4 THE EURO AREA BANKING SECTOR

The financial results of euro area large and complex banking groups (LCBGs) for 2007 show that most of these institutions suffered significant declines in net income during the last two quarters of the year. Despite the falls in income, which mainly reflect write-downs of exposures to securities affected by the financial market turmoil, solvency measures at the end of 2007 indicated a reasonable amount of remaining shock absorption capacity among these institutions. Looking ahead, as spillovers to asset markets and the real economy play themselves out, it can be expected that the profitability of the euro area banking sector in 2008 will be adversely affected. Moreover, it cannot be ruled out that credit losses could also start increasing for LCBGs. Reflecting this view, market indicators are currently pricing in substantial near-term risks for euro area LCBGs, although some of the indicators have shown a slight recovery since the end of the first quarter of 2008.

4.1 FINANCIAL CONDITION OF LARGE AND COMPLEX BANKING GROUPS[1]

The continued strengthening of the profitability of euro area LCBGs in the first half of 2007, after several years of improvement, positioned most of them relatively favourably to weather the market turbulence that ensued in the second half of the year. As expected, the turbulence acted as a drag on profitability both through mark-to-market valuation losses and increased impairment charges on loans and securities. Consequently, it reduced the ability of banks to generate capital internally through retained earnings. That said, the risk-bearing capacity of LCBGs was still assessed as satisfactory in early 2008, notwithstanding a background of very difficult market conditions.

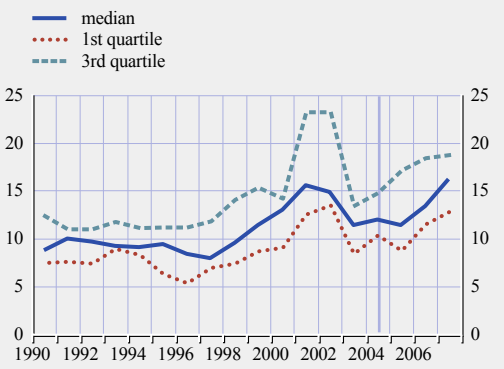
The market turbulence that erupted in August 2007 has put a significant dent in the largely positive performance of euro area LCBGs since 2004. When recalling previous bank earnings cycles, several stylised facts emerge which help to put recent developments into perspective. First, when compared with previous peaks, the return on equity (ROE) of euro area LCBGs in 2007 was the highest seen since 2001, in spite of the impact of the turbulence in the second half of the year (see Chart 4.1). Second, although there is a persistent disparity in performances between poorly performing banks and banks with return on equity at the upper end of the distribution, the gap remained narrower than when euro area banks last faced a challenging environment in 2003.

It is notable that there was wide variation in the impact of the turbulence during the second half of 2007 on the financial performance of institutions through mark-to-market valuation losses as well as other turbulence-related charges taken through the profit and loss accounts. For instance, several euro area LCBGs endured significant losses in the second half of 2007 which overwhelmed the strength of their performances in the first half of the year (see Chart 4.2). By contrast, a sizeable number of institutions were largely unaffected by the turbulence. For these institutions, neither full-year net after-tax income nor shareholders' equity was affected.

1 For a discussion on how euro area large and complex banking groups are identified, see Box 10 in ECB (2007), *Financial Stability Review*, December. At the time of analysis, not all figures were available for all banks.

Chart 4.1 Return on equity of listed large and complex banking groups in the euro area

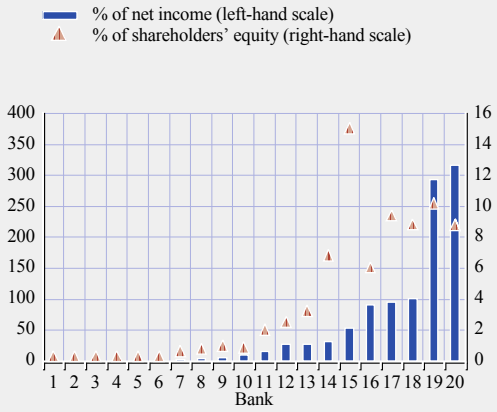
(1990 – 2007; %)



Sources: Thomson Financial Datastream and ECB calculations.
Note: The number of listed institutions included varies over the period due to mergers and acquisitions. The grey vertical line marks the introduction of IFRS accounting standards which marked a break in the series.

Chart 4.2 Impact of the turbulence on full-year 2007 net income of large and complex banking groups in the euro area

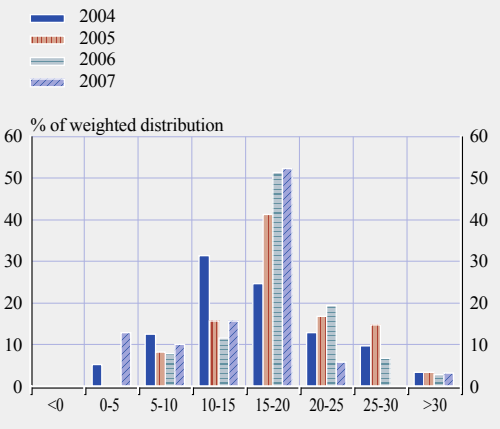
(2007; %)



Sources: Individual institutions' financial reports and ECB calculations.

Chart 4.3 Frequency distribution of return on equity of large and complex banking groups in the euro area

(2004 – 2007; %)



Sources: Individual institutions' financial reports and ECB calculations.

Net interest income of euro area LCBGs continued to be squeezed in the second half of 2007 despite further volume growth in lending. As a result, the predominant source of income growth was from non-interest income sources. Continuing a pattern noted in the December 2007 FSR, increases in risk-weighted assets through balance sheet expansion and, in some cases, because of takeovers of other banks, led to slight declines in solvency ratios[2]. In some individual institutions, growth in risk-weighted assets reflected re-intermediation of assets that were previously held in off-balance sheet structures, as well as a reduced ability to distribute newly originated assets, which resulted in a crystallisation of warehousing risk. However, despite the mark-to-market losses endured in the second half of 2007, banks' capital ratios remained well above regulatory minimums.

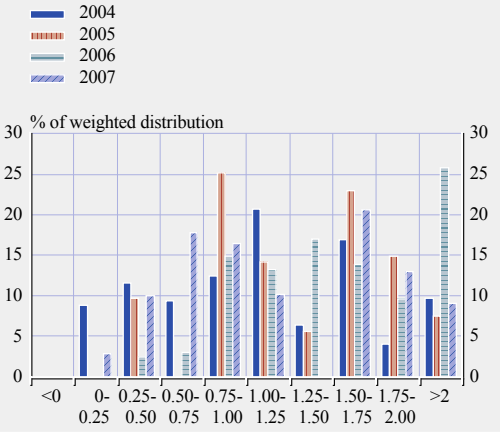
PROFITABILITY IMPACTED BY TURBULENCE

Primarily reflecting the negative impact of the market turmoil, the profitability of euro area LCBGs for the full-year 2007 fell for the first time since 2003. The full-year weighted average ROE for these institutions dropped from about 18.4% in 2006 to about 14.3% for the full year 2007. The smaller drop in the median ROE, from 17.7% to 15.4% over the same period, reflected the skewing of the losses across these institutions. Institutions in the lowest quartile

2 In the latter case, this was due to the short-term growth in risk-weighted assets due to the increase in balance sheet size of the merged entity.

Chart 4.4 Frequency distribution of return on risk-weighted assets for large and complex banking groups in the euro area

(2004 – 2007; %)



Sources: Individual institutions' financial reports and ECB calculations.

of the profitability distribution also endured a significant decrease in their profitability from just over 7% in 2006 to under 3% in 2007 (see Chart 4.3 and Table S5).

Other measures of profitability such as return on risk-weighted assets (RORWAs) also declined in 2007. The weighted average return decreased from 1.55% in 2006 to just under 1.10% in 2007 (see Chart 4.4 and Table S5).[3] This was due both to weaker net income in 2007 and a sharp rise in risk-weighted assets as a result of growth in lending in emerging and other markets outside of home markets. Re-intermediation of assets from off-balance sheet structures, as well as difficulties in securitising assets, also contributed to the growth in risk-weighted assets (see Chart S87 and Table S5).

3 Risk-weighted assets (RWAs) are used to calculate regulatory (BIS-based) capital requirement ratios based on on-balance and off-balance sheet positions. They are computed by assigning each of the bank's assets and off-balance sheet items to several broad risk categories, each of which has different weights that increase with the level of risk, in order to calculate the denominator for the capital requirement ratios. The numerator of the capital is the euro amount of either Tier 1 capital or total capital.

Box 12

MARK-TO-MARKET ACCOUNTING AND THE LOSS FIGURES PRODUCED BY LARGE AND COMPLEX BANKING GROUPS

This box outlines the accounting and valuation concepts behind the recent figures disclosed by euro area LCBGs. Contrary to certain media reports the majority of these figures reflect valuation changes on securities held rather than impairments reflecting outright credit losses. In any event, there are inherent difficulties in comparisons across institutions due to differences in the methods and assumptions used to value these exposures.

The impact of the sub-prime crisis can be seen in the figures disclosed by banks in their financial statements in two main ways: valuation changes on various assets and increases in credit impairments. Most of the figures recorded in banks' accounts are valuation changes and relate to securities whose value has been adversely affected by the sub-prime turbulence. Under International Financial Reporting Standards (IFRS), euro area banks value these securities depending on the accounting category in which they were included at the time of recognition, namely: fair-value through profit or loss, available for sale (AFS) or held to maturity (HTM). According to reports from the LCBGs themselves, most sub-prime-related securities are accounted for under the first two categories. Those securities that were classified as "held for trading purposes", and thus included in the fair-value through profit or loss category, must be valued at market prices, if such prices are available, or through a valuation technique, if they are not. The resulting changes are reflected directly in the profit and loss account of the holding entity.

For securities included under AFS, the decline in value that does not constitute an impairment of the asset is reflected in changes in equity (in a special AFS reserve) and the loss is not taken through the profit and loss account until the asset is sold. Banks generally have considerable discretion regarding whether AFS assets are impaired, which may be one of the reasons why there was not a material increase in impairments in the third quarter of 2007.

