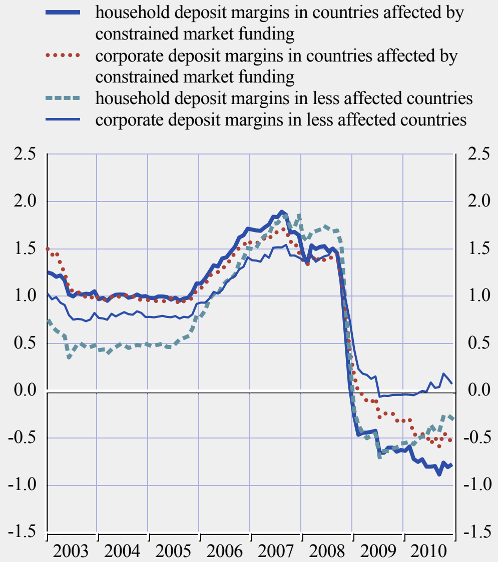
Box 8

THE IMPACT OF THE FINANCIAL CRISIS ON BANKS' DEPOSIT MARGINS

Bank funding risk has been one of the most important sources of banking sector vulnerability throughout the financial crisis. Indeed, one of the notable implications of the ongoing sovereign debt crisis was the intensification of this risk. Especially in some euro area countries where access to market funding has been particularly constrained in recent years, banks have tried to compensate for this by turning to more stable funding sources, such as retail deposits. In order to attract depositors, many banks have increased deposit rates, which has, in turn, resulted in decreasing, and lately even negative, deposit margins having adverse consequences for bank profitability. Using a panel econometric approach and exploiting confidential information from the Eurosystem's bank lending survey (BLS), this box illustrates how impaired access to wholesale funding during the recent financial crisis has influenced the cost of euro area banks' deposit funding.

Chart A Banks' retail and corporate deposit margins in the euro area

(Jan. 2003 – Dec. 2010; percentage points)



Sources: ECB, Thomson Reuters and ECB calculations.
Notes: "Countries affected by constrained market funding" include Greece, Ireland and Portugal. Deposit margins have been calculated as the difference between market reference rates and the new business rates on different deposit categories (i.e. overnight deposits, time deposits with agreed maturity and savings deposits redeemable at notice). Market reference rates have been selected to mirror the same maturity band as the deposit rate categories, and thus include the EONIA, the one and three-month EURIBOR and two and five-year euro area government bond yields, respectively. Overall deposit margins have in turn been derived by weighting the margins on the different deposit categories using outstanding amounts as weights. In an intermediate step, new business time deposit rates were aggregated using new business volumes as weights.

Euro area bank deposit margins have declined sharply since late-2008, following the onset of the substantial monetary policy easing (see Chart A). As policy rates and, hence, short-term money market rates approached the zero lower bound, bank deposit margins were inevitably compressed (as banks typically set deposit rates somewhat below their reference market rates in order to operate with positive deposit margins). However, this compression of margins was compounded by the concomitant restrained access to market funding, which forced many banks to compete for the more stable deposit funding.

Consequently, since early 2009, retail and corporate deposit margins in many countries have moved into negative territory, and have thus adversely affected banks' overall net interest income and profitability. Notably, these developments have been particularly pronounced in those euro area countries that were affected most by the constraints on access to market-based funding (i.e. Greece, Ireland and Portugal). Whereas deposit margins in these countries had, on average, been higher than in the other euro area countries prior to the financial crisis, they were lower and more strongly negative by the end of 2010.

