II.2. Has the sovereign debt crisis hampered the recovery process in the euro-area financial sector?

The recovery from the financial crisis progressed considerably in the global as well as the euro-area financial system throughout 2009. However, the 2010 sovereign debt crisis has caused renewed stress in the euro-area financial system and raised concerns about the robustness of its ongoing normalisation process. This section reviews channels through which the sovereign debt crisis of 2010 has impacted on financial activity and examines the implications for the recovery process in the euro-area financial sector.

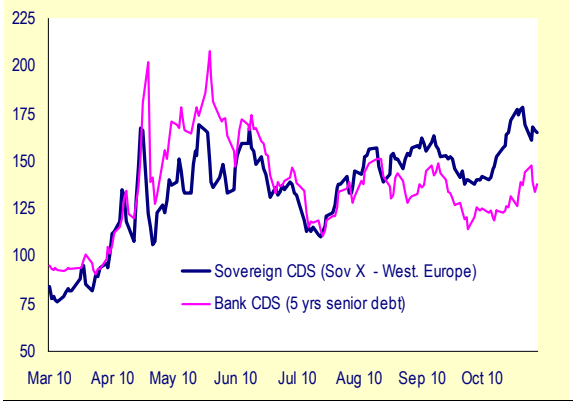
The public and the financial sector are interconnected through various channels. The most obvious one is that governments compete with financial intermediaries for the available pool of savings, the former for financing their debts and deficits, the latter for channelling funds to borrowers and investors. Since yields on government bonds are widely seen as the benchmark for prices of a range of private financial transactions, high public financing tend to raise yields across the board and have spurred a debate about possible crowding-out of private investment. Moreover, there have been concerns that banks could find it increasingly difficult to finance their activity in an environment of rising issuance of sovereign bonds, as they may have to compete with governments for funds.

The sovereign debt crisis has also highlighted the relevance of further, less apparent, connections between the financial and the public sector. On the liability side, for example, several financial intermediaries faced higher funding costs on wholesale markets shortly after the sovereign debt of the country where they were headquartered was downgraded. The quasi-simultaneity of changes to sovereign and corporate ratings suggests that credit risk in the public and banking sector has become strongly interrelated. On the asset side, some government bonds are no longer regarded as quasi-riskless, prompting some investors to restructure their portfolios. This has led to lower government benchmark interest rates, with possible consequences for financial institutions in terms of interest revenues and appetite for risk.

Spillover of credit risk from the public to the banking sector

Throughout 2010, sovereign downgrades were often closely followed by downgrades of banks located in the same country. This coincidence may mean that the credit risk of the public sector sets a floor beneath the credit rating of financial institutions. In addition to changes by rating agencies, markets' assessment of public and banks' credit risk also points to possible spillovers from the public to the banking sector. These spillovers are evidenced in Graph II.2.1 by a strong co-movement of the CDS indices of the public and the banking sectors in the euro area. Most peaks of public CDS took place before the peaks of banks' CDS and the correlation is highest if bank CDS lag sovereign CDS by one day, suggesting that in many cases the causality runs from the public to the banking sector.

Graph II.2.1: **Credit risk of the public and the banking sector as measured by CDS spreads of euro-denominated debt (in basis points)**



Source: Ecowin, Commission services.

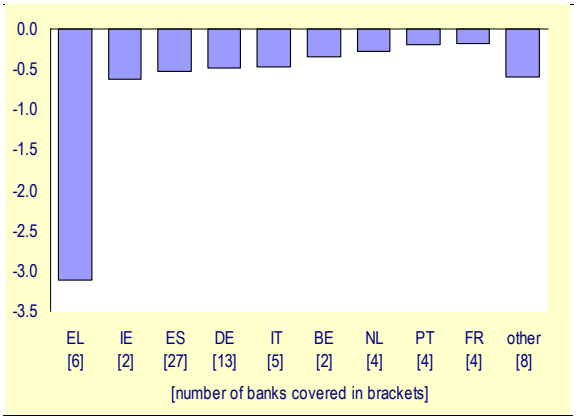
There are at least two (not mutually exclusive) explanations for the close correlation between public and financial credit risk.