In addition, where banks have marked to market their own issued liabilities, deterioration in their credit risk standing will have a positive effect and lead to an increase in equity as it reflects a lower value of this obligation.

Furthermore, the way in which banks calculate mark-to-market valuation changes and whether these valuation changes are comparable across banks have attracted increased attention in the current period. Before the turmoil, under IFRS, banks disclosed limited information concerning the amount and type of assets that were marked to model. This situation in the euro area is in contrast to the United States where new Generally Accepted Accounting Principles (GAAP) require certain disclosures concerning the portion of assets in a portfolio that are purely marked to model.[1] Large US financial institutions began to disclose these details during the course of 2007. In the meantime, however, most euro area LCBGs have also voluntarily revealed the scale of their actual exposures to holdings of sub-prime-related assets – including CDOs – in response to market developments and to considerations from their auditors.

1 Under US GAAP accounting standards (SFAS 157), US financial institutions are required to classify these assets under a three-level hierarchy that gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). In Level 2 reporting entities classify assets for which the only available inputs are other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.

NEGATIVE EFFECT OF TURBULENCE ON INCOME

Despite the increase in short-term market interest rate spreads in the euro area in 2007, net interest income as a percentage of total assets decreased slightly in 2007 as a whole to a weighted average of 0.76%, compared with just under 0.82% for 2006 (see Table S5 and Chart S88). On one hand, while the steepening of the euro area yield curve may have positively contributed to net interest margin expansion for some banks through increasing loan margins (see Chart S94), the effect on total operating income may have been attenuated by the fact that net interest income represented only about 50% of total operating income for euro area LCBGs. Furthermore, deposit margins (i.e. the spread of weighted deposit rates over corresponding swaps) have declined due to the impact of the turbulence on the swap market (see Chart S98). Finally, some of the positive impact on banks' net income overall from a steepening yield curve could be offset by increased impairments in the period ahead. However, overall, it appears that volume growth in lending over the course of 2007 was not sufficient to compensate for declining margins.

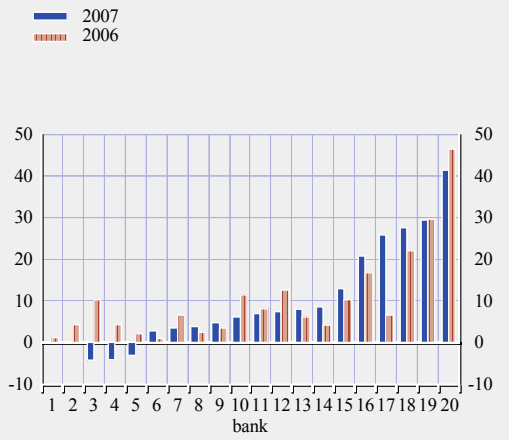
Although slowing down to some extent, growth in fee and commission income remained the most important source of non-interest income for euro area LCBGs. There was a slight increase in the share of this income item in net operating income to about 30% in 2007 from about 29.5% in 2006.

As mentioned in previous editions of the FSR, capital market conditions had been very favourable for several years prior to the eruption of the market turbulence. This had underpinned strong trading revenues but there had been doubts as to whether these could be sustained in the medium term. As shown in Chart 4.5, for some banks the main impact of the turbulence in the second half of 2007 on net income came from declines in trading revenue.

Trading income performances for the full year in 2007 demonstrated the volatility of this income source. In relation to Tier 1 capital it fell substantially for some institutions in 2007 when compared to 2006 (see Chart 4.5). For a number of institutions it was even negative, representing outright trading losses. Nevertheless, several LCBGs saw an increase in their trading revenues

Chart 4.5 Trading revenue as a percentage of Tier 1 capital for large and complex banking groups in the euro area

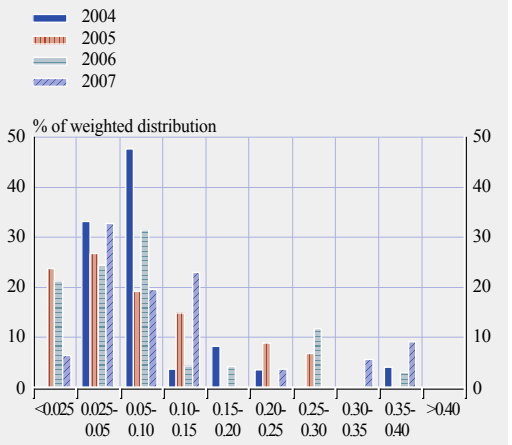
(2006 – 2007; %)



Sources: Individual institutions' financial reports and ECB calculations.

Chart 4.6 Frequency distribution of net loan impairment charges for large and complex banking groups in the euro area

(2004 – 2007; % of total assets)



Sources: Individual institutions' financial reports and ECB calculations.

overall in 2007, primarily due to growth in emerging markets and commodities-related trading. Median trading revenue as a percentage of Tier 1 capital increased slightly from 6.5% in 2006 to 7.1% in 2007.

CREDIT COSTS BEGINNING TO INCREASE

Credit costs – or impairment charges as they are known under IFRS – increased in 2007 compared with 2006. While recently reported levels of loan impairment charges by euro area LCBGs remain low by historical standards, the weighted average loan impairment charge increased slightly from 0.09% of total assets in 2006 to around 0.11% in 2007 (see Chart 4.6 and Table S5). The main underlying reasons for this increase were the continued effect of mergers, as banks with a significant level of loan impairments were taken over, and increased retail lending in overseas markets where euro area LCBGs are active (including eastern Europe and South America).[4]

As the accounting results for 2007 reflect financial performances during the whole year, they reflect not only the impact of the recent credit market turmoil but also the pre-turmoil period during the first half of the year when impairments were extremely low. While some of the impairment charges at individual institutions already reflected the adverse credit quality impact of the turbulence in the 2007 accounts, it cannot be ruled out that overall impairments may increase further and become more widespread in the period ahead.[5]

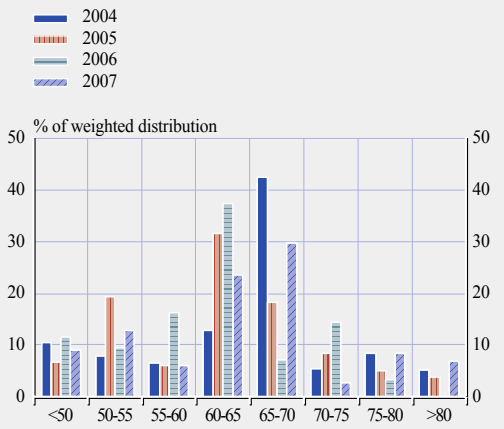
In terms of operating efficiency, cost-to-income ratios increased slightly among euro area LCBGs in 2007, as the growth in operating income was outpaced by growth in operating costs. This was primarily due to a reduction in operating income and integration-related costs following mergers. The weighted average cost-to-income ratio increased from about 61.1% in 2006 to 61.7% in 2007. The more poorly performing institutions' cost-to-income ratios increased from 54.8% in 2006 as a whole to 55.3% for 2007 (see Chart 4.7 and Table S5).

4 For some institutions, there was a decline in the amounts of write-backs of loans reflecting a lower degree of work-outs of loans that were previously classified as impaired. This is because gross impairment data purely indicate the flow of new impairment charges. The net impairment figure, which is the sum of new impairments plus reversals of previously impaired loans, is not yet available on a comparable basis for the entire sample of the euro area LCBGs.

5 In some individual cases, impairment charges could also have been affected by pro-active measures taken in the form of dynamic provisioning.

Chart 4.7 Frequency distribution of cost-to-income ratios for large and complex banking groups in the euro area

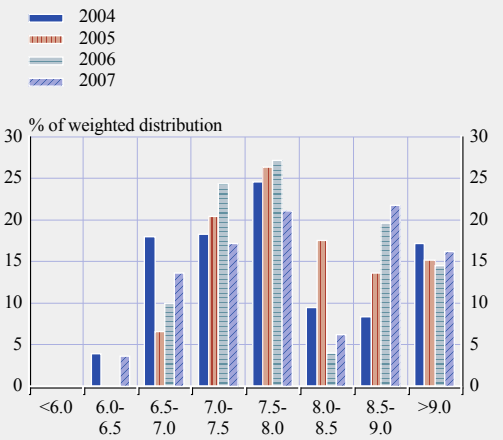
(2004 – 2007; %)



Sources: Individual institutions' financial reports and ECB calculations.

Chart 4.8 Frequency distribution of Tier 1 ratios for large and complex banking groups in the euro area

(2004 – 2007; %)



Sources: Individual institutions' financial reports and ECB calculations.

CAPITAL RATIOS DECREASED BUT REMAIN ABOVE REGULATORY MINIMA

The continuous strengthening of profitability over recent years had allowed banks to retain profits which contributed positively to their capital ratios. Against this positive trend, recent turbulence-related reductions in retained income, as well as increases in risk-weighted assets, led to a slight weakening of the weighted average euro area LCBG Tier 1 ratio from 8.13% in 2006 to 7.78% in 2007 (see Chart 4.8). As discussed earlier, there were several reasons for the growth in risk-weighted assets, such as increased lending commitments, merger activity, and re-intermediation of some assets previously held off balance sheet.

Developments in overall solvency ratios also mirrored those in Tier 1 ratios. The overall solvency ratio declined slightly from a weighted average of 11.35% in 2006 to just over 10.42% in 2007 (see Chart S92 and Table S5). For both ratios, the solvency of the most poorly performing institutions weakened further, indicating a slight decline in the shock absorption capacity of these institutions. Nevertheless, both solvency measures exceeded the respective regulatory minima for these capital ratios for all euro area LCBGs at the end of 2007, which indicates a reasonable amount of remaining shock absorption capacity among these institutions.

4.2 BANKING SECTOR OUTLOOK AND RISKS

Compared with the situation at the time of finalisation of the December 2007 FSR, the short-term outlook for the profitability of euro area LCBGs has deteriorated on account of the persistence of the financial market turmoil. In particular, revenues are expected to remain under pressure and further mark-to-market losses are expected to materialise. Furthermore, credit costs could increase should the actual corporate sector default rates rise in the euro area as currently suggested by forecasts and market indicators. The way the banks will respond to a much more challenging operating environment partly depends on the extent to which initiatives and measures – both by policy-makers around the world and by the financial industry itself – which are aimed at restoring confidence in and strengthening the resilience of financial systems are eventually implemented (see Box 13).

