

Box 5

MACROECONOMIC AND FINANCIAL SYSTEM UNCERTAINTY DURING THE LATEST RECESSION

During the recent crisis, the sharp rise in uncertainty following the exceptional events in the financial sector seems to have been an important feature shaping developments in the real economy. Uncertainty influences financial institutions' willingness to lend and finance economic needs, can put pressure on balance sheets or wealth, and curtails the ability of households and businesses to finance their investment plans. It is also relevant for the real economy because it can push households and firms to postpone expenditure and increase precautionary savings. Finally, it can impair the ability of financial institutions to intermediate credit or provide liquidity. This box looks at measures of uncertainty for financial markets and the macroeconomic outlook and discusses how the continued heightened uncertainty may be affecting the prospects for the real economy, possibly feeding back to financial stability.

There are a variety of means for measuring the degree of uncertainty. For financial markets, a common method is to look at measures of volatility. For example, the variation of equity indices provides one indication of current volatility in financial markets, while implied volatility from options contracts provides an insight into market participants' views of future volatility. For

the real economy, while it is possible to look at the historical volatility in macroeconomic series, a more forward-looking assessment may be better provided by examining the dispersion in forecasters' projections.

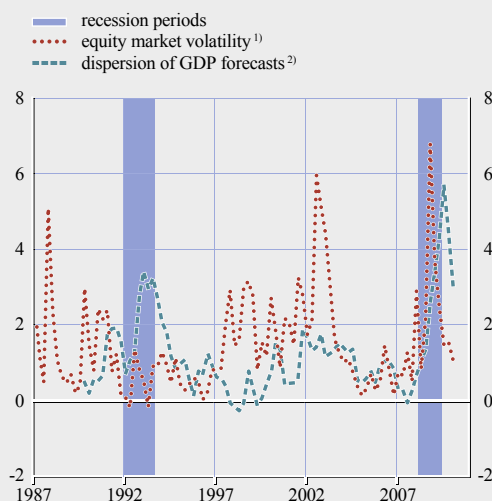
Chart A illustrates two such measures of uncertainty. The indicator of macroeconomic uncertainty based on forecasts appears to be counter-cyclical, rising during downturns such as the 1992-93 episode and the latest recession, and declining during upturns. While financial market volatility also rose sharply during the latest recession, the link between financial market and macroeconomic uncertainty is not straightforward. The indicator suggests that during this episode, financial market volatility led to macroeconomic uncertainty. However, there have been other notable spikes in financial market volatility that did not coincide with similar increases in the indicator of uncertainty regarding the macroeconomic outlook: for example, the stock market crash in 1987 and the Russian and LTCM defaults of 1997-98. This may indicate that the initial event triggering the spike in uncertainty occurs in the financial sector or in the real economy, impacting differently across the whole economy.

A key question for the current outlook is the extent to which the recent heightened uncertainty is affecting the economy and whether inference can be drawn from similar past episodes. Doing so necessitates isolating the specific component of uncertainty from the spillover of events or shocks not primarily occurring in the financial sector. This identification must be tackled in a multivariate system.

As an illustration, a small VAR model is estimated, consisting of a composite measure of uncertainty,¹ a measure of real financial costs, and real GDP. The structural shocks affecting the series are then identified by applying a Choleski decomposition.² In this framework, the link between uncertainty and activity appears: following an increase in uncertainty, the GDP level falls relative to trend and only begins to recover after four quarters, so that the effects are estimated to be relatively persistent (Chart B).

Chart A Equity market volatility and dispersion of growth projections

(Q1 1987 – Q1 2010; indices; standardised to one in non-recession periods)



Sources: ECB and Consensus Economics.

1) Quarterly average of daily percentage price changes in the Dow Jones EURO STOXX.

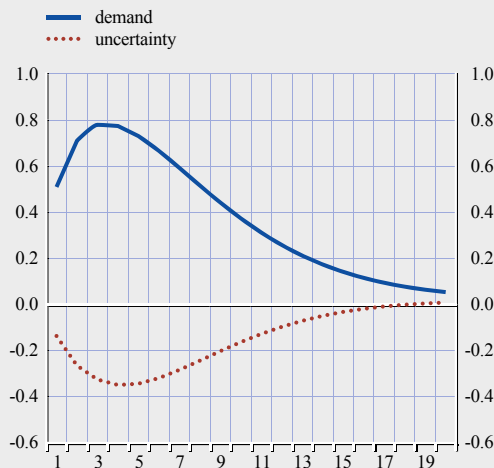
2) Standard deviation of Consensus Economics' projections for annual GDP growth in the next calendar year in Germany, France and Italy (simple average, seasonally adjusted).