The first explanation relates to the impact of higher risks attached to public debt on banks' liquidity and solvency.

- *Liquidity* is affected because government bonds are important vehicles for transactions on wholesale lending markets. They serve as collateral in banks' repurchase operations with the ECB but also in private repo transactions and in trade with financial derivatives. Changes in haircuts (for example following the downgrade of Greek bonds in June 2010) or higher margin requirements (e.g. as enacted by the clearing house LCH Clearnet on Irish bonds) reduce the value of government bonds used as collateral to obtain refinancing for financial activity. In the worst case, a fall in sovereign bond values may force financial institutions with a limited pool of collateral to reduce business.

- *Solvency* may be affected because declines in government bonds' market value affect banks' trading books, reducing their profits and capital. The EU-wide stress tests coordinated by the Committee of European Banking Supervisors (CEBS) in summer 2010 show that this effect can sometimes be substantial and varies depending on the banks and countries considered. The stress tests covered a panel of 91 banks of which 77 are headquartered in the euro area and assessed the impact of both a severe macroeconomic shock and a sovereign risk shock on banks' Tier 1 capital ratio. ([33]) The results show that the sovereign debt shock would cause the Tier 1 ratio to decline on average in the euro area from 8.8% to 8.1% (non-weighted average) or from 9.0% to 8.6% (weighted average). Graph II.2.2 shows that the drop would be markedly higher for banks located in some countries with difficult public debt positions. This is indicative of banks holding a large share of domestic sovereign bonds, while their exposure to sovereign bonds from other Member States is on average more limited. Considerable differences exist, however, across banks.

Graph II.2.2: **Changes in the Tier 1 capital ratio of banks in response to a sovereign risk shock, CEBS stress tests (average per country, in pp of Tier 1 ratio)**

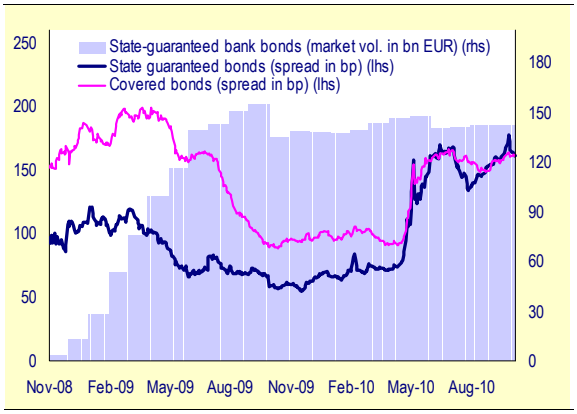


(1) Others include CY, LU, MT, AT, SI and FI.
Source: CEBS, Commission services.

The second explanation for the strong interdependence between public and financial credit risks relates to the fact that the public sector has become the implicit or even explicit guarantor of banks' solvency in many EU Member States.

The public measures enacted during the 2008/09 banking crisis (extended guarantees, capital injections, asset purchases, etc.) mean that risks have partly been transferred from the financial to the public sector. However, there are signs that the value of public guarantees for the banking system has deteriorated over time. Graph II.2.3 shows that spreads on state-guaranteed bonds increased considerably in early summer 2010. Since then, it has become more expensive to issue a bank bond with a state guarantee than a covered bond. ([34]) The difference between state-guaranteed and covered bonds in the graph even underestimates the costs of issuing a guaranteed bond because, in addition to the coupon payable, the issuer has to pay a fee of 100-120 bp to the public sector as guarantor. Except in Spain and Greece, only few euro-area banks have resorted to the issuance of state-guaranteed bonds since May 2010.

Graph II.2.3: **State-guaranteed bank bonds: volume outstanding and spread of euro-denominated debt**



Source: Ecowin, Commission services.