Box 13

INITIATIVES AND MEASURES THAT ARE BEING TAKEN IN ORDER TO RESTORE CONFIDENCE AND STRENGTHEN FINANCIAL SYSTEM RESILIENCE

The turmoil in mature economy financial markets has revealed a number of weaknesses in the existing regulatory and supervisory framework worldwide. In response, competent authorities, international organisations as well as market participants themselves have launched several initiatives to identify the major causes of the turmoil and to develop responses aimed at restoring confidence and at strengthening the resilience of the financial system. In this connection, this box provides an overview of three streams of work that deserve special attention: the roadmap of the ECOFIN Council; the recommendations of the Financial Stability Forum (FSF); and initiatives that are being taken by the private sector.

The ECOFIN roadmap: at the EU level, the ECOFIN endorsed in October 2007 a roadmap, defining a list of actions in relation to the financial turmoil that are scheduled to be completed in 2008. The Council identified four priority areas for action: (i) enhancing transparency; (ii) improving valuation standards; (iii) reinforcing prudential rules and risk management in the financial sector; and (iv) improving market functioning. After the cut-off date of this issue of the FSR, on 14 May, progress on the roadmap as well as on the timeline was reviewed by the ECOFIN Council, and policy priorities for the short and medium term were confirmed.

The FSF recommendations: at the international level, the G7 Ministers and Central Bank Governors requested in October 2007 the Financial Stability Forum to draw the relevant lessons from the financial turmoil and to set out policy recommendations, with the aim of increasing the resilience of markets and institutions. After intensive consultation with international bodies and national authorities, the Report of the FSF on Enhancing Market and Institutional Resilience was discussed and endorsed at the G7 meeting on 11 April 2008. The report contains 67 recommendations, grouped in the following five main areas: (i) strengthening prudential oversight of capital, liquidity and risk management; (ii) enhancing transparency and valuations; (iii) changes in the role and uses of credit ratings; (iv) strengthening the authorities' responsiveness to risks; and (v) dealing with stress in the financial system. Within these broad categories, specific issues are also to be addressed, such as assessing the cyclicality of the Basel II framework; improving liquidity management of financial institutions; enhancing central bank monetary policy operational frameworks and crisis management arrangements; as well as improving cooperation and the exchange of information between authorities that are of particular importance also for central banks.

Private sector initiatives: in response to the financial turmoil, the Institute of International Finance (IIF) set up a committee to explore market best practices, with the aim of addressing current weaknesses and strengthening financial institutions so that they are better equipped to deal with future challenges. The interim report of the IIF has revealed that deteriorating lending and underwriting standards; excessive reliance on poorly understood ratings of structured products; difficulties in the valuation of illiquid assets; inadequate appreciation of the adverse implications of liquidity and reputational risk exposure of conduits and structured investment vehicles for sponsoring banks; as well as difficulties in identifying the final bearers of risks, were

among the major sources of the turbulence.[1] The detailed recommendations are planned to be published in summer 2008.

In addition to the IIF report, several other market initiatives that are aimed at addressing weaknesses in the securitisation process are also under way, including those of the European Securitisation Forum (ESF), the Securities Industry and Financial Markets Association (SIFMA) and the European Banking Federation (EBF). The major trade associations are working on identifying market best practices and have committed themselves to cooperate with authorities and other interested stakeholders to develop timely improvements in areas where shortcomings have been detected.

1 Institute of International Finance (2008), "Interim Report of the IIF Committee on Market Best Practices", April.

INCOME AND EARNINGS RISKS

Against the background of the recent financial market developments, it can be expected that euro area banking sector profitability will continue to be adversely affected by the market turbulence over the next several quarters as the process of financial de-leveraging proceeds. Moreover, several developments that occurred in the first quarter of 2008, including the worsening of counterparty risk vis-à-vis US "monoline" financial guarantors and the updating of model assumptions for the valuation of various types of illiquid structured credit securities, suggest that further mark-to-market valuation losses could be disclosed by euro area LCBGs in the near term. Additional factors that are likely to dampen the future earnings growth of LCBGs include elevated funding costs, lower non-interest income from securitisation and financial market activities, as well as slowing credit growth.

Regarding the latter point, in the latest ECB bank lending surveys (BLSs) banks consistently reported declining expected net demand for loans to households for house purchases and loans to non-financial corporations. However, in the latest survey, conducted in April 2008, the fall in expected demand was slightly less than in the previous quarters. Against this background, it is worth noting that banks seem to have already taken action to boost their interest income by simultaneously increasing their lending margins (see Chart S94) and sharply reducing their deposit margins (see Chart S98).

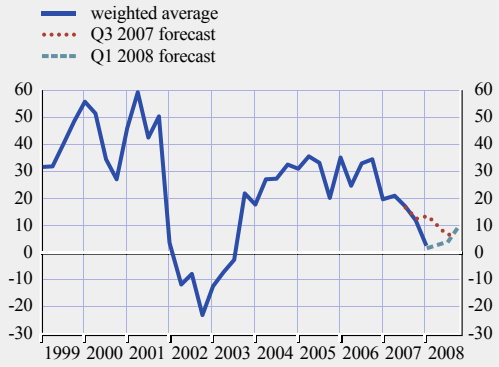
As to the probable impact of increased market volatility on LCBGs' appetite for risk-taking, banks have started to tighten their credit standards and, at the same time, there are indications that they have reduced their exposures to some riskier activities, such as commercial real estate lending and the funding of leveraged buyout (LBO) deals or hedge funds.[6] Such a reaction by banks is consistent with a risk management strategy whereby financial institutions target a particular level of a certain risk metric, such as the value at risk (VaR). Indeed, if VaR is seen as a product of the size of an institutions' exposure to an asset (a security or a loan) and the price volatility of that asset, then under such a strategy an increase in risk (volatility) would lead risk managers to reduce their institution's exposure to these assets.[7] Given that lending for the above-mentioned purposes had been an important source of income for many euro area LCBGs over the past few years, a retrenchment from these activities could have a sizeable short-term negative impact on banks' earnings.

6 However, this information needs to be interpreted with some caution given the continuing strength of growth in banks' lending to the private sector as measured by the MFI statistics in the first quarter of 2008.

7 Recent empirical evidence suggests that banks indeed are engaged in active balance sheet management whereby they adjust their leverage upwards during economic upswings (when volatility and perceived risks are low) and downwards during downturns (when volatility and perceived risks are high). See, for instance, T. Adrian and H. Shin (2007), "Liquidity and Leverage", Federal Reserve Bank of New York, mimeo, and D. Greenlaw, J. Hatzius, A. Kashyap and H. Shin (2008), "Leveraged Losses: Lessons from the Mortgage Market Meltdown", paper presented in the US Monetary Policy Forum Conference, February.

Chart 4.9 Earnings and earnings forecasts for large and complex banking groups in the euro area

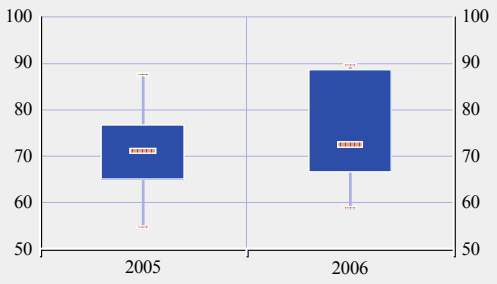
(Q1 1999 – Q4 2008; % change per annum; weighted average)



Sources: Thomson Financial Datastream, I/B/E/S and ECB calculations.
Note: Derived from earnings per share (EPS) adjusted for number of shares outstanding.

Chart 4.10 Distribution of euro area large and complex banking groups' retained earnings

(2005 – 2006; % of net income; maximum, minimum, interquartile distribution and median)



Sources: Bureau van Dijk (Bankscope) and ECB calculations.

Against this background, analysts' forecasts for the short-term future earnings growth of euro area LCBGs have been revised downwards compared with the forecasts of six months ago (see Chart 4.9). While earnings growth is expected to remain subdued in the course of the year, it should be recalled that the level of profitability of these institutions still remains relatively high historically and the downturn is expected to be milder than was the case in 2002.

Finally, an important source of capital accumulation for banks is through the retention of earnings. Indeed, after dividend payments, most of the earnings of euro area LCBGs over recent years have been retained as reserves which form one part of Tier 1 capital (see Chart 4.10). Against the strength of the profitability of these institutions over the past few years, the retention of profits has allowed them to put aside funds against future shocks to their balance sheets. As most institutions still managed to generate profits in 2007, despite the turbulence, this means that the buffers they had accumulated in the past were not substantially eroded. However, the ability of euro area LCBGs to retain earnings at the same rate as in the past will most likely be impaired.

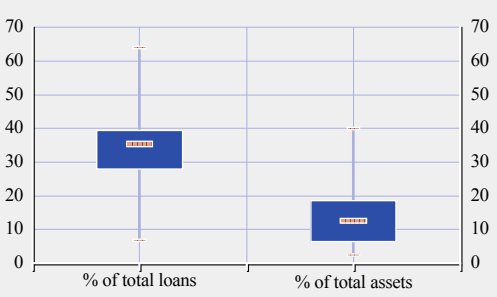
HOUSEHOLD SECTOR CREDIT RISKS

Lending to households is an important business line for most euro area LCBGs and for some of them it represents a sizeable proportion of their overall lending portfolios (see Chart 4.11). Hence, the creditworthiness of households is important in assessing the overall risk profile of these institutions.

Regarding the risks associated with the stock of loans to euro area households on the balance sheets of banks, as discussed in detail in Section 2.4,

Chart 4.11 Distribution of euro area large and complex banking groups' loan exposures to households

(2006; %; maximum, minimum, interquartile distribution and median)



Sources: Individual institutions' financial reports and ECB calculations.

measures of household sector leverage and the household interest burden in the euro area increased slightly further in the six months after the finalisation of the December 2007 FSR, although at the euro area average level these measures remain moderate by international comparison. At the same time, the gradual increase in interest rates as banks pass on past increases in policy rates provide a backdrop for increased, albeit still on average rather contained, credit risks for banks on their household lending side.