1 The summary measure of uncertainty is a simple average of five measures of uncertainty, two of which are shown in Chart A. The measures include: the standard deviation of projections for GDP growth; Consensus forecasts for the current and next calendar year; the volatility in equity markets; two statistical measures of conditional volatility based on GARCH models for GDP; and industrial production.

2 The model is estimated using quarterly data for the euro area between 1985 and 2009. GDP is de-trended. The order of lags is chosen by minimising an AIC selection. In the Choleski decomposition, the ordering of the variables is important for identifying the shocks. In this illustration, the uncertainty indicator is first, the real cost of financing is second and real GDP is the third variable. Hence, the uncertainty index is explained by current and past confidence shocks, as well as past financing and demand shocks. GDP is explained by current and past confidence, financing and demand shocks. The results are relatively robust to changes in the ordering of variables.

Chart B Response of GDP growth to “uncertainty” and “demand” shocks

(deviation from baseline in percentages)



Sources: Eurostat, ECB, Consensus Economics and ECB calculations.
Notes: Responses to a one standard deviation uncertainty and demand shock. The x-axis indicates the number of quarters after the shock. For more details on the estimated VAR and the identification of the shocks, see footnotes 1 and 2 in this chapter.

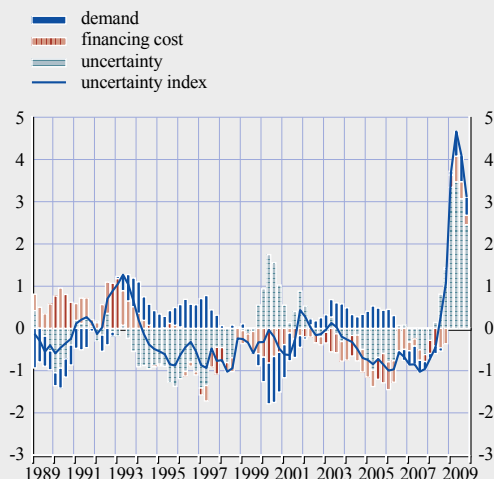
The simple model can also be used to illustrate the impact of the different shocks on the composite measure of uncertainty and euro area GDP growth (see Charts C and D). A large part of the recent spike in the composite measure of uncertainty, since the middle of 2008, appears to be explained by confidence shocks, possibly linked to the financial market turbulence during the crisis. These also account for a large part of the recent decline in GDP growth and are continuing to have a depressing impact. This contrasts with the 1992-93 recession where it was not confidence shocks, but rather financing costs and demand that played a role in explaining the rise in the uncertainty index and the fall in real GDP growth.

To sum up, sharply heightened uncertainty about the macroeconomic outlook has been a prominent feature of the recent crisis. The increase in uncertainty appears to have been one channel through which turbulence in the financial sector has affected activity during the

recession and has remained an important factor behind the developments in the macroeconomic environment since then. Looking ahead, concerns appear to have faded in recent months, but the effects of the initial events still warrant a close analysis of the stability of the financial system.

Chart C Contribution to the composite measure of uncertainty

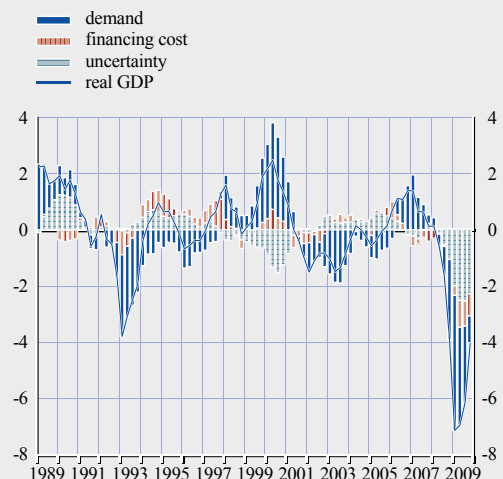
(Q1 1989 – Q4 2009; index averaging zero over the period Q4 1981 – Q4 2009)



Sources: Eurostat, ECB, Consensus Economics and ECB calculations.
Note: See footnotes 1 and 2 in this chapter.

Chart D Contribution to annual GDP growth

(Q1 1989 – Q4 2009; percentage; annual GDP growth and contributions; deviation from sample average)



Sources: Eurostat, ECB, Consensus Economics and ECB calculations.
Note: The series is de-meanned.