Obviously, spillovers in credit risk do not only run from the public sector to banks. Ireland is a clear case of reverse causality, i.e. of sovereign risks increasing because problems in the banking sector were perceived to have intensified. In autumn 2008, Ireland announced that it was in effect guaranteeing all deposits and debt of its banking system. In summer 2010, the rating agency Standard & Poors justified its downgrade of the Irish long-term sovereign credit rating with an upward revision of its estimate of the expected costs of financial sector support. Accordingly, market observers ascribed the rising spreads on Irish government bonds in autumn 2010 to the precarious situation of parts of its banking system.

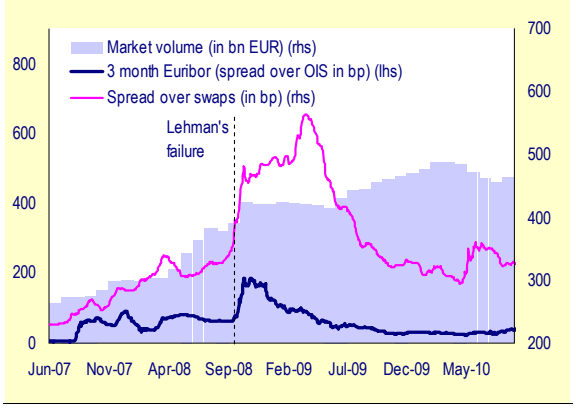
([33]) The sovereign risk shock was modelled as a common shift in the yield curve (125 bp for the three-month rates and 75 bp for the 10-year rates) supplemented with country-specific upward shocks to long-term government bond yields (overall amounting to 70 bp for the euro area). See http://stress-test.c-ebs.org/documents/Summaryreport.pdf.

([34]) A covered bond is a bond that is backed by revenue streams from an underlying asset, such as a mortgage or a loan.

Sovereign debt problems hampered banks' access to finance in some Member States

In the euro area as whole, tensions on government bond markets in 2010 have had a clear temporary impact on banks' capacity to tap long-term debt markets. Graph II.2.4 illustrates that the spreads of bank bonds moderated gradually until spring 2010, falling back to levels last seen in summer 2008 prior to the huge spread increase following Lehman's failure. In spring 2010, however, when the sovereign debt crisis intensified, banks' costs of issuing long-term debt securities rose again. Banks' issuance activity pre-Lehman's was accompanied by a rise in spreads, but thereafter followed a broadly inverse trend, with net issuance turning positive only once spreads began falling. This inverted trend showed tentative signs of normalising again in August 2010.

Graph II.2.4: **Conditions in euro-denominated bank debt markets, euro area (1)**



(1) MARKIT benchmark portfolio.
Source: Ecowin, Commission services.

The impact of the sovereign debt crisis on money markets in the euro area as a whole remained short-lived and contained, largely thanks to ECB policy interventions that accommodated liquidity shortages. ([35]) Money market rates rose slightly between April and July 2010 and the 3-month Euribor-OIS spread, widely seen as the central gauge of counterparty risk on wholesale money markets, widened over the summer before falling back to a level slightly above its starting position.

Nevertheless, while the aggregate impact on money market spreads in the euro area remained limited, developments in 'core' and 'peripheral' Member States diverged. When public debt managers faced challenging conditions on sovereign bond markets in some Member States, several banks located in these countries also encountered difficulties in accessing wholesale finance on money markets. As the ECB continued its full-allotment policy, these banks were able to substitute central bank funds for interbank funds. The fact that ECB lending channelled via the central banks of some Member States has remained at relatively high levels since is indicative of the depth of localised tensions on interbank markets linked to the sovereign debt crisis.

Overall, the available data indicate that the spillover of credit risk to the banking system temporarily increased financing costs of financial liabilities, although this was fairly short-lived in the euro area as a whole. However, it has also led to new pockets of exposure. Banks located in countries most strongly hit by the turmoil on sovereign debt markets have faced credit rating downgrades and limited access to refinancing markets on a more permanent basis. To the extent that the sovereign debt crisis constrains public sector support for the banking system, banks in need of further public capital, guarantees or liquidity may see their business position weakened as long as public finances are under stress. Others may see both their credit risk and refinancing costs progressively decoupled from those of the home country's public sector.

