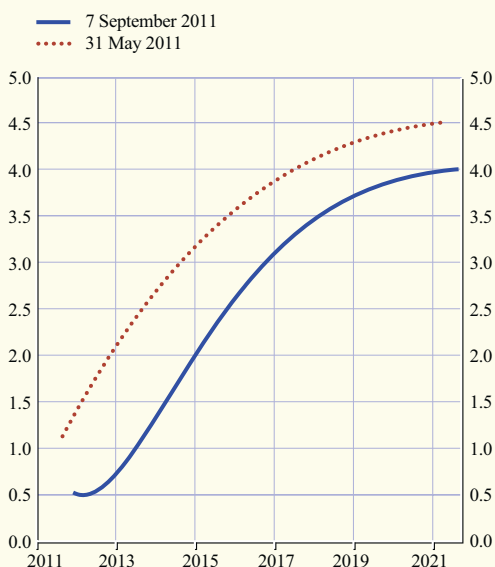


**Chart 28 Implied forward euro area overnight interest rates**

(percentages per annum; daily data)



Sources: ECB, EuroMTS (underlying data) and Fitch Ratings (ratings).

Notes: The implied forward yield curve, which is derived from the term structure of interest rates observed in the market, reflects market expectations of future levels for short-term interest rates. The method used to calculate these implied forward yield curves is outlined in the "Euro area yield curve" section of the ECB's website. The data used in the estimate are AAA-rated euro area government bond yields.

Over the period under review spreads on investment-grade corporate bonds issued by non-financial corporations widened, especially in the case of lower rating classes. The largest increases were observed during the week following the downgrading of US sovereign debt, when market uncertainty increased and investors' sentiment worsened substantially, reducing their appetite for riskier assets. Although these indicators exceeded the levels recorded in 2010, they are currently well below the high values recorded during the peak of the financial crisis after the bankruptcy of Lehman Brothers. Spreads on investment-grade corporate bonds issued by financial corporations widened more than those on bonds issued by non-financial corporations, especially in the case of lower-rated bonds. These developments reflected the greater sensitivity of the banking sector to the current turbulence as well as investor uncertainty, evident in the reaction of both financial stock prices and the prices charged for debt issued by financial corporations. However, the yields on corporate bonds issued by financial corporations continued to be significantly lower than during the period after the collapse of Lehman Brothers.

**Box 5****FINANCIAL MARKETS IN EARLY AUGUST 2011 AND THE ECB'S MONETARY POLICY MEASURES**

In early August 2011 the ECB announced a number of non-standard monetary policy measures in response to a severe deterioration in global financial markets in the course of July and early August. In many respects, the situation was comparable to that observed in the first phase of the sovereign debt crisis in early May 2010.<sup>1</sup> The renewed tensions in financial markets related mainly to the sustainability of public finances in both the United States and the euro area and to market participants' increased concerns regarding the global economic outlook.

In particular, financial markets became increasingly nervous about the possibility of financial disruption, with US government debt approaching its ceiling and Congress and the US Administration reaching only a last-minute agreement on a fiscal consolidation plan. At the same time, markets feared that rating agencies would downgrade and/or assign a negative outlook to

<sup>1</sup> For a description of developments in financial markets when the sovereign debt crisis first erupted (leading to the introduction of the ECB's Securities Markets Programme), see the box entitled "Developments in financial markets in early May", *Monthly Bulletin*, ECB, June 2010.

securities issued by the US federal government and public financial institutions. On 5 August Standard & Poor's did indeed revise its long-term credit rating for US federal government debt, changing it from "AAA" to "AA+" with a negative outlook.

In the euro area, concerns regarding the sovereign debt crisis increased again amid continued high levels of uncertainty about the sustainability of public finances in many euro area countries. In addition, financial market participants shifted their focus to countries not subject to EU-IMF programmes, notably – but not exclusively – Italy and Spain. Ongoing discussions on the modalities of European financial support for the euro area countries most affected by the sovereign debt crisis, including the possibility of private sector involvement and the use of European Financial Stability Facility (EFSF) funds, also appeared to affect financial market sentiment.

Finally, financial market concerns were heightened by the deterioration in the outlook for global economic growth. This reflected, in particular, the risk that economic growth in the United States might slow significantly, following a number of data releases that fell short of market expectations (see also Section 1).

