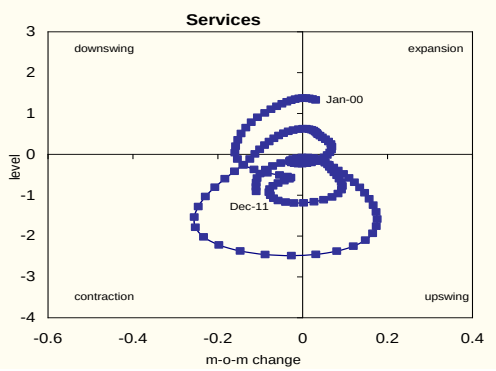
- 'expansion' (top right quadrant),
- 'downswing' (top left),
- 'contraction' (bottom left), and
- 'upswing' (bottom right).

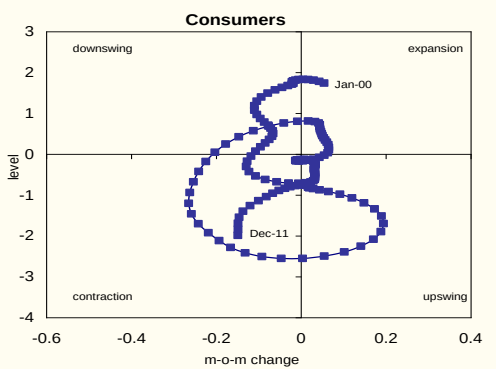
Cyclical peaks are positioned in the top centre of the graph, and troughs in the bottom centre.

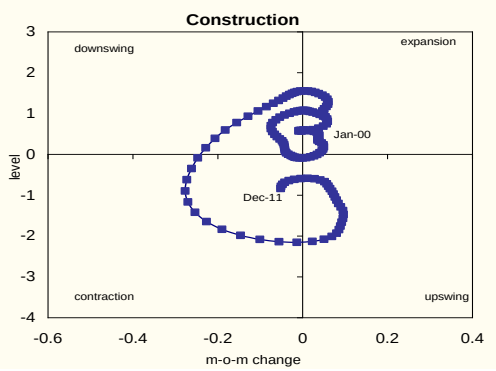
Economic climate tracer across sectors, EU

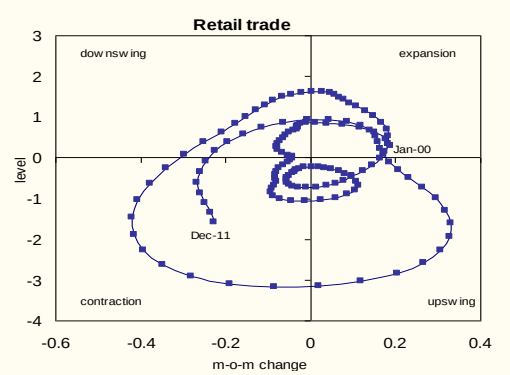




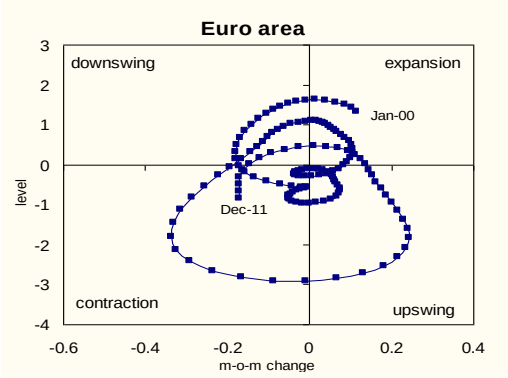


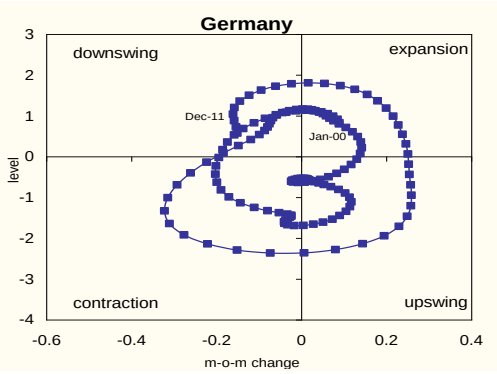


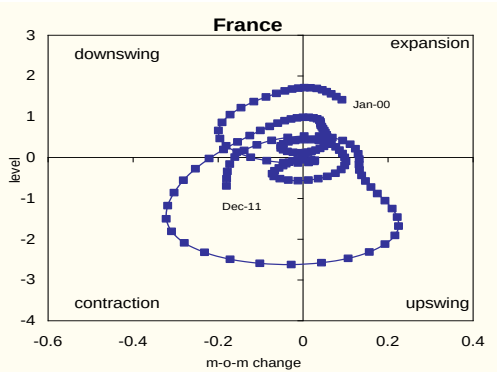


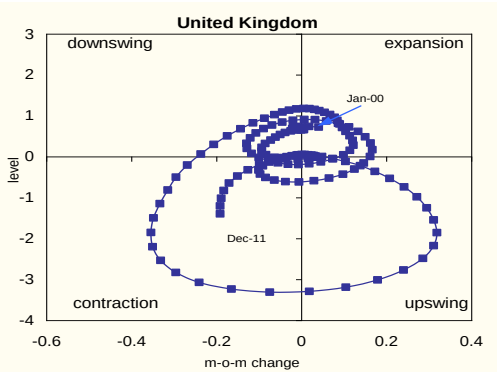


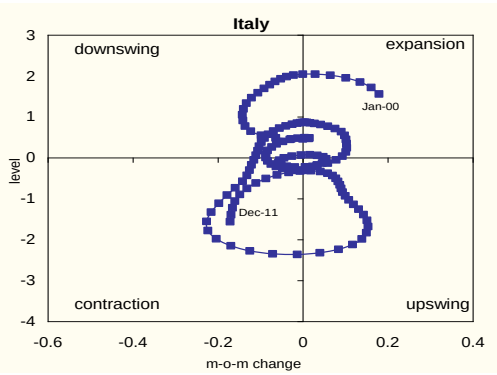
Economic climate, largest EU Member States