The sovereign crisis has triggered substantial changes in portfolio composition

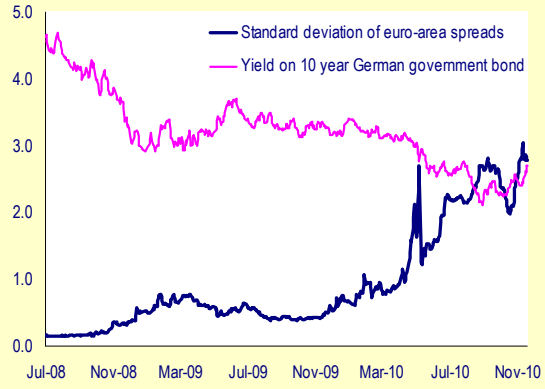
The impact of the sovereign debt crisis on financial markets is not restricted to banks. Ensuing changes in risk assessment have also deeply altered the composition of investment portfolios. Since the beginning of the sovereign debt crisis, the value of some government bonds has become more volatile and investors increasingly perceive even investment in euro-area government bonds as risky. Traditionally, fixed income investors are risk-averse, with a preference for long-term stability in the valuation of their portfolio. Some institutional investors face restrictions, either of a regulatory nature or from their customers, which limit their possibilities to take risks. For these investors, the reclassification of some government bonds as risky and volatile assets induced structural adjustments to their investment strategy.

There is some support for the notion of a shift in the composition of sovereign bond portfolios away from 'riskier' government bonds to ones

([35]) See 'Developments on financial markets in early May', Box 3 in *ECB Monthly Bulletin*, June 2010.

that are still considered as risk-free. Market sources indicate that since the sovereign debt crisis, the role of US and German government bonds as major risk-free assets has been reinforced. This implies additional demand for these benchmark bonds and consequently lower benchmark yields.

Graph II.2.5: **Benchmark yield and the dispersion of sovereign spreads in the euro area (in %)**



Source: Ecowin, Commission services.

Evidence of a redirection of sovereign bond portfolios towards safer bonds can be derived from the dispersion of sovereign bond yields (Graph II.2.5). Those Member States perceived as having relatively higher sovereign risk have experienced a relative rise in their bond yields. Interestingly, this development contrasts with the pre-crisis period when, due to the ongoing 'search for yield', sovereign bonds in the euro-area periphery generally out-performed the average. In this period, a decline in the German Bund yield was typically accompanied by a narrowing of yield spreads.

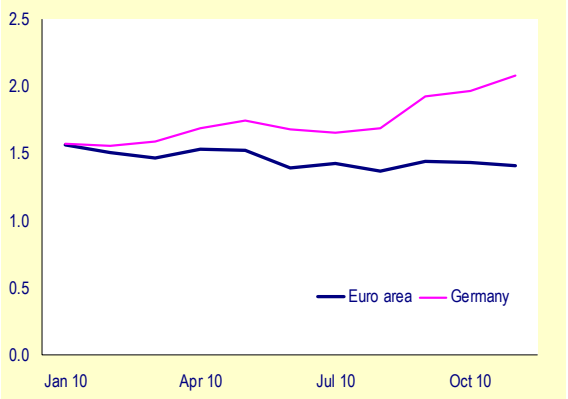
Market data indicate that trading in secondary markets for bonds of peripheral euro-area Member States slowed over the summer of 2010. During that period, when liquidity on bond markets is already traditionally low, the ECB under its Securities Market Programme was the main purchaser of the bonds concerned. ([36]) Low liquidity on markets implies that unexpected events may have a profound impact on market prices and spreads, exaggerating the effect of market news on changes in investor sentiment. Box II.2.1 presents estimations of the link between sovereign yields and liquidity that show that low levels of liquidity can push yields significantly upwards.