Important in the assessment of the credit risk facing banks in their mortgage lending to households are conditions in the housing market, including the risks of house price decline, the prudence of lending standards applied in the past and the prevailing levels of loan-to-value (LTV) ratios. In this vein, although there are some signs that prior to late 2007 credit standards had been loosened considerably in some countries, LTV ratios were generally set at rather conservative levels. That said, previously identified pockets of vulnerability continue to exist especially in those Member States where rapid house price increases have contributed to cyclically low LTV ratios by increasing the denominator of the ratios, and where risks of house price reversals are highest due to low levels of affordability. In addition, households with high levels of consumer debt and mortgage debt contracted at variable interest rates could be more vulnerable in the period ahead should the banks they have borrowed from decide to pass on the elevated funding costs prevailing in the wholesale and capital markets.[8]

Regarding the credit quality of new loans extended to households, the ECB bank lending surveys conducted in January and in April 2008 indicated that euro area banks had tightened their credit standards on housing loans (see Chart S104). The main factors behind the net tightening were a worsening of expectations regarding general economic activity and a deterioration in housing market prospects. In addition, large banks in particular quoted the cost of funds and balance sheet constraints as factors contributing to tighter standards. Credit standards for consumer credit and other lending were also tightened according to the two surveys conducted in 2008 thus far, reversing the net easing of credit standards on these loans still reported in October 2007 (see Chart S105). Worsening expectations regarding general economic activity and the creditworthiness of consumers were the most important factors reported by banks for the net tightening. Looking forward, in the April 2008 BLS, banks reported that they expect credit standards applied on all kinds of loans to households to be tightened further in the following quarter, while they also expect a further slowdown in demand for loans for house purchases.

CORPORATE SECTOR CREDIT RISKS

Regarding LCBGs' credit risks on their corporate loan books, the combined impact of tightening financing conditions, slowing economic growth, appreciation of the euro exchange rate and further increases in oil prices rather unambiguously point towards an increase in expected corporate sector default rates in the euro area. As discussed in Section 2.2, however, actual default rates in the euro area had only shown a moderate pick-up by early May 2008, although going forward a more pronounced increase could be expected. The very low default rates of recent years appear, in part, to have been a symptom of easier financing conditions and lax lending standards. However, they may also reflect the continuing favourable business cycle conditions in some Member States. Furthermore, many non-financial firms have undergone extensive balance-sheet restructuring throughout the current decade. For instance, there are indications that firms were able to negotiate debt contracts that allowed them to postpone bankruptcies in the event of financial distress by allowing them to roll over their debts even with seriously depleted cash flows. While such arrangements could be seen as being favourable for all parties concerned in the long run in cases where firms face temporary financial difficulties

8 However, a more detailed assessment would require extensive analysis of sufficiently homogeneous micro-level data from the household sector which is relatively scarce in the euro area. For more details see ECB (2007), "EU banks' exposure to residential property markets", *EU Banking Sector Stability,* November.

(and are reminiscent of "relationship lending" practices), in a more prolonged corporate sector downturn they may simply postpone the inevitable but, at the same time, allow losses to accumulate for longer and to much higher levels than might otherwise have been the case. Hence, to the extent that such practices became increasingly common in the latter part of the upward phase of the recent credit cycle, there is a risk that default rates and loss given defaults could be higher than expected in the downward phase of the credit cycle.

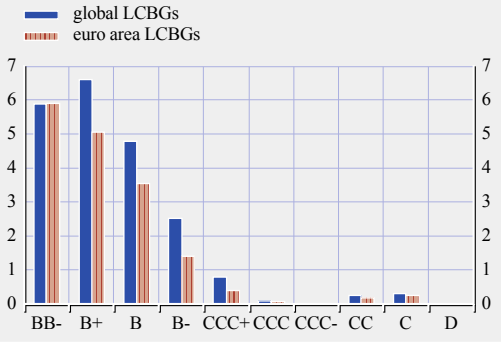
Looking at the exposures of euro area LCBGs to riskier forms of corporate lending (e.g. firms rated below investment grade or below BBB), it appears that the largest concentrations are in lending to firms rated BB- (see Chart 4.12). Lower down the credit quality spectrum, exposures decline steadily. Global LCBGs by contrast have the greatest concentrations of exposures towards slightly lower-rated loans.

It is important to note that many of these loans were originated with a view to subsequent sale to the secondary loan markets. The dislocation of these markets since August 2007 has, however, forced many LCBGs to "warehouse" leveraged loans on their balance sheets. At the time of the cut-off date for this FSR, there were signs that banks were starting to be able to sell their warehoused loan exposures, albeit at substantial discounts, which will reduce the risk of further increases in capital requirements and mark-to-market losses. Box 14 provides an assessment of the risks of future valuation losses on the banks' warehoused leveraged loans.

Looking at the geographical distribution of exposures of euro area LCBGs to sub-investment grade lending, the greatest concentration of exposures are towards the United States (see Chart 4.13). This is due mainly to the fact that the sub-investment grade corporate credit market is much deeper in the United States than anywhere else. Looking forward, this means that a potential deterioration in the credit cycle in the US corporate sector could pose heightened credit risks for some euro area LCBGs that are particularly active in these markets.

Chart 4.12 Euro area large and complex banking groups' exposure to sub-investment grade corporate loans

(loans originated between 2005 and 2008; % of total syndicated loans)



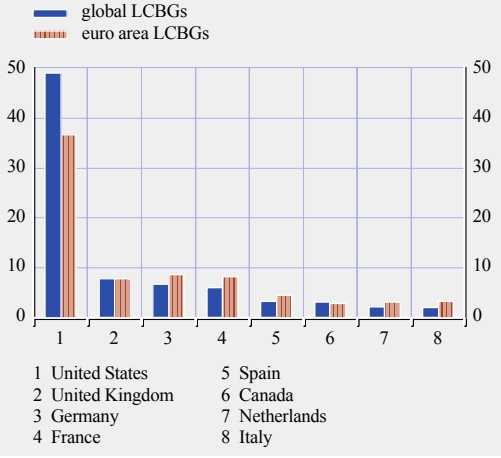
Source: Dealogic.

Finally, as discussed in detail in Section 2.3, the fact that some risks and vulnerabilities in the commercial property markets have increased could pose risks to banks in Member States where lending exposures to the commercial real estate investment and construction sectors are high.

All in all, banks' credit risks on their corporate sector loan books appear to be rising. This has been reflected in announcements by many euro area LCBGs in early 2008 that they have increased their reserves for future expected

Chart 4.13 Geographical concentration of loans extended by euro area LCBGs to sub-investment grade corporates between 2005 and 2008

(% of all leveraged loans issued between 2005 and 2008)



Source: Dealogic.

Box 14

LEVERAGED LOAN EXPOSURES AND MARK-TO-MARKET WRITE-DOWN RISKS OF EURO AREA LARGE AND COMPLEX BANKING GROUPS

Between 2004 and 2007 the issuance of leveraged loans (loans extended to below investment-grade-rated companies) almost tripled in the euro area, reaching around €240 billion. A number of mutually reinforcing factors contributed to the substantial pick-up in this type of lending by euro area banks. In particular, a boom in global leveraged buyout (LBO) activity increased the supply of these loans which were readily absorbed by investors due to the rapid expansion of a secondary market for such loans and the growing popularity of collateralised loan obligations (CLOs) which also took leveraged loans into their underlying collateral pools. The growth in the leveraged loan market also coincided with a shift by many large banks from a "buy and hold" business model towards an "originate and distribute" one. However, distribution of collateralised debt securities into the markets became very difficult from the second half of 2007 onwards as a result of the market turbulence. This meant that many banks were forced to "warehouse" leveraged loans that they had originally been planning to securitise. This left them exposed to credit and market risks on these loans. Against a background in which only a relatively small share of leveraged loan exposures had been written down by euro area LCBGs by early May 2008,[1] this box makes an attempt to estimate the magnitude of total mark-to-market write-downs on banks' leveraged loan exposures.[2]

Estimates of the potential write-downs that could be facing euro area LCBGs in the period ahead can be made by combining information on the market value of leveraged loan tranches implied by credit default swap spreads for these loans with individual bank-level data on LCBGs' leveraged loan exposures. The market's view about the net present value of leveraged loans, taking into account expected default rates, is reflected in the LCDX index. This index consists of CDS spreads of 100 reference leveraged loans and it was developed in order to allow banks and other financial market participants to hedge their loan exposures. For the purpose of this box, the index was decomposed with a non-linear optimisation technique into the par values of five separate tranches using data on the CDS spreads on various LCDX index tranches. These implied par values of tranches were then matched with ratings.

According to the estimated implied tranche values, after August 2007 the market value of several lower-rated tranches decreased markedly (see Chart A). Since several euro area LCBGs have disclosed that they have significant holdings of leveraged loans on their balance sheets, the drops in the market values indicate that there could be a risk of significant future write-downs on these exposures. It is possible to estimate the bank-specific mark-to-market losses for euro area LCBGs on their holdings of leveraged loans by combining the information on changes in the LCDX index with information on the exposures of euro area LCBGs to leveraged loans, which can be obtained from the Dealogic database on a deal-by-deal basis.[3] The exposure of each bank to different tranches, combined with the LCDX index-implied tranche value, can provide a rough estimate of the total implied mark-to-market loss of each bank on its leveraged loan portfolio. Some caveats to

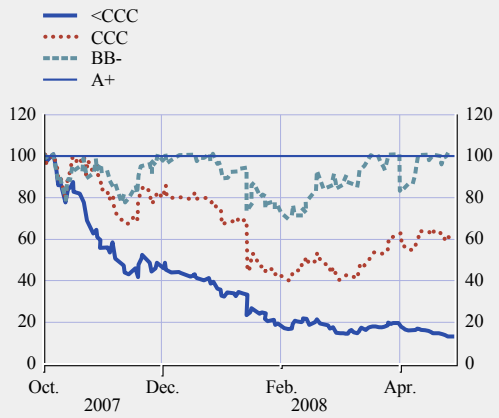
1 According to JP Morgan data, the share of write-downs across the LCBGs most heavily exposed to leveraged loans ranged between 0% and 8.7% of the total exposure. Further write-downs on leveraged loans are expected in 2008. See JP Morgan Chase & Co. (2008), "European Wholesale & Investment Banks: The Structured Credit Mark-to-Market Tracker", April.

