

## Box 10

### EVIDENCE ON LIQUIDITY AND CREDIT RISK FROM DEPOSIT-OIS SPREADS

One of the most important features of the recent financial turmoil has been wide money market spreads. A commonly used measure of the risk premium in interbank markets is the spread between unsecured deposit and EONIA swap rates (the deposit-OIS spread). In the euro area, deposit rates are indicated by EURIBOR fixings, based on a trimmed average of unsecured deposit quotes provided by a panel of up to 43 banks, while overnight-indexed swaps (OIS) serve as a proxy for overnight rate expectations.<sup>1</sup> These spreads, which before the inception of the financial turmoil hovered below ten basis points for maturities of up to twelve months and below five basis points for shorter maturities, reached record levels in recent months. This box outlines the evolution of these spreads and examines the information they may contain regarding credit and liquidity concerns.<sup>2</sup>

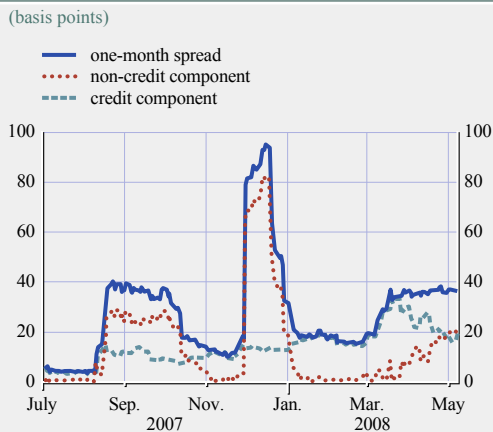
At the outset of the financial turbulence in the summer of 2007, deposit-OIS spreads for all maturities increased significantly (see Chart 3.2). However, as a result of concerted actions by central banks, and a subsequent decline in liquidity concerns, the one-month spread fell noticeably while the 12-month spread remained high. Both the one and three-month spreads showed distinct end-of-year effects, again reflecting liquidity concerns around that time (see also Box 8), which abated considerably in the new year. By contrast, the 12-month rate remained high across the year-end and into 2008, particularly towards the end of the first quarter.

While deposit-OIS spreads should contain premiums for credit and liquidity risk, their weight in the overall spread depends on the maturity. Shorter maturities, such as one and three-month

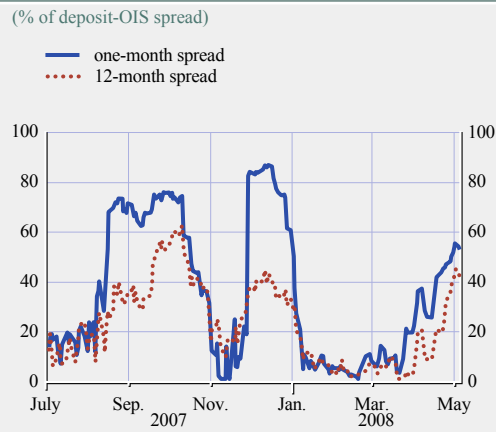
1 It should be noted that the term unsecured interbank market is typically of limited size and liquidity. The ECB's Money Market Study, using data from Q2 2007, estimated that just 1.3% of the unsecured market is traded for maturities beyond three months.

2 Several other studies also analyse these issues in more depth. See, for example, IMF (2008), "Chapter III: Market and Funding Illiquidity: When Private Risk Becomes Public", *Global Financial Stability Report*, April, F.-L. Michaud and C. Upper (2008), "What drives interbank rates? Evidence from the LIBOR panel", *BIS Quarterly Review*, March, and T. Wu (2008), "On the Effectiveness of the Federal Reserve's New Liquidity Facilities", Federal Reserve Bank of Dallas Working Paper, No. 0808, May. The conclusions of these studies broadly concur with those of this particular analysis.

**Chart A One-month euro area deposit-OIS spread decomposition into credit and non-credit (mainly liquidity) components**



**Chart B Proportion of the non-credit component in the euro area deposit-OIS spread**



Sources: Bloomberg and ECB calculations.