The narrowing of the available pool of benchmark bonds has also made them more sensitive to changes in investors' strategies. In August 2010, negative US economic indicators left investors scrambling to shift their portfolios from equities to risk-free bonds, which brought the German Bund yield down to its historically lowest level and the US Treasury close to the level recorded in January 2009, when a severe recession was expected.

Lower benchmark interest rates may boost activity but complicate balance sheet repair in the financial sector

Low benchmark interest rates have the potential to provide a positive impulse to economic activity in the euro area through higher asset prices and lower costs of debt servicing and investment. However, they may also weigh on banks' profitability, particularly their interest margins.

Graph II.2.6: **Consensus real GDP forecast for 2011, successive revisions during 2010 (annual growth in %)**



Source: Consensus Economics.

The positive effects depend on whether the low benchmark rate is not itself caused by the perception of weaker economic activity. This does not seem to be the case in the euro area. According to Graph II.2.6, growth forecasts for the euro area for 2011 hardly changed during the course of 2010, despite the sovereign crisis. If anything, market participants became slightly more optimistic regarding prospects in Germany.

In some cases, a fall in benchmark interest rates may, however, have a depressing impact on banks' profitability. For example, concerns have

([36]) The ECB decided in May 2010 that it would intervene in euro-area government bond markets (under the Securities Market Programme) in order to 'ensure depth and liquidity in those market segments which were dysfunctional', so as to restore an 'appropriate monetary policy transmission mechanism'.

Box II.2.1: **The link between sovereign liquidity and spreads — Tentative empirical support**

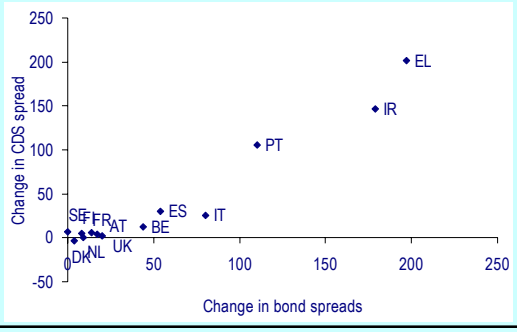
This box presents some tentative empirical support for the explanation that liquidity considerations interacted with spreads over summer 2010, using a simple cross-country OLS regression. Across euro-area Member States, changes in sovereign bond spreads and CDS spreads generally tend to be highly correlated and this is also true for the summer 2010 (see chart). A high correlation is not surprising because default risk is an important common factor for both variables. However, the decline in liquidity on some peripheral Member States' sovereign bond markets should be expected to have a different effect on bonds and CDS spreads. Thus, one could expect that bond spreads of illiquid sovereigns would increase by more than predicted on the basis of the rise in CDS spreads. The higher the liquidity in a market segment, the smaller should be ceteris paribus the increase in spreads. This hypothesis was tested with daily data for 11 euro-area Member States (BE, DE, EL, ES, IE, FR, IT, NL AT, PT, SF) with period-fixed effects FE_t. Regressing the daily changes in bond spreads ΔY over the period 1 June to 9 September 2010 on the daily changes in CDS spreads ΔCDS, daily changes in stock price indices ΔEQ and a measure of market size L gives:

$\Delta Y_{i,t}$ =	0.01	+ 0.24$\Delta CDS_{i,t}$	- 0.54 $\Delta EQ_{i,t}$	-0.017 $L_{i,t}$	+ FE_t + $\epsilon_{i,t}$
s.e.	0.003	0.021	0.291	0.007	
Prob	0.005	0	0.065	0.019	

Standard errors in brackets, R2 = 0.42, DW= 1.83, N = 772

Over this period, all variables in the estimated equation have the expected sign and are significant at the standard 5% level or, in the case of stock prices, ([1]) close to being significant. The results suggest that the increase in default risk and decrease in stock prices, reflecting the expected impact of the business cycle, had a large impact on the variation of bond spreads during summer 2010. Higher liquidity was associated with lower spreads. The measure for L used was the market value of iBoxx benchmark portfolios for sovereign bonds (in EUR trillion). ([2]) This number is available at daily frequency, although it changes only once a month. Interestingly, L is not significant when the regression is run for other periods (starting 9/2009, 1/2010, 4/2010), suggesting that this factor has influenced intra-area bond spreads in the recent past, but is not a permanent determinant of spreads. Comparable results are found if the volatility of changes in yields is taken as a measure of liquidity rather than market size. The coefficient is higher and more significant the more closely the estimation period is narrowed to summer 2010, suggesting that liquidity effects have recently become a determinant of bond yields.