In order to explore the recent developments in bank deposit margins in more detail and, particularly, the impact of malfunctioning funding markets during the financial crisis, a panel regression framework was applied.[1] Using country aggregate figures for MFI deposit rates as well as confidential information from the BLS, a number of panel regressions are run[2] to explore the impact of banks' access to market funding (as reported in the BLS) on bank deposit margins, also taking into account the business cycle (i.e. real GDP growth and proxies for the credit cycle, namely expected corporate sector default frequencies), and of changes in banks' market funding structures[3] and information on banks' terms and conditions for extending loans (also reported in the BLS), to account for potential cross-subsidisation effects between the pricing of banks' (retail-related) assets and liabilities. It is shown that constraints on banks' access to market funding have a negative impact on banks' deposit margins and that this was particularly pronounced when the financial crisis peaked between the fourth quarter of 2007 and the third quarter of 2009 (see Charts B and C). Apart from a potential omitted variable bias and the fact that the regression is estimated in first differences, and not in levels, the rather high residuals observed in the fourth quarter of 2008 and the first quarter of 2009 most likely reflect the only sluggish, but typical adjustment of banks' deposit rates to the sharp drop in policy rates during this period.[4] As regards the unfolding of the sovereign debt crisis that started in the second quarter of 2010, this effect, in turn, has had an impact on especially banks in the countries that had been hit particularly hard by funding stresses, where strong competition for deposits had subsequently emerged among banks, as other sources of debt financing dried up. At the same time, for banks in countries less affected by the sovereign debt crisis, deposit margins increased steadily in the course of 2010, with regression results indicating hardly any negative impact from constraints on access to market funding.[5] Concerning the impact of changes in the structure of market financing, the findings indicate a positive impact on deposit margins from rising new issuance of covered bonds in part alleviating pressures from unsecured market funding. Indeed, this effect was particularly noticeable for some of the countries that encountered severe market funding stress in recent years. Finally, it is found, using information on banks' loan terms and

1 In general, banks' interest rate-setting behaviour, as measured by the spread between retail bank rates and market rates, can be expected to depend on the degree of competition (or bank market power) and on factors related to the cost of intermediation, such as interest rate risk, credit risk, the banks' degree of risk aversion, unit operating costs, bank liquidity and product diversification; for some general explanations, see X. Freixas and J.-C. Rochet, *Microeconomics of Banking*, MIT Press, Cambridge (Massachusetts), 2nd edition, 2008, and T. Ho and A. Saunders, "The determinants of bank interest margins: theory and empirical evidence", *Journal of Financial and Quantitative Analyses*, Vol. 16, 1981.

2 The panel includes eleven euro area countries (the Euro 12 excluding Luxembourg) for the period from the second quarter of 2003 to the fourth quarter of 2010 with a quarterly frequency. The linear cross-sectional time-series models are estimated in first differences with ordinary least squares (OLS) controlling for heteroscedasticity and correlation across panels and, additionally, including country and seasonal dummies. All included variables are significant at least at the 10% and mostly at the 5% or 1% confidence level. R-squared statistics amount to 0.43 for the household deposit regression and to 0.44 for the non-financial corporate deposit regression.

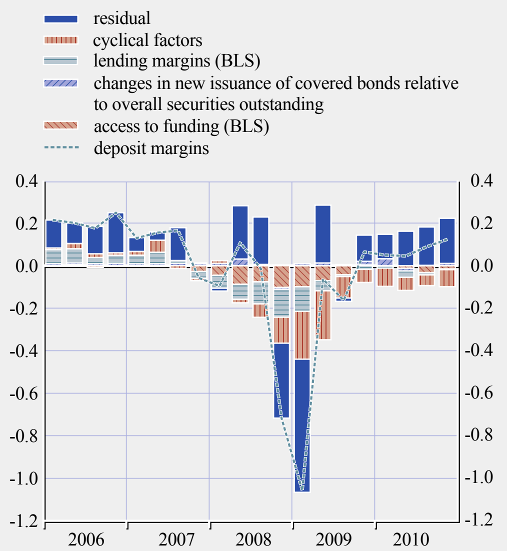
3 Banks' market funding structures are measured here by the ratio of covered bonds to overall bank securities outstanding. The proposition is that the nature of banks' non-deposit funding also matters for the pricing of deposits. In particular, a high reliance on more stable sources of market financing, such as covered bonds, might allow banks to operate with lower deposit rates (i.e. higher margins).