Note: The proxy for the credit premium was the CDS spread on investment-grade debt of euro area LCBGs. Both components were obtained with a constrained linear optimisation. The following restrictions were imposed: the credit component should deviate from the CDS spread as little as possible; both components have to be non-negative and add up to the deposit-OIS spread.

shown in Chart 3.2, typically reflect a greater degree of liquidity risk than longer maturities and the opposite applies to credit risk.

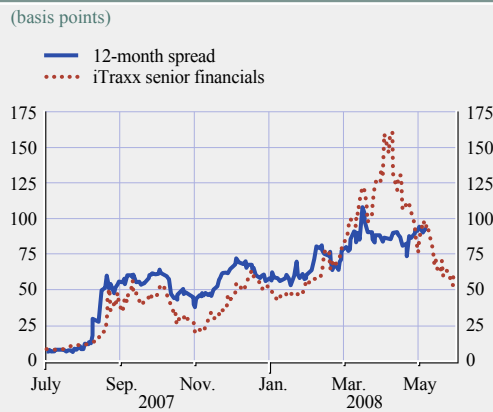
As an example, a decomposition of the one-month deposit-OIS spread into credit and non-credit components is presented in Chart A, whereas Chart B shows the proportions of the non-credit component in one and 12-month spreads. The non-credit component can be considered to be associated mainly with the liquidity premium. Its share in the one-month spread tended to be higher than in the 12-month spread, particularly at the outset of the turmoil and around the year-end.

As shown in Chart A, prior to the emergence of the turmoil in August 2007 the non-credit premium was negligible in size and the credit premium was close to the spread. In August, however, both increased markedly but followed quite different paths. The path of the non-credit premium highlights that liquidity concerns were substantial in the early weeks of the turbulence, contributing significantly to the deposit-OIS spread. After the resumption of heightened tensions around year-end, these concerns appeared to abate considerably in early 2008. At the same time the credit premium remained elevated and in the first three months of 2008 accounted for the major part of the spread. This suggests that during this period the spread was mainly driven by credit rather than liquidity concerns. However, as shown also in Chart B, this has changed somewhat since April 2008. By early May, the proportion of the non-credit premium had increased and accounted for approximately half of the spread. This implies that concerns have once again shifted to liquidity risk.

To highlight the credit risk component of the deposit-OIS spread, Chart C shows the 12-month spread and the iTraxx senior financials index based on the basket of credit default swaps on senior bonds of 25 European banks. This index is lagged by 18 days and its leading property remains to be explained. However, the strong correlation is clear from the chart.

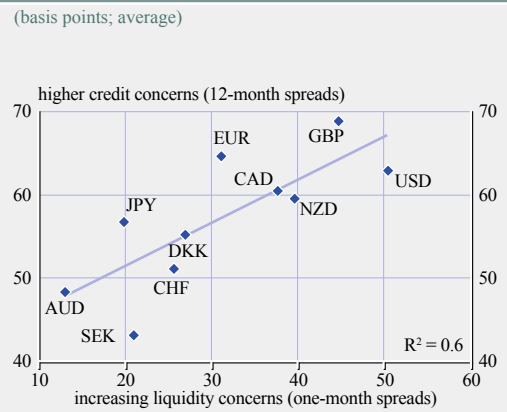
Chart D shows the average one-month spread versus the average 12-month spread for ten major money markets during the turmoil period. This international comparison highlights the positive

**Chart C Deposit-OIS spread and the iTraxx senior financials index**



Source: Bloomberg.  
 Note: iTraxx senior financials index lagged by 18 days.

**Chart D One-month versus 12-month deposit-OIS spreads: country comparison**



Sources: Bloomberg and ECB calculations.

relationship between liquidity and credit risks under the assumption that the former is stronger for shorter maturities and vice versa for the latter. It also serves to underline differences in the nature and extent of tensions in international money markets throughout the turmoil. In general, the euro, UK, Canadian and US markets seem to have been most affected, recording the highest spreads, while the Australian and Swedish markets showed the least signs of tension. However, Chart D also suggests that with credit concerns of the same magnitude, liquidity concerns have been lower in the euro area money market than in the UK, Canadian and US markets.

A tentative conclusion that could be drawn from the analysis is that concerns about credit risks have had a significant impact on money markets, and that they have persisted since the outset of the market turmoil. By contrast, liquidity risks have varied throughout the turbulence, but still remain significant and seem to have been increasing recently.