Change in bond and CDS spreads over August 2010 (in basis points)



Source: Commission services.

([1]) This result is attributable to the use of period-fixed effects, which controls for factors that are common to all countries. When estimated without time-fixed effects, the change in stock prices is significant.

([2]) The series for EL was discontinued on 1 July 2010. The latest available value was used to fill observations after that date.

been raised that a low level of interest rates in combination with low lending volumes could unduly compress some banks' interest margins, thereby hindering their profitability and the recapitalisation of their balance sheets. Although net interest revenues are only one source of banks' profits, they are an important one and during the financial crisis their share in total revenues grew relative to trading and fee income.

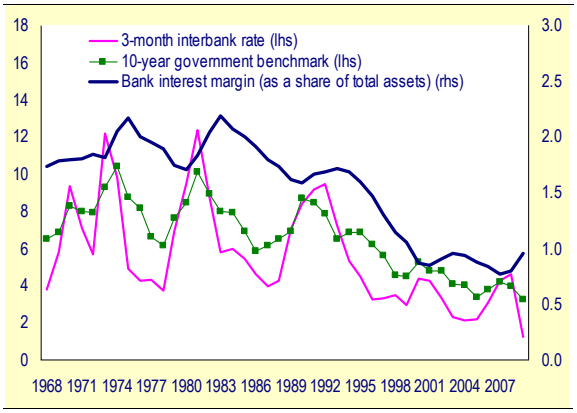
German data presented in Graph II.2.7 show that banks' interest rate margins tend to follow the development of the benchmark interest rate with a lag. Econometric estimations with German data suggest that the maximum negative impact of lower interest rates on banks' interest revenues occurs after three to four years. ([37]) Thus, low interest rates are likely to weigh on banks' profit margins over the medium term.

Similarly, life insurance companies that, for instance, guarantee a 3% per year return on the policy will find it difficult in times of low yields to assure this by investing in government or triple-A bonds. The persistently low interest rates may

([37]) To account for the interdependency of the variables, this was estimated with a vector autoregression, using interest revenues, nominal GDP and interest rates or the term structure.

induce them to take additional risks to meet guaranteed return targets.

Graph II.2.7: **Interest rates and interest margins in the German banking system (in %)**



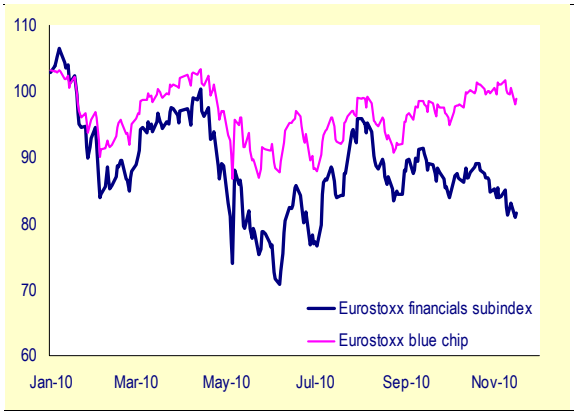
Source: Deutsche Bundesbank, Commission services.