2 This estimate is derived using the prevailing market value of leveraged loans implied by CDS prices for leveraged loans as at 29 February 2008.

3 This analysis has been restricted to the ten LCBGs for which all necessary data were available.

Chart A LCDX index-implied prices on different tranches of leveraged loans

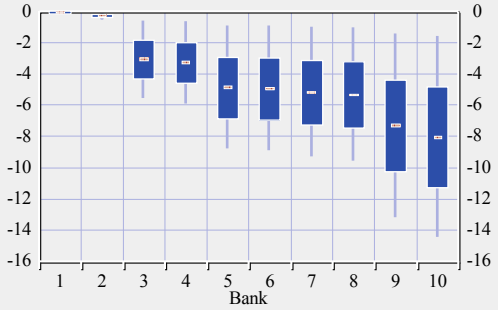
(% of par value)



Sources: JPMorgan Chase & Co. and ECB calculations.

Chart B Impact of implied mark-to-market losses on total capital ratio of euro area large and complex banking groups

(% points of capital ratios)



Sources: Individual institutions' financial reports, Dealogic and ECB calculations.
Note: Data on capital ratios refer to the 2007 year-end figures. Exposures' cut-off date is 29 February 2008, implied value of write-downs estimated as at 8 May 2008. The "length" of each individual box plot corresponds to the estimated total impact on a bank's capital ratio under different hedging assumptions: the lower end of the line represents the impact if only 10% of the portfolio is hedged, the lower end of the box 30%, the middle point 50%, the upper end of the box 70% and the upper end of the line 90%.

this approach must, however, be underlined at the outset before interpreting the results. First, the actual amount of the write-downs, if any, depends on the particular country-specific regulatory framework to which each LCBG is subject. It is probable that in those countries where mark-to-model techniques are commonly used and approved by the regulators for valuing these loans, the actual write-downs could be substantially lower than those estimated here. Second, the LCDX index-implied prices of different tranches could be affected by technical factors that have been affecting the credit markets, which could cause implied default probabilities to be higher than the actual probabilities of default.[4] Finally, and most importantly, banks typically hedge their leveraged loan exposures to some degree and information on this activity is not publicly available. All in all, these considerations would suggest that the approach taken here to value the losses incurred by euro area LCBGs on their leveraged loan portfolios provides an upper bound to the true losses these institutions may ultimately incur should the loan market not recover.

Chart B shows the impact of estimated losses in terms of reductions in individual LCBGs' capital ratios. Because of uncertainty about the extent of hedging by these institutions, the changes in the total capital ratios shown are estimated under different assumptions regarding the degree of hedging. In particular the "length" of each individual box plot in Chart B corresponds to the estimated total impact on a bank's capital ratio under different hedging assumptions: the lower end of the line represents the impact if only 10% of the portfolio is hedged, the lower end of the box 30%, the middle point 50%, the upper end of the box 70% and the upper end of the line 90%. The results suggest that even if a significant proportion of the leveraged loan exposures are hedged, a number of euro area

4 Moreover, the LCDX-implied tranche values include not only default risk but also cancellation risk in the underlying LCDX index, i.e. the risk of reduced duration of the underlying single-name loan credit default swap (LCDS) contracts due to repayment of a loan before it matures. This may contribute to an underestimation of the implied tranche values.

LCBGs would still endure sizeable losses relative to their capital if these exposures were completely written off. If, on the other hand, exposures are largely unhedged, then some institutions could suffer much larger losses. Although some institutions have already made substantial write-downs in recent months, the remaining sizes of the exposures to leveraged loans across the euro area LCBGs pose risks of further write-downs. That said, it cannot be ruled out that some recovery in market prices could take place in the period ahead, which could offset the need for further write-downs.

credit losses. Overall, however, banks following IFRS reporting schemes are still taking relatively low impairment charges for credit losses, reflecting the fact that actual default rates have remained low. In view of such pro-cyclicality, it is also probable that impairment charges will rise materially if corporate sector default rates suddenly pick up. Impairment charges would also rise if banks decided to fully write off their holdings of debt securities which have been negatively affected by the financial market turmoil.

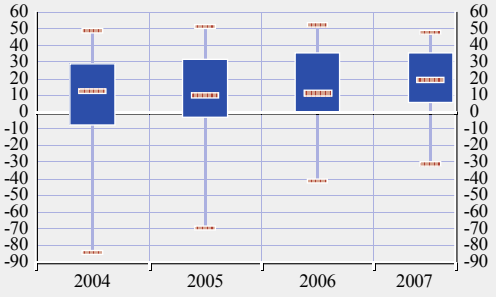
Regarding the credit standards being applied by banks on new corporate loans, despite the continued strength of growth in new lending, the results of the last two ECB bank lending surveys indicate that banks in the euro area have responded to the ongoing market turmoil with a marked tightening of lending standards on new loans to non-financial corporates beyond what was already reported in October 2007 (see Charts S102 and S103). This tightening was especially marked for long-term lending to large corporations, although the small and medium-sized enterprise (SME) sector was also negatively affected. The factors that contributed most to the tightening of credit standards were worsening expectations regarding general economic activity and industry and firm-specific outlooks. Factors related to the banks' capital and liquidity positions and their ability to access market financing also contributed to the tightening. The latter factor was particularly important for larger banks, suggesting that the problems in the various segments of market-based funding could be having a more profound impact on the lending decisions of these institutions. Regarding the conditions and terms, banks have widened their margins sharply and progressively throughout the period since the onset of the financial market turmoil, but they have also tightened their non-price terms and conditions, by demanding, for instance, more collateral and more stringent loan covenants.

FUNDING LIQUIDITY RISKS

For euro area banks, the financial market turmoil that erupted in August 2007 has underlined the importance of funding liquidity risk and the processes that should be put in place to manage it. In particular, many euro area LCBGs continued to show a positive customer funding gap, and the median funding gap even increased in 2007 (see Chart 4.14). Although there are wide differences within the group of LCBGs, with some large banks maintaining a deposit surplus or a relatively narrow positive gap, this reflects the fact that large euro area banks in general have become more vulnerable to adverse changes in the cost of and access to market-based funding.

Chart 4.14 Customer funding gap of large and complex banking groups in the euro area

(2004 – 2007; % of customer loans; maximum, minimum, interquartile distribution and median)



Source: Individual institutions' financial reports and ECB calculations.
Note: The customer funding gap is defined as the difference between customer loans and customer deposits.

Funding liquidity risk management also has an important systemic dimension, as a vicious interplay between funding and market liquidity risk may emerge when an institution facing liquidity problems transmits them wider in the system via its inability to honour its payment commitments in the wholesale funding network. As discussed in earlier parts of this Review, since August 2007 the euro area interbank market has been plagued by widespread market liquidity problems which were initiated by funding problems in individual institutions and have since contributed to a hoarding of funds among many of the liquidity providers in the interbank network.

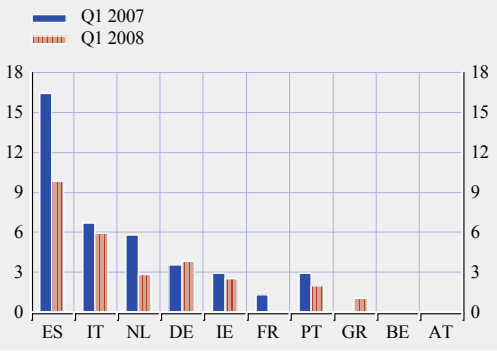
To better understand such shock transmission mechanisms, tools and indicators are needed to analyse the properties of the network of financial flows among financial institutions. To this end, Box 15 provides an illustration of the cross-border banking payment flows network in the EU based on publicly available data at the country level.

In the April 2008 ECB bank lending survey, the responding banks confirmed that the financial market turmoil had created more difficult conditions for accessing wholesale funding and funds in the unsecured interbank money market in the first quarter of 2008. However, banks expected the access to such funds to become slightly less hampered in the quarter ahead.

Regarding risks to other sources of funding for banks, activity in the securitisation markets was also brought to a virtual standstill early in the turmoil. This presented challenges especially for those euro area LCBGs which had adopted the originate-and-distribute business model. Chart 4.15 shows that loan sales indeed declined markedly in the first quarter of 2008 compared to the situation a year earlier. In the April 2008 ECB bank lending survey, banks confirmed that securitisation activity continued to be hampered for the selling of loans for house purchase and for the selling of corporate loans.

Chart 4.15 Euro area banks' loan securitisation issuance per country of collateral

(€ billions)



Source: European Securitisation Forum.

The covered bond market, which is not included in the chart above and which constitutes a substantial source of funding for banks in many euro area countries, also saw declining issuance activity in late 2007 and in the first quarter of 2008. Nevertheless, this market remained considerably more functional than the market for true-sale loan securitisation. Overall, banks have been reporting that their ability to transfer credit risk more generally has been hampered and that this has had an adverse impact on their willingness to lend. Furthermore, many banks responding to the April 2008 bank lending survey also revealed that draw-downs on committed liquidity lines to off-balance-sheet vehicles continued to have an adverse impact on their lending policies, although risks associated with off-balance sheet exposures could have gradually diminished in scale as many of the special-purpose vehicles had either sold their assets or the sponsoring banks had absorbed them onto their own balance sheets. At the time of finalising this Review, the functioning of the securitisation and credit risk transfer market was expected to remain hampered by acute risk aversion for the foreseeable future.

