

### THE RELIABILITY OF SURVEY DATA DURING PERIODS OF FINANCIAL TURMOIL

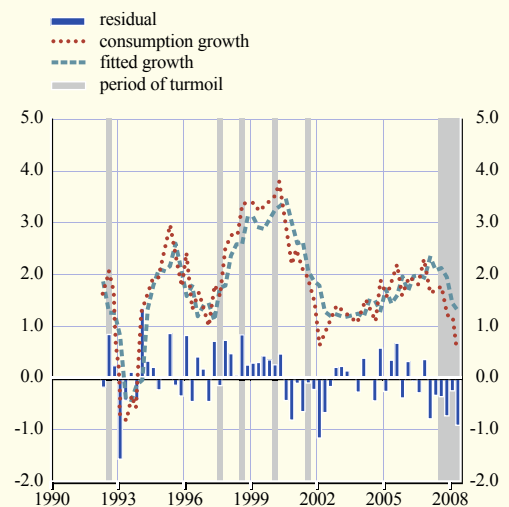
Survey indicators for the euro area from the European Commission (EC surveys) and the Purchasing Managers' Index (PMI) have always been relatively closely linked to developments in real activity. As these indicators become available before the euro area national accounts data are released, they are useful as early signals of developments in real activity. However, movements in these indicators must always be interpreted with caution. Large positive or negative shocks to the economy may be interpreted overly strongly by survey participants and lead to overreactions observable in the indicators. It is unclear, for instance, to what extent the financial turmoil that started at the end of the summer of 2007 may have affected the historical relationship of these indicators with real activity. One possibility is that survey respondents may be unduly negatively influenced by events in financial markets or by adverse news. A downward movement in a survey indicator would then not only reflect a movement in real activity but also psychological effects stemming from the financial turmoil. This would make the reading of the indicators more difficult in such periods. This box looks at recent developments in some surveys, using data up to September 2008, and compares them with previous periods of financial turmoil.

In order to investigate whether periods of financial turmoil negatively affect survey indicators more than is warranted by real activity movements, the historical relationship of selected indicators with year-on-year growth rates of real activity during and outside such periods must be examined. Five historical episodes of financial turmoil are considered: the Exchange Rate Mechanism (ERM) crisis (September 1992), the Asian crisis (July 1997), the Long-Term Capital Management (LTCM) crisis (September 1998), the bursting of the technology stock bubble (March 2000) and the terrorist attacks in the United States (September 2001). The current financial turmoil covers the period from the third quarter of 2007.

To match the frequency with real data, survey indicators can be averaged over the quarter. This also eliminates some of the usual monthly fluctuations of survey indicators. Charts A to E show the historical fit of regressions of the year-on-year growth rate of activity on selected survey indicators.<sup>1</sup> If survey results overreact (i.e. fall too far) during periods of financial turmoil, there should be large positive residuals (i.e. actual growth minus fitted growth should be positive) in these periods. The periods of financial turmoil are indicated by grey bars in the charts.

**Chart A The relationship between the EC consumer confidence indicator and consumption growth**

(annual percentage changes)

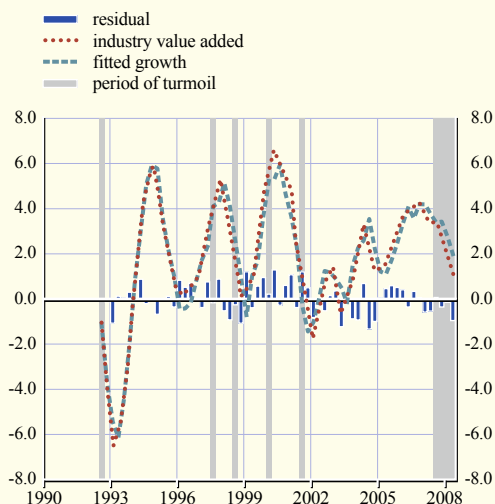


Sources: European Commission Business and Consumer Surveys, Eurostat and ECB calculations.

<sup>1</sup> In the regressions, lags of the year-on-year growth rates of real activity are also included.