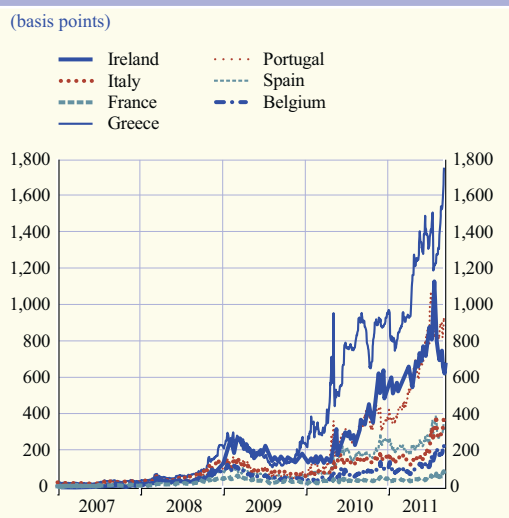
All of these factors contributed to a flight to quality, causing severe tensions in several financial market segments.

### Sovereign bond markets

Euro area government bond spreads vis-à-vis Germany widened considerably in the second half of July and the first week of August. Tensions which had broadly been confined to Greece, Ireland and Portugal spread increasingly to Italy and Spain. The yield spreads for

Belgian and, to a lesser extent, French sovereign bonds also experienced significant increases (see Chart A). On 5 August ten-year government bond spreads reached record highs in most euro area countries. Bond market volatility in the euro area increased significantly compared with the period of relative calm in November 2010 and exceeded the level observed in May 2010 when the euro area sovereign debt crisis first erupted (see Chart B). Indeed, volatility reached a level last seen in the aftermath of the collapse of Lehman Brothers in September 2008. As a result, liquidity conditions in the sovereign bond markets of several euro area countries deteriorated very sharply. Volatility also increased somewhat in the US sovereign bond market over the summer, mainly owing to political tensions relating to the US government debt ceiling and disappointing macroeconomic data releases.

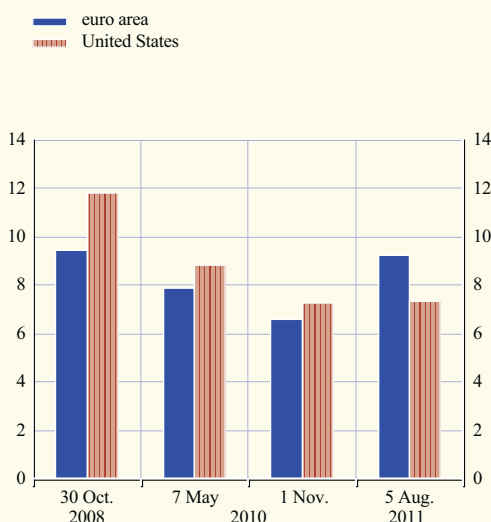
**Chart A Ten-year government bond spreads vis-à-vis Germany**



Sources: Thomson Reuters and ECB calculations.  
Note: Last observation relates to 7 September 2011.

**Chart B Implied government bond market volatility**

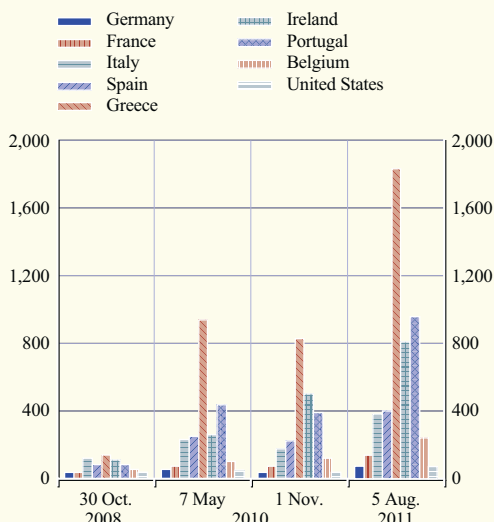
(percentages per annum; three-day moving averages of daily data)



Source: Bloomberg.

**Chart C Euro area and US five-year CDS premia**

(basis points)



Sources: Thomson Reuters and ECB calculations.

Tensions relating to sovereign debt were also reflected in the euro area credit default swap (CDS) market. CDS premia increased not only for Greece, Ireland and Portugal, but also for Spain and Italy and, to a lesser extent, France and Germany. On 5 August they exceeded the levels observed in May 2010 in all euro area countries (see Chart C).