Box 15

ANALYSING THE TOPOLOGY OF THE EU CROSS-BORDER BANKING FLOWS NETWORK

In an integrated financial system, cross-border banking flows are an important source of funding for financial institutions as well as for private sector borrowers. From the viewpoint of financial institutions, wider access to wholesale financing reduces the dependency of individual institutions on local deposit bases and it allows for a more efficient day-to-day management of their funding liquidity needs. In addition, by allowing for the matching of institutions with surplus and deficit funds in the cross-border interbank markets, it provides obvious welfare gains from trade. For retail clients, an integrated cross-border banking market allows for equal treatment of borrowers across different parts of the financial system by exposing local lenders to foreign competition. At the same time, however, in times of financial stress a network of cross-border banking flows could provide a channel through which problems in one institution may propagate wider throughout the financial system. This box illustrates some stylised facts about the network of EU cross-border banking flows (and its interlinkage with the United States which is included as a proxy for the "rest of the world"), using country-level data collected by the Bank for International Settlements (BIS). At the European level, an EU rather than a euro area geographical scope to the analysis is more meaningful due to the fact that some non-euro area EU countries, such as the United Kingdom and Sweden, are important financial counterparties for several euro area countries.

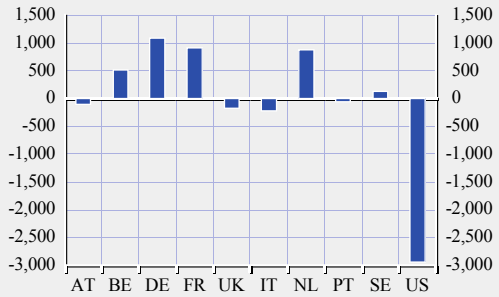
The data consist of consolidated claims of reporting banks on an immediate borrower basis. In order to obtain maximum data coverage at the EU level, total foreign claims on an ultimate risk basis – which includes exposures of banking groups not only to other banks but also to the non-bank private sector and the public sector – are considered. However, not all EU countries report figures under these statistics and the illustration below therefore covers the largest possible subset of countries. According to the BIS figures, the "pure" interbank exposures – for which there is only incomplete data coverage – represent on average about 35% of the total foreign claims, a share which has remained fairly stable over time. The data report bilateral flows of cross-border claims and debts across most EU countries over the period between Q2 2005 and Q2 2007.

To analyse the relative importance of the various countries in this extended EU network of cross-border banking transactions, it is useful first to consider the net flows. Chart A shows that in the cross-border banking flow network, for many of the EU Member States included in the chart the claims and debts broadly net out vis-à-vis the other countries in the system. The main exceptions to the near-zero net position in the system are Germany, France and the Netherlands, which have net claims positions, mostly vis-à-vis the United Kingdom. Outside the EU system, the United States has a large net debt position against many EU Member States, especially the United Kingdom, Germany and the Netherlands. Closer analysis of the net banking flows data, including smaller Member States, reveals in addition that there are rather strong regional links in the cross-country net banking flows. For example, banks in Finland, France, Portugal, Austria and Italy all have their neighbouring countries among their main counterparties.

In order to illustrate the relative importance of the various countries as financial centres in the network of cross-border banking flows, Chart B presents the same data in a different way by summing up the cross-border banking debts and claims to gross flows. For example, looking at

Chart A Net cross-border banking flows across selected EU countries and the United States

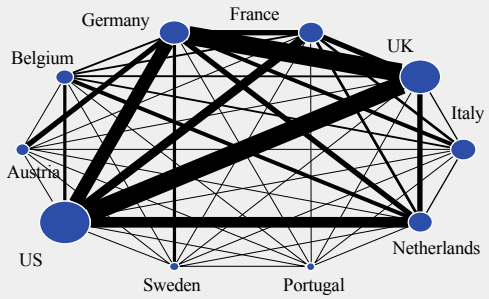
(€ billions; claims minus debts)



Sources: Bank for International Settlements and ECB calculations.

Chart B Gross cross-border banking flows across selected EU countries and the United States

(claims plus debts)



Sources: Bank for International Settlements and ECB calculations.
Note: The size of the circles and the thickness of the lines are proportional to the volume of the claims and debts for each country.

the total net flows in the system, the United Kingdom has only a rather small net debt position, but in terms of gross flows it is a very large player, reflecting its position as a centre for financial transactions in the EU. Germany and, to a lesser extent, France and the Netherlands are also important hubs in the EU banking system in that they process a large gross amount of flows. The chart also shows the importance of the United States as a global financial counterparty to many EU countries in gross terms.

Although this is useful for improving the understanding of some of the key characteristics of the topology of the EU financial system, for financial stability monitoring purposes bank-level information on gross interbank flows would provide a more relevant source of information. As an illustration of the usefulness of such data, the Federal Reserve Bank of New York has analysed the topology of the interbank payment flows within the US Fedwire real-time settlement system.[1] Within the system, some 5,000 participating banks are involved in around 700,000 transfers on an average day. Nevertheless, the analysis revealed that the network is characterised by a relatively small number of "strong" flows so that, on a daily basis, 75% of the payment flows involved less than 0.1% of the institutions in the system. The average bank in Fedwire was found to be connected to 15 other banks. Again, a closer analysis revealed that the dispersion of these connections is very wide as most banks have only a few connections while a small number of "hub banks" can have thousands of connections. In terms of preventing systemic crises, whereby disturbances can quickly spread within the network of institutions, identifying such systemically relevant hub institutions and closely monitoring their liquidity and solvency situation would be particularly relevant.

1 See K. Soramaki, M. Bech, J. Arnold, R. Glass and W. Beyeler (2006), "The Topology of Interbank Payment Flows", *Federal Reserve Bank of New York Staff Report*, No 243.

As heightened money market volatility gradually spread to other market segments as well, funding from capital market sources also became more expensive for banks as the cost of both equity and debt financing surged. The sharp increase in spreads of bonds issued by banks in particular suggests that debt issuance could have become very expensive for many lower-rated banks. Overall, these developments in capital markets have accentuated the pressures towards tighter financing conditions for banks.

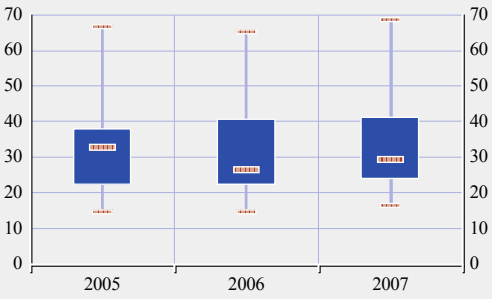
Chart 4.16 Net issuance of debt securities by euro area MFIs by maturity

(Jan. 2004 – Feb. 2008; € billions; 12-month moving sum)

Source: ECB.

Chart 4.17 Share of short-term non-deposit liabilities for large and complex banking groups in the euro area

(2005 – 2007; % of total liabilities; maximum, minimum, interquartile distribution and median)



Sources: Individual institutions' financial reports and ECB calculations.

The observed decline in banks' issuance of medium and long-term debt as well as the significant decline in securitisation activities may also result in a decrease in the average maturity of banks' liabilities, thereby possibly increasing rollover risk. In particular, recent debt securities issuance activity by euro area MFIs indicates a slowdown in long-term debt issuance coupled with a rapid rise in short-term debt issuance, consistent with what banks reported in the April 2008 ECB bank lending survey (see Chart 4.16).

Moreover, available evidence suggests that the average maturity of euro area LCBGs' liabilities shortened in 2007, reversing the favourable developments in 2006. Whereas these institutions managed to lengthen the average maturity of their liabilities in 2006, indicated by a decline in the median share of euro area LCBGs' short-term non-deposit liabilities from 32.9% in 2005 to 26.5% in 2006, the share of non-deposit liabilities maturing within three months increased in 2007 (see Chart 4.17).[9]

Against this background, some euro area banks, in particular those relying more on wholesale funding sources, may need to expand their retail deposit base in order to maintain or increase the share of stable funding sources in total liabilities.[10] Country-level information suggests that in the first few months of 2008, euro area banks indeed stepped up their efforts to increase their retail deposit base. Available evidence suggests that the funding gap of euro area banks, based on aggregate balance sheets of euro area MFIs, decreased from the high of €1,540 billion in September 2007 to €1,430 billion in March 2008.

Whereas a possible shift in banks' funding structure towards deposits may be welcome with regard to reducing funding liquidity risks going forward, increasing competition in the deposit market is likely to further contribute to an increase in banks' funding costs. In fact, the deposit margins of euro area MFIs significantly narrowed in early 2008 (see Chart S98).

MARKET-RELATED RISKS

Interest rate risks

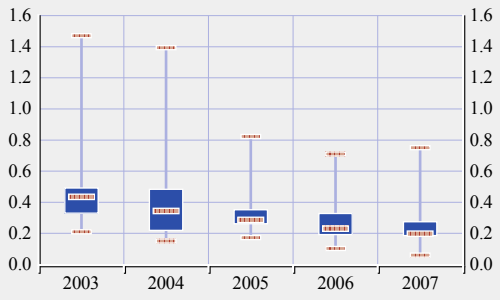
After the finalisation of the December 2007 FSR, LCBGs' interest rate risks increased significantly for a number of reasons. First, risks of future losses in the banking book could

9 Note that the maturity breakdown of balance sheet items for 2007 was not available for the full sample of euro area LCBGs.

10 Broadly speaking, stable funding sources include deposit funding and wholesale funding with a remaining maturity of more than one year.

Chart 4.18 Distribution of interest rate value at risk (VaR) for large and complex banking groups in the euro area

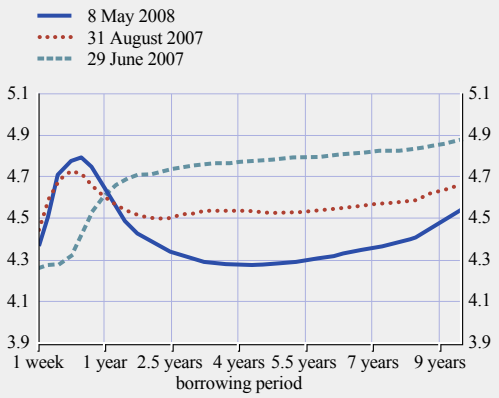
(2003 – 2007; % of Tier 1 capital; maximum, minimum, interquartile distribution and median)



Sources: Individual institutions' financial reports and ECB calculations.