4 See also ECB, "Recent developments in the retail bank interest rate pass-through in the euro area", *Monthly Bulletin*, August 2009.

5 In 2010 – in unweighted average terms – deposit margins in "stressed" euro area countries declined by 0.42 and 0.30 percentage points for corporate and household deposits respectively. The constrained access to market funding contributed -0.07 and -0.22 percentage point respectively to these developments. By contrast, over the same period corporate and retail deposit margins in the "non-stressed" countries increased by 0.12 and 0.28 percentage point respectively, with the variable "access to market funding" contributing positively to margins on corporate deposits and only very slightly negatively to margins on household deposits.

Chart B Decomposition of factors explaining changes of banks' retail deposit margins in the euro area

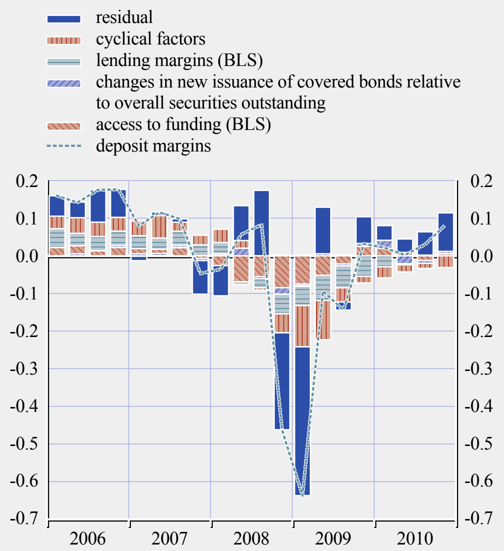
(Q1 2006 – Q4 2010; percentage points)



Sources: ECB, Thomson Reuters and ECB calculations.
Notes: The decomposition of the factors is based on the estimated coefficients of the panel regressions on the de-meaned variables. Cyclical factors include GDP growth and quarterly averages of expected default frequencies for non-financial corporations (NFCs); lending margins refer to respective sectoral replies to the BLS; access to funding reflects replies to the BLS on constraints on access to market funding as a contributing factor to a tightening of NFC credit standards.

Chart C Decomposition of factors explaining changes of banks' non-financial corporate deposit margins in the euro area

(Q1 2006 – Q4 2010; percentage points)



Sources: ECB, Thomson Reuters and ECB calculations.
Notes: The decomposition of the factors is based on the estimated coefficients of the panel regressions on the de-meaned variables. Cyclical factors include GDP growth and quarterly averages of expected default frequencies for non-financial corporations (NFCs); lending margins refer to respective sectoral replies to the BLS; access to funding reflects replies to the BLS on constraints on access to market funding as a contributing factor to a tightening of NFC credit standards.

conditions extracted from the BLS, that cross-subsidisation effects between the pricing of loans and the pricing of deposits are present in the euro area both for deposits by households and by non-financial corporations.[6]

In conclusion, the disruptions to market-based funding markets observed during the financial and sovereign debt crises in recent years are found to have adversely affected euro area banks' deposit margins and, hence, their profitability and ability to rebuild their solvency positions. This highlights the importance of normalising conditions in euro area bank funding markets, which remain impaired at least in some euro area countries.

6 This could for example reflect that banks try to "lock in" customers by offering high deposit rates in return for obtaining more lucrative loan business relations with those customers. See, for example, P. A. Chiappori, D. Perez-Castrillo and T. Verdier, "Spatial competition in the banking system: Localisation, cross-subsidisation and the regulation of deposit insurance", *European Economic Review*, Vol. 39(5), 1995, pp. 889-918. See also M. Berlin and L. J. Mester, "Deposits and relationship lending", *Review of Financial Studies*, Vol. 12, No 3, Fall 1999.