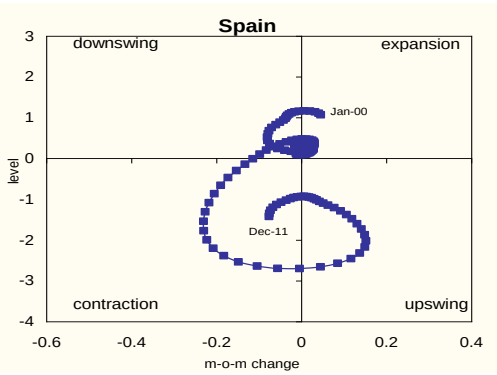


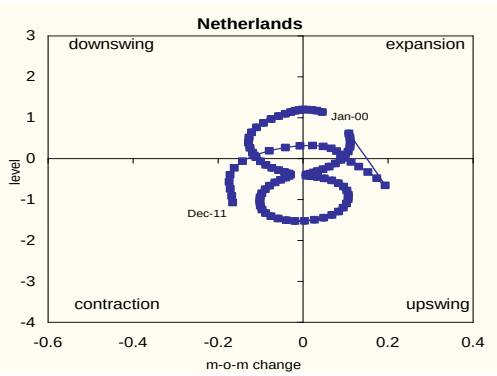


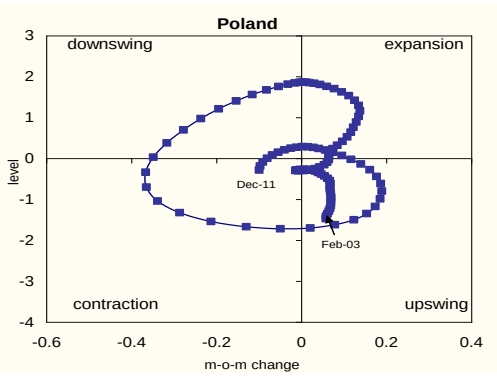












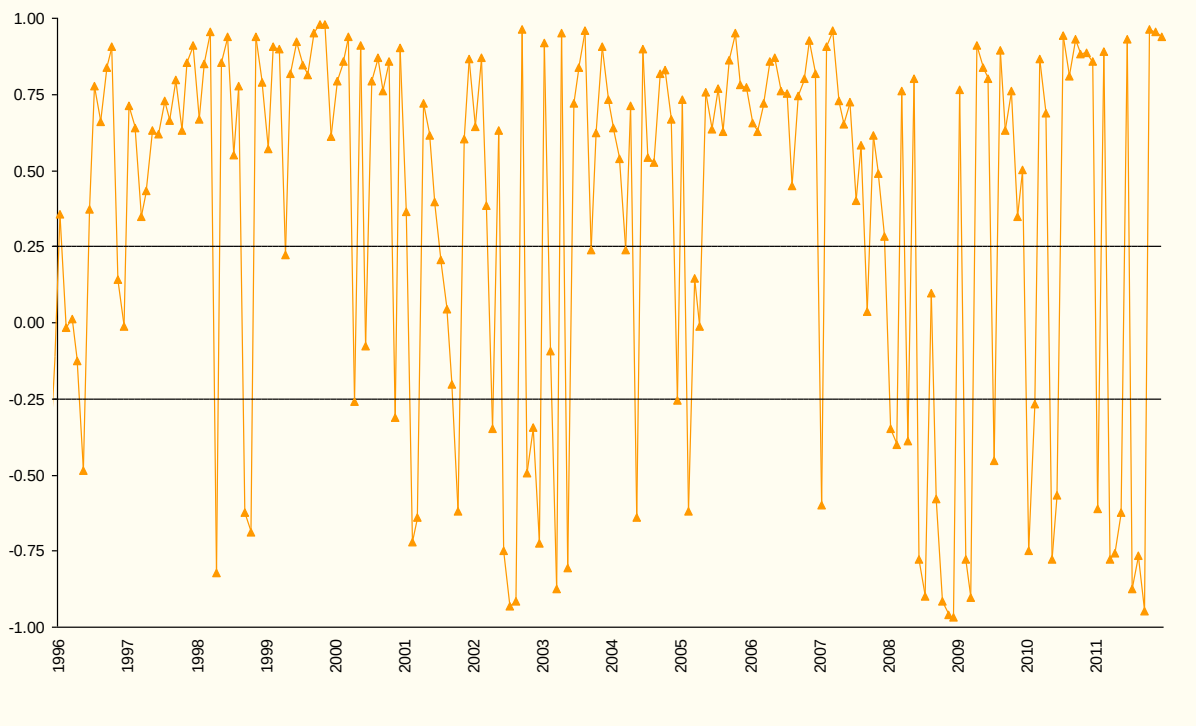
Annex 2: Euro-area turning point index

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) was at 0.94 in December 2011, after two consecutive months in positive 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 fourth quarter of 2011, confidence declined but the decline was less important than during the previous quarter and in December we observed some signs of stabilisation in some indicators. Therefore, the innovations within the framework of the AR modelling method are interpreted as positive. The TPI now stands very close to +1, pointing to a possible favourable 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),[7] 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).

[7] 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.