Chart 4.19 Term-structure curves of euro area interest rates

(%)



Source: ECB.

have grown due to reduced interest rate income that was caused by a flattening of the slope of the euro area yield curve. Second, there could be further losses in the trading books related to increased risks of further valuation losses for fixed income securities. Chart 4.18 depicts the individual LCBGs' reported information on interest rate value at risk (VaR) for a sample of selected LCBGs between 2003 and 2007. Overall, median interest rate VaR has declined steadily throughout this time period. Despite the further decline in the median VaR that was reported in 2007 – mainly due to the very favourable trading conditions that prevailed throughout the first half of the year – the dispersion across institutions widened and some institutions saw their measures increase quite substantially.

Looking more closely at the developments in the euro area yield curve, Chart 4.19 shows the term structure of euro area interest rates for three different points in time. At the end of June 2007 the term structure continued to exhibit a pattern that had been present since the beginning of 2007. After August 2007, it became inverted in the medium-term maturities, a shape which has become even more pronounced in recent months. At the short end of the curve, where banks tend to borrow more than they lend, the cost of funding has increased since August 2007. However, at the middle and longer maturities, where banks tend to lend more than they borrow, revenues from longer-term variable-rate loans and interest-bearing money market instruments decreased compared to the period before August 2007. It cannot be ruled out that tensions in the fixed income markets could persist in the near future, so interest rate risk could remain a source of further losses in the banking and trading books of euro area banks.

An additional factor that could have contributed to a further increase in interest rate risk since August 2007 is a much lower possibility of substituting fixed income instruments along the term-structure curve. This can be explained mainly by a liquidity dry-up in the ABS and MBS markets after August 2007, combined with increased default and delinquency risk on underlying loans and bonds. As a consequence, banks have faced difficulties in substituting longer-term fixed income securities for shorter-term securities along the term-structure curve.

Exchange rate and equity market risks

The direct exposure of euro area banks to exchange rate risk is small in general, as net open foreign exchange positions are kept at low levels thanks to hedging via off-balance-

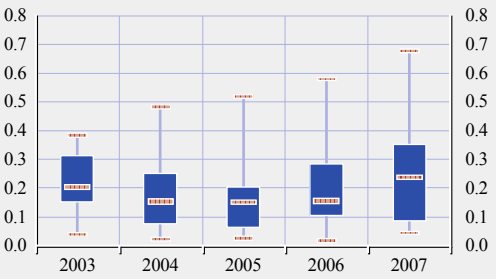
Chart 4.20 Exchange rate value at risk (VaR) for large and complex banking groups in the euro area

(2003 – 2007; % of Tier 1 capital; maximum, minimum, interquartile distribution and median)

Sources: Individual institutions' financial reports and ECB calculations.

Chart 4.21 Equity market value at risk (VaR) for large and complex banking groups in the euro area

(2003 – 2007; % of Tier 1 capital; maximum, minimum, interquartile distribution and median)



Sources: Individual institutions' financial reports and ECB calculations.

sheet derivative instruments. Looking at on-balance-sheet exposures vis-à-vis the US dollar, against the background of a depreciation of the US dollar against the euro in the second half of 2007, euro area banks lowered the share of their US dollar-denominated loans as a percentage of foreign currency-denominated loans and further increased their issuance of US dollar-denominated debt securities as a share of total foreign currency-denominated debt securities (see Chart S99).

Available information on foreign exchange VaRs for a sub-sample of LCBGs suggests that the direct exposure of large euro area banks to this type of risk may have increased slightly in the second half of 2007. Nevertheless, direct foreign exchange exposures remained small as a share of Tier 1 capital (see Chart 4.20). VaR figures may have been affected by increased foreign exchange volatility since the beginning of the turmoil. In comparison with other components of market risk, the level of foreign exchange exposures, as measured by VaR, is lower than exposures to both interest rate and equity market risk. Overall, the direct exposure of euro area banks to adverse foreign exchange movements appears to be low.

Some indirect risks, however, could remain for euro area banks. First, a further weakening of the dollar could negatively influence the profitability of some euro area companies with significant activities in the United States. Second, unhedged foreign currency borrowing by households has grown rapidly in recent years in some countries where some of the LCBGs operate. Due to increased global risk aversion, the risk of adverse exchange rate movements may have increased in some of these countries.

Turning to banks' equity market exposures, the median equity VaR of euro area LCBGs remained broadly unchanged as a percentage of Tier 1 capital between 2004 and 2006, but then it rose in 2007 (see Chart 4.21). The rise in equity VaRs could be, in part, attributed to increased market volatility in the second half of 2007.

Concerning banks' exposures to equity market risks in broader terms, it should be taken into account that for some LCBGs, with sizeable investment banking operations, the fee income related to equity sales activities may be significant. Should the unfavourable conditions in mature and emerging equity markets persist, the contribution of non-interest income generated by sales activities could decrease compared to that realised in the pre-turmoil period. Against this background, there may be growing uncertainty, for some LCBGs at least, whether the strong contribution of

equity market-related net revenues to earnings observed until mid-2007 can be sustained in the period ahead.

Counterparty risks

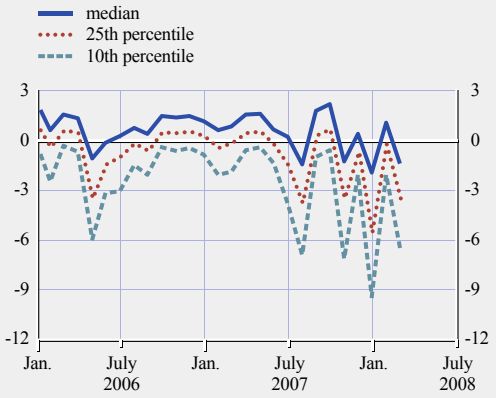
After the finalisation of the December 2007 FSR, the situation in the hedge fund sector deteriorated significantly (see Chart 4.22 and Section 1.3), particularly across leveraged credit-oriented hedge funds, some of which resorted to the suspension of investor withdrawals or ended up in liquidation. Consequently, risks for euro area LCBGs stemming from their counterparty credit exposures to hedge funds have also increased.

Despite the initial tightening of lending terms during the summer of 2007 and adjustments thereafter, newly set initial margin levels (or valuation haircuts in the case of security-based lending) again proved to be insufficient under stressed market conditions. The increased illiquidity and volatility of prices of even high-grade tradable debt obligations prompted banks to review and to increase the amount of margin that counterparties need to post at the outset or rollover of leveraged investments (see Chart 4.23). Moreover, mark-downs of various debt assets and OTC positions have led to margin calls on outstanding transactions which further aggravated the financial standing of highly leveraged credit-oriented hedge fund clients or even led to eventual defaults. At least initially, due to competition considerations, banks were reportedly less willing to apply higher initial margins to large hedge funds or were simply unable to do so because of margin lock-ups (fixed margining terms for a specified time period) granted in more benign times. However, banks later called for higher margins and thereby forced the process of deleveraging of highly leveraged hedge funds.

Another indication of higher hedge fund counterparty credit risk faced by banks is the marked increase in the estimated total net asset value (NAV) and the proportion of single-manager hedge funds breaching typical triggers of total NAV cumulative decline[11] after the

Chart 4.22 Distribution of global hedge fund returns

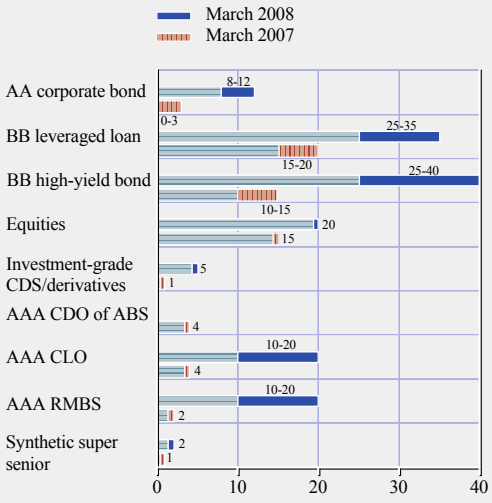
(Jan. 2006 – Mar. 2008; % monthly return in fund's reporting currency; net of all fees)



Sources: Lipper TASS database and ECB calculations.
Note: Excluding funds of hedge funds. If, instead of one fund or sub-fund, several sub-fund structures were listed in the database, each of them was analysed independently. The most recent data are subject to incomplete reporting.

Chart 4.23 Typical valuation haircuts or initial margins

(Mar. 2007 and Mar. 2008; %; approximate estimated levels and ranges)



Source: Citigroup.
Note: Highlighted ends of bars indicate estimated levels, except where ranges are reported. Haircuts (value reductions) are applied to bought pledged securities and serve as a downpayment in security-based lending. They are equivalent to 100% minus the loan-to-value ratio expressed in percentage terms. Initial margins are used as collateral (in the form of cash or securities) at the inception of various OTC transactions.

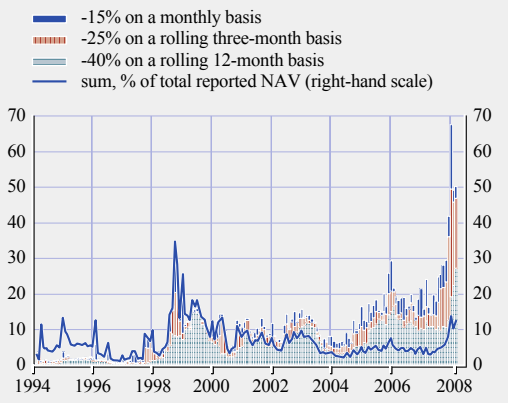
11 Triggers of total NAV cumulative decline represent contractual termination events which allow banks to terminate transactions with a hedge fund and seize the collateral held.

finalisation of the December 2007 FSR (see Chart 4.24). Moreover, it should be noted that the data showing the total NAV of hedge funds breaching indicated triggers are reported after substantial declines in hedge funds' capital under management had already taken place.

Data on banks' losses on collateralised margin (repurchase) loans to hedge funds are unavailable, although such losses, if any, may not be large. Nevertheless, it cannot be ruled out that due to strained conditions in credit markets some banks may have had to take seized securities onto their balance sheets or sell them at distressed prices that did not cover the credit exposure left after the deduction of initial and variation margins posted by failing hedge fund counterparties. Hence, once again banks were reminded that over-reliance on collateral can prove dangerous if initial margins are not adequately stress-tested to take into account potential future counterparty credit exposure that could arise due to the perilous interaction of leveraged market, counterparty credit, funding liquidity and collateral illiquidity risks.