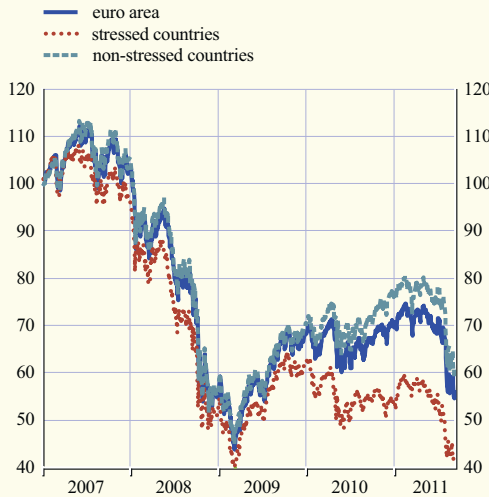
### Stock markets

Stock markets trended downwards both in the United States and in the euro area in early August 2011. This trend began in the second half of April 2011 and mainly reflected increasing uncertainty regarding the global outlook for economic growth, continued tensions in euro area sovereign bond markets and the tense discussions in the United States concerning the public debt ceiling. In the euro area, the first week of August was particularly marked by bearish pressures. In particular in those countries with severe debt market tensions, index levels fell close to the lows reached in March 2009, a few months after the collapse of Lehman Brothers (see Chart D), and below the levels observed in May 2010. Stock prices also fell in the banking sector, both in the euro area countries where tensions in sovereign debt markets were most apparent and in countries in which this was much less of an issue (see Chart E), reflecting concerns about banks' exposure to sovereign risk.

Implied stock market volatility reflects the strong resurgence in market uncertainty, peaking at around 30% in the euro area and 25% in the United States on 5 August, similar to the levels observed in May 2010 (see Chart F). At the same time, and by contrast with developments in the bond market, stock market volatility remained considerably lower than the levels observed immediately after Lehman Brothers' default.

**Chart D Stock prices – total**

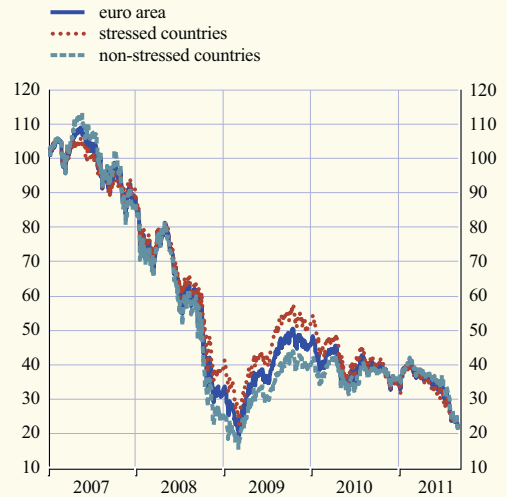
(index: 1 January 2007 = 100)



Sources: Thomson Reuters and ECB calculations.  
Notes: “Stressed countries” are those euro area countries where tensions in sovereign debt markets are more apparent, namely Greece, Ireland, Portugal, Spain and Italy. Last observation relates to 7 September 2011.

**Chart E Stock prices – banks**

(index: 1 January 2007 = 100)



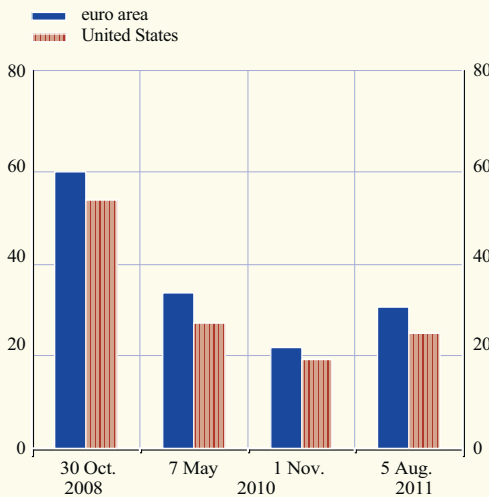
Sources: Thomson Reuters and ECB calculations.  
Notes: “Stressed countries” are those euro area countries where tensions in sovereign debt markets are more apparent, namely Greece, Ireland, Portugal, Spain and Italy. Last observation relates to 7 September 2011.

**Foreign exchange markets**

By contrast with developments in May 2010, when the euro depreciated fairly rapidly both in effective terms and bilaterally against the US dollar, the euro proved relatively resilient in July and August 2011 (see Chart G).

**Chart F Implied stock market volatility**

(percentages per annum; three-day moving averages of daily data)



Source: Bloomberg.

However, against the backdrop of the increased tensions seen on both sides of the Atlantic, implied volatility rose in the second half of July and in August 2011, although it remained much lower than the levels seen in May 2010 for the EUR/USD and EUR/JPY exchange rates (see Chart H). By contrast, volatility in the EUR/CHF rate rose to very high levels, before falling back to levels broadly in line with those seen for other major currencies.