The situation for financial institutions and, in particular, banks in peripheral euro-area Member States may be somewhat different. While they may face higher refinancing costs, they may also have the opportunity to pass on the higher government bond interest rates in their home country to higher retail lending rates, thereby maintaining their interest margin and shifting the adjustment burden further to the real economy. Available evidence suggests, however, that there has been no systematic shift of the interest burden to banks' customers although banks in some Member States seem, to a certain extent, to have to been able to do so in some market segments

Arguably, margin adjustment pressure will be stronger for banks that entered the sovereign crisis with low interest margins/revenues. Comparing 2009 balance sheet data across banks, there is, however, no indication that interest margins were significantly lower in banks located in peripheral Member States relative to those in 'core' countries. Neither is there evidence that banks that have received State aid have systematically lower interest margins. While a lower interest rate can be expected to increase the adjustment burden on banks, the impact on different banking clusters' profitability is ex ante difficult to derive.

Banks may be able to nevertheless generate steady net interest revenues if economic activity is sufficiently strong. Thus, the importance of the ongoing economic recovery for banks' profitability has increased since the sovereign debt crisis and the associated drop in benchmark interest rates. Whereas financial market participants initially focused on the sustainability of public debt, they later became worried about the consequences of austerity measures for economic growth once these were enacted. By end-November, broad stock market indices had recovered the losses incurred during the sovereign debt crisis, although still remaining below their pre-crisis peaks. However, shares in financial institutions underperformed the broad market index (Graph II.2.8). From their temporary low in late August 2010 to late November, they underperformed compared to the overall Eurostoxx index, implying that markets have turned more pessimistic regarding banks' profitability than profitability in the economy as a whole.

Graph II.2.8: **Stock prices in the euro area (Jan 2010=100)**



Source: Ecowin, Commission services.

Lower benchmark interest rates may increase risk-taking but may help lower compound risk

Low interest rates over an extended period of time may encourage risk-taking by the financial sector. Recent empirical studies by the IMF, BIS and ECB suggest that there has indeed been a link between low interest rates over an extended period and higher risk-taking in the past. ([38])

But at this stage there is little evidence of banks stepping up their risk-taking at the aggregate level. Despite favourable financing conditions, financial institutions are not raising as much

([38]) For the so-called risk-taking channel of monetary policy transmission see:
De Nicolò, G., G. Dell'Ariccia and L. Laeven (2010), 'Monetary policy and bank risk taking', *IMF Staff Notes*, No 10/09;
Altunbas, Y. L. Gambacorta and D. Marques-Ibanez (2010), 'Does monetary policy affect bank risk-taking?', *BIS Working Paper*, No 298;
Maddaloni, A. and J.L. Peydro (2010), 'Bank risk-taking, securitisation and low interest rates, *ECB Working Paper*, No 1248.

funding on wholesale markets as they used to do in previous years. In their efforts to reduce their sensitivity to wholesale funding, banks report that they aim at replacing short-term wholesale funding with more stable deposits. On the asset side, credit standards are still tight, suggesting that banks have not moved towards more risky lending behaviour. Investments in those assets that went through a strong boom-bust cycle in recent years (for example securitised assets) are reportedly still at a low level. This also holds for investments in markets that are genuinely risky, but which were not at the centre of the financial crisis, such as private equity, hedge funds, etc. Financial institutions have used past profits to improve their capital buffers, thereby reducing leverage.

Conclusions

Investors' worsening perception of sovereign risk has contributed to a negative loop between public finances and financial market developments. It has raised funding costs for banks in peripheral Member States and has complicated the ongoing process of balance sheet repair. The emergence of some sovereign bonds as risky assets has segmented the investor base and led to higher funding costs for some Member States, at a time of falling benchmark interest rates in the euro area. Lower benchmark rates may stimulate economic activity, but they may also reduce profit margins in the financial industry and encourage risk-taking. While this may run counter to the aim of minimising overall risk levels in the economy, there is currently little evidence of financial institutions increasing their risk positions or interrupting their deleveraging process. Overall, while risks have become less system-wide and more concentrated in individual Member States, the possibility of contagion across highly interconnected markets means that the EU financial system as a whole remains exposed. With the advent of the sovereign debt crisis, the prospects for recovery in the financial system have become even more dependent on the strength of the economic recovery than before.