**Chart B** The relationship between the EC industrial confidence indicator and value added growth in industry

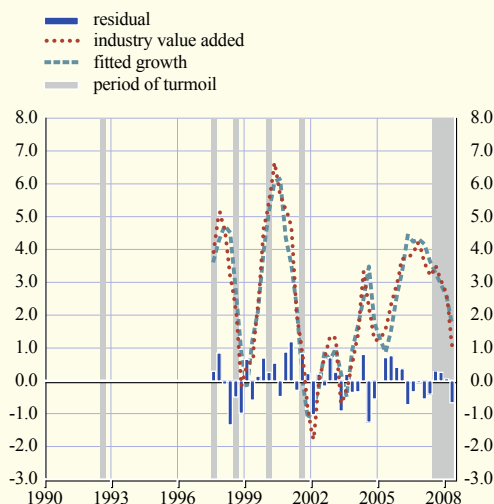
(annual percentage changes)



Sources: European Commission Business and Consumer Surveys, Eurostat and ECB calculations.

**Chart C** The relationship between the manufacturing PMI and value added growth in industry

(annual percentage changes)



Sources: Eurostat, Markit and ECB calculations.

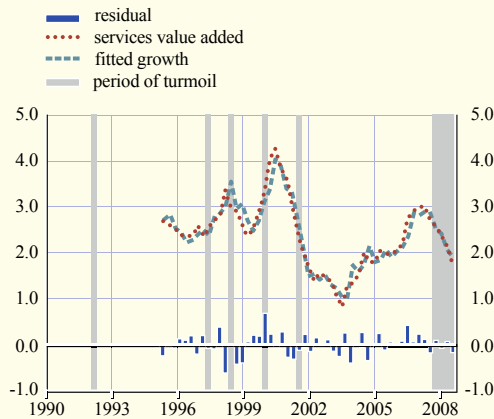
Chart A shows year-on-year private consumption growth and fitted growth from a simple regression of private consumption growth on the overall EC consumer confidence indicator; it also shows the residuals from this regression. There are large positive residuals during the ERM crisis and the LTCM crisis, indicating a possible overreaction. Overall, however, the EC consumer confidence indicator has broadly followed private consumption growth and there is little evidence that this relationship broke down significantly during the latest episode of financial turmoil. On the contrary, consumption growth seems to have fallen more strongly than the EC consumer confidence indicator would suggest (as indicated by the negative residuals).

Charts B and C show year-on-year industry value added growth and fitted growth from a simple regression of value added growth on the EC industrial confidence indicator and the Markit PMI for manufacturing. The only period of turmoil in which a large positive residual can be observed is following the terrorist attacks in the United States in September 2001. There is no evidence that either the EC or PMI surveys have so far provided misleading signals in the current financial turmoil. This is also confirmed by analysis of residuals from regressions, which appear to be similar to those seen in the past. In any case, as the residuals tend to be negative (especially in the case of the EC surveys) they certainly do not suggest overreaction, but rather, if anything, suggest that the survey results have fallen too little compared with real activity.

Finally, Charts D and E show year-on-year services value added growth and fitted growth from a simple regression of services value added growth on the EC services confidence indicator and the Markit PMI services business activity index. During the bursting of the technology bubble in 2000, the regression shows a large positive residual. Again, an inspection of the residuals shows that the indicators have not, so far, appeared to overreact during the recent period of turmoil.

**Chart D The relationship between the EC services confidence indicator and value added growth in services**

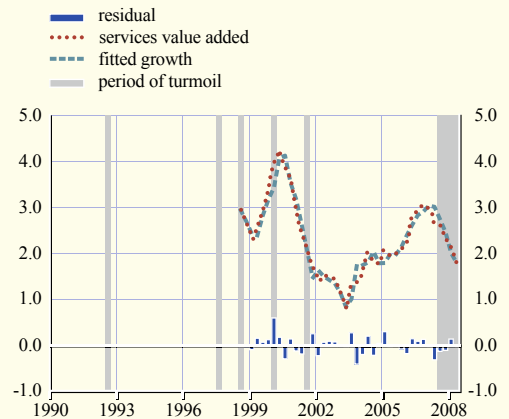
(annual percentage changes)



Sources: European Commission Business and Consumer Surveys, Eurostat and ECB calculations.

**Chart E The relationship between the services PMI and value added growth in services**

(annual percentage changes)



Sources: Eurostat, Markit and ECB calculations.

Overall, it appears that the quarterly averaged survey indicators have not yet overreacted or provided a particularly false signal about real economic developments during the recent financial turmoil. In particular, an analysis of residuals from simple regressions of year-on-year growth on the quarterly averaged survey results does not provide evidence that the survey results have tended to fall too significantly. The residuals during the periods of financial turmoil are not unusually large; they are actually often negative. Although large positive residuals during earlier periods of turmoil can at times be found, this is exceptional. Against this background, the falls in such survey indicators in recent months are likely to reflect real economic developments that should subsequently be reflected in quantitative statistics, confirming weak economic activity for the second half of 2008.