Evidence of US dollar funding pressures emerged in early August, as indicated by the increase in the cross-currency basis spread, especially at shorter maturities (see Chart I). Increased apprehension on the part of US institutional investors, including money market funds, may have contributed to the emergence of funding pressures for a number of banks.

**Chart G USD/EUR exchange rate and nominal effective exchange rate of the euro**

(index: first quarter of 1999 = 100)

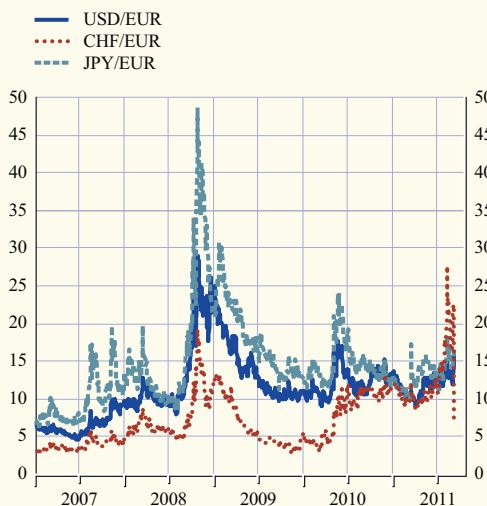


Source: ECB.

Notes: The EER-20 is calculated against the currencies of 20 of the most important trading partners of the euro area (including all non-euro area EU Member States). Last observation relates to 7 September 2011.

**Chart H One-month implied volatility of major currency pairs**

(daily data)



Source: Bloomberg.

Note: Last observation relates to 7 September 2011.

A negative value in Chart I indicates that institutions which want to borrow in US dollars on the cross-currency money market are required to pay a premium on top of the Libor rate. While nowhere near the levels reached in October 2008, the three-month basis spread is currently higher than in previous episodes of market turbulence, such as May 2010. The availability of the ECB's swap facility with the US Federal Reserve (which did not exist at the time of Lehman Brothers' default) can be expected to mitigate US dollar funding pressures for euro area banks, even though only USD 500 million was drawn from this facility in late August.

**Chart I Three-month EUR/USD cross-currency basis spread**

(basis points; daily data)



Source: Bloomberg.

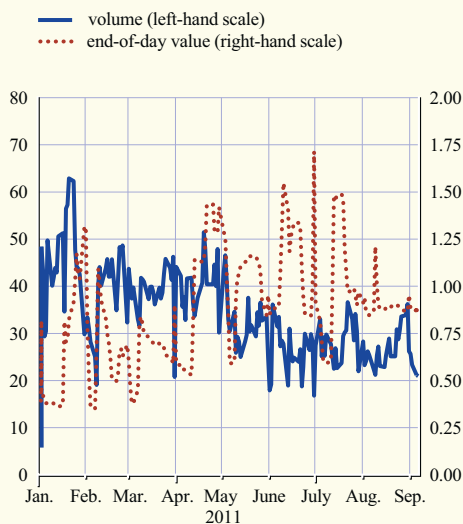
Notes: A negative value indicates that a premium is required in the foreign exchange market in order to borrow in US dollars. Last observation relates to 7 September 2011.

### Money markets

The stress observed in sovereign bond markets in early August also affected the euro area money market, as indicated by the low trading volumes underlying the fixing of the overnight EONIA rate at that time (see Chart J). This relatively low volume reflects a decline in banks' willingness to lend very short-term liquidity to other banks at the EONIA rate on account of an increased liquidity preference and reduced faith in counterparties' ability to

**Chart J EONIA volumes and values**

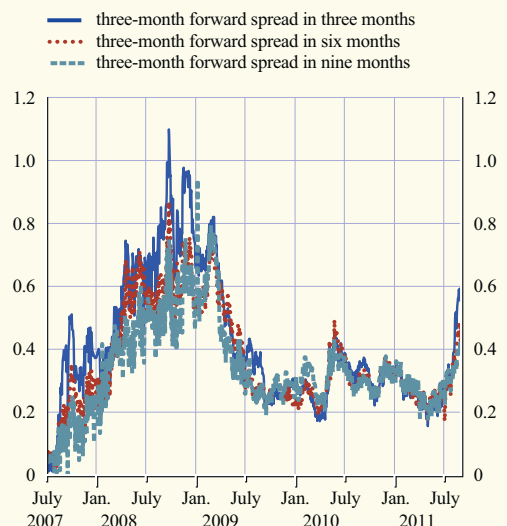
(EUR billions; percentages per annum)



Source: ECB.  
Note: Last observation relates to 6 September 2011.

**Chart K EURIBOR-OIS spreads**

(percentage points)



Source: ECB.  
Notes: Forward spreads for a three-month maturity derived from the EURIBOR in three, six and nine months. Last observation relates to 2 September 2011.

repay loans. Spreads between EURIBOR rates and overnight index swap (OIS) rates – which are often used as an indicator of stress – increased substantially in early August 2011, approaching and even exceeding the levels observed when the sovereign debt crisis first erupted in early May 2010 (see Chart K).

### The ECB's monetary policy reaction

In view of these highly adverse financial market developments, the Governing Council of the ECB decided at its meeting of 4 August to take a number of steps to prevent financial market developments comparable to those observed following Lehman Brothers' default in September 2008 (when a number of financial markets ceased to function as financial investors lost trust in their counterparties). Spillovers to the real economy and contagion risks on account of the strong financial linkages in the euro area further aggravated financial market conditions. Overall, there was a risk that the normal functioning of financial markets could become impaired, with adverse consequences for the transmission of monetary policy impulses – and thus ultimately for the maintenance of price stability in the euro area as a whole over the medium term.

Specifically, on 4 August 2011 the Governing Council announced that the provision of liquidity to banks by means of full allotment at fixed rates would be extended until at least early 2012. It also announced a further longer-term refinancing operation with a maturity of approximately six months. These measures are aimed at supporting bank funding, which should enable banks to continue lending to households and non-financial corporations. It is reasonable to assume that, without these measures, banks' access to finance would have been severely hampered, with negative implications for economic growth and price stability.

In addition, on 7 August it was announced that the ECB would again begin actively implementing the Securities Markets Programme (SMP). This programme had been introduced in May 2010 to support the transmission of monetary policy decisions on account of dysfunctioning in segments of the financial markets, with a view to ensuring price stability for the euro area as a whole. In fact, no purchases had been made under the programme since end-March 2011. The decision to start buying bonds again was taken in view of the significant risk of some government debt securities markets becoming dysfunctional and tensions spreading to other markets in the absence of intervention. The materialisation of these risks would have had a severe impact on access to finance in the euro area economy. The essential role of securities markets – and government bond markets in particular – in the transmission of the monetary policy stance to the real economy, and ultimately to prices, stems from a number of specific roles played by government bonds.

- The interest rates that financial and non-financial corporations have to pay when issuing bonds are usually based on the interest rate on the relevant government bonds (a mechanism known as the “price channel”). Dysfunctional bond markets would create a situation in which the ECB’s official interest rates were no longer appropriately reflected in the longer-term interest rates that are relevant to the decisions taken by households and firms, and thus particularly important for price stability.
- Very high interest rates on account of disruption in government bond markets would lead to much lower government bond prices, resulting in significant losses in the investment portfolios of the financial and non-financial sectors. In the case of commercial banks, the need to recapitalise would reduce their capacity to provide loans to the economy. This is known as the “balance sheet channel”.
- Exceptionally low levels of liquidity in government bond markets limit the use of government bonds as collateral in refinancing operations, thereby also hindering banks’ supply of loans to the real economy (a mechanism known as the “liquidity channel”).

Through these channels, the transmission process in the euro area would be adversely affected. A number of bond markets were affected by the increased tensions – either directly, or indirectly via economic and financial linkages between euro area countries.

In taking the decision to resume its interventions under the SMP, the Governing Council took note – among other things – of Italy’s and Spain’s announcements concerning measures and reforms to be adopted in the areas of fiscal and structural policies, as well as euro area governments’ commitment to meeting their fiscal targets.<sup>2</sup> The prompt implementation of these measures is necessary in order to overcome the sovereign debt crisis.

The modalities of the SMP remain unchanged. Purchases of government bonds by the Eurosystem are strictly limited to secondary markets. Moreover, the liquidity-providing effect of bond purchases under the SMP continues to be fully sterilised by means of specific liquidity-absorbing operations, given that the programme is not intended to inject additional liquidity into the banking system. Finally, the SMP, like all other non-standard monetary policy measures implemented by the ECB during this period of acute financial market tensions, is temporary in nature.

<sup>2</sup> See the statement issued by the President of the ECB on 7 August 2011 (as published in Box 1 of the August 2011 issue of the Monthly Bulletin) for the rationale underlying the decision to resume interventions under the SMP.