Chart 4.24 Estimated total net asset value (NAV) and proportion of hedge funds breaching triggers of total NAV cumulative decline

(Jan. 1994 – Mar. 2008; USD billions and % of total reported NAV)



Sources: Lipper TASS database and ECB calculations.
Note: Excluding funds of hedge funds. Net asset value is the total value of a fund's investments less liabilities; also referred to as capital under management. If several typical total NAV decline triggers were breached, then the fund in question has only been included in the group with the longest rolling period. If, instead of one fund or sub-fund, several sub-fund structures were listed in the database, each of them was analysed independently. The most recent data are subject to incomplete reporting.

Difficulties faced by Bear Stearns before the announcement of its takeover by another bank may have led to some redistribution of market shares in the rather concentrated global prime brokerage market and could have encouraged some competitors, including euro area LCBGs, to attempt to woo Bear Stearns' hedge fund clients by offering more favourable credit terms despite difficult market conditions. The Bear Stearns episode has also underscored the risks that could arise for prime brokers if hedge funds and other large counterparties were to pull out their cash and securities balances *en masse* and refuse to trade or roll over maturing transactions.

Emerging market exposures

Macroeconomic conditions in emerging market economies (EMEs) remained relatively stable after the publication of the December 2007 FSR. Nevertheless, emerging financial markets have been increasingly affected by the global financial market turmoil since November 2007, as indicated by widening sovereign bond spreads and decreasing equity market valuations (see Section 1.2). While the fundamental outlook for 2008 still remains favourable in most emerging economies, the downside risks to growth appear to have increased after the finalisation of the December 2007 FSR (see Section 1.1).

Against the background of robust growth in emerging economies in 2007, foreign claims of euro area banks on main emerging market regions continued to grow unabatedly. With regard to exposures to individual geographical areas, cross-border claims of euro area banks vis-à-vis Latin America continued to rise throughout 2007 (see Chart S100 and Table S6). This was driven by steadily growing exposures to Brazil and Mexico, although the rate of growth slowed somewhat in the third quarter of 2007. Looking at the breakdown of foreign claims by creditor country, exposures to this

region are highly concentrated within the euro area, with one country (Spain) accounting for more than 60% of the total. Therefore, steadily growing exposures of euro area banks to Latin America partly reflect the rapid credit expansion and the strong franchises of some euro area LCBGs in the largest economies of this region (Brazil and Mexico).

While the level of exposures to Asian emerging economies, measured by foreign claims, remained smaller than those to Latin America, the growth in exposures of euro area banks to Asian emerging market economies accelerated in 2007 (see Chart S101 and Table S6). The growth of foreign claims continued to be heavily concentrated amongst the three largest countries in the region, i.e. South Korea, China and India. Regarding the breakdown of foreign claims by creditor country, exposures of euro area banks are relatively concentrated, with three countries (France, Germany and the Netherlands) accounting for nearly 90% of the total.

As regards emerging Europe, foreign claims of euro area banks vis-à-vis this region also grew at a rapid pace in 2007, with total exposures catching up with levels recorded in emerging Asia.[12] As regards borrower countries, more than 80% of foreign claims of euro area banks in this region are concentrated in three countries (Russia, Croatia and Turkey).

As already discussed in the June 2006 issue of the FSR, some euro area LCBGs extract a non-negligible share of group profits from their foreign operations in EMEs. For these LCBGs, geographical diversification generally proved to be supportive of overall profitability in 2007. While the asset quality of euro area banks' subsidiaries in EMEs generally remained sound in 2007, uncertainties surrounding the outlook for 2008 may have increased recently. In particular, asset quality could deteriorate somewhat if economic growth in EMEs slows down more than currently expected or if tight credit conditions persist further, with a possible negative impact on some emerging economies with higher external financing needs.

Overall, euro area banks' exposures to emerging markets had a beneficial impact on banks' profitability in 2007 and geographical diversification may have helped some LCBGs to absorb the impact of the turmoil thus far. Looking ahead, the fundamental outlook for emerging economies remains relatively favourable, although the uncertainties surrounding the growth outlook may have increased somewhat after the finalisation of the December 2007 FSR. Against this background, euro area banks' exposures to emerging markets are still more likely to have a beneficial impact on banks' profitability in the period ahead, although this positive impact could decrease were the downside risks to growth in emerging economies to materialise.

12 Note that countries which joined the EU in 2004 and 2007 are not included in this category.

Box 16

STRESS TESTING: A FUNDAMENTAL TOOL FOR FINANCIAL RISK MEASUREMENT

Stress testing is a risk management tool used to gauge the potential impact on a portfolio of hypothetical events and/or movements in a set of financial variables. There has been a tendency in the past to see stress testing as a secondary risk management tool compared to other methods of risk measurement such as value at risk (VaR). However, stress testing has become very common and sophisticated and it is being applied regularly by financial institutions to measure the likely impact of market shocks, as well as credit and liquidity events. This box explains what stress testing is, its benefits and drawbacks, and its relationship with other more established risk measures.

There are a wide variety of stress-testing categories based on the type of risks involved (market, liquidity, credit risks or any combination of these), the risk factors analysed (e.g. yield curve risks, foreign exchange risk, default risks, etc.), the stress-testing methodology (e.g. scenario analysis, what-if and risk factor analysis), the portfolio type (e.g. trading book, banking book or off-balance sheet), the geographical dimension (e.g. Europe, Japan, the United States), the level of the test (desk level, unit level, enterprise level) or the complexity of the portfolio (e.g. plain vanilla instruments, exotic structures). This variety shows that, although the principles of stress testing are simple, its application can be very complex.

Stress testing is well suited to assessing the degree of vulnerability of a portfolio in situations of crisis where normal market correlations break down and more mainstream measures of risk such as VaR fail to provide a fair picture of potential losses. In crises, markets can suddenly become very illiquid, rendering risk management strategies based on hedging useless and leading to much bigger losses than anticipated. Large and extreme swings of risk factors underlying the valuation of non-linear positions can also produce losses much larger than suggested by VaR estimates based on normal market conditions. Stress testing is also good at revealing and quantifying concentration risks through the analysis of correlation assumptions that may break down in situations of stress and could leave the portfolio with much larger exposures than first realised. Finally, stress tests, if applied well, are good at providing risk managers with information not only on the vulnerabilities but also on the possible flaws or weaknesses in the risk management framework.

Stress testing has also its limitations; in particular it is dependent on the scenarios and the subjectivity that surrounds the process of selecting the scenarios. This ultimately depends on the judgement and experience of the people applying it. The consistent application of stress testing is also difficult as it is necessary to follow through the scenarios and all possible ramifications which can be very complex. This complexity can lead to computational problems which also put some practical limitations on the frequency of stress-testing exercises.

Stress tests do not provide information on the likelihood of the outcome of the stress test happening. If the type of event considered could occur with a significant probability and the outcome yields a bad state, then the result of the stress test should be taken seriously. The lack of probability information makes stress testing a natural complement to probability-based risk measures such as VaR or expected shortfall (ES). VaR gives the maximum likely loss at a certain probability, but it does not provide any information on the loss that can be experienced if the loss exceeds VaR. Expected shortfall is a better measure because it provides the expected average value of tail losses. However, it does not really say much about possible large losses that can be

incurred beyond that level. Stress testing is good at providing information on bad states at the tails of the loss distributions, which is precisely where VaR and ES fail. VaR and ES are good at providing probabilistic measures of losses, but not so good at providing answers to "what if" questions, whereas stress tests are good at "what if" questions, but very poor at providing the associated probability of stress-testing outcomes.

The attention given to stress testing by financial institutions and regulators has increased dramatically in the last decade. This reflects a recognition that good stress testing could have helped institutions to weather various recent financial storms. Stress testing is in its own right a respectable risk measurement tool, on an equal footing with other more established risk measures such as VaR, and has a sound intellectual basis in the theory of comprehensive risk measures.[1] Risk managers are well-advised to keep deepening the scope and reach of stress-testing exercises so as to reduce the impact of future episodes of financial turmoil.

1 See Box 13 in ECB (2007), *Financial Stability Review*, June.

4.3 OUTLOOK FOR THE BANKING SECTOR ON THE BASIS OF MARKET INDICATORS

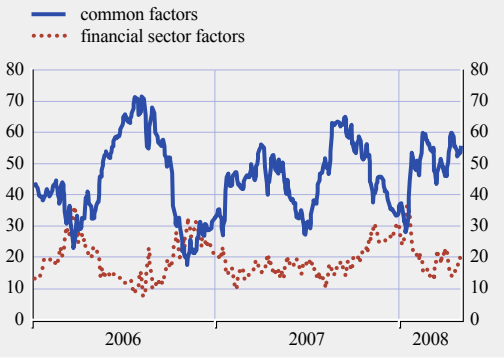
According to forward-looking market indicators, the outlook for euro LCBGs deteriorated further after the finalisation of the December 2007 FSR. This was primarily a consequence of continued declines in the prices of sub-prime-related assets and the propagation of strains to other segments of the credit markets. In particular, uncertainty about the potential for the market turmoil to persist in the near term, together with perceptions among market participants of risks of further substantial write-downs and mark-to-market losses by financial institutions, drove LCBG equity prices lower. Moreover, the declines in LCBG share prices were accompanied by a surge in implied volatility, which reached the highest levels seen since the first half of 2003 (see Chart S111).

A decomposition of the volatility of bank stock prices indicates that risks specific to the financial sector, and in particular to the banking sector, were crucial in driving the changes of bank stock prices over the past six months (see Chart 4.25). Nevertheless, the proportion of the variance in bank stock prices that could be explained by a factor common to a broader set of shares traded in the euro area increased in February as concerns began to grow about the potential impact of strains in the financial sector on the real economy and the possible feedback effects on banks' balance sheets via higher credit risks.

Distances-to-default, an equity market-based yardstick of credit risk, for euro area LCBGs were by late March 2008 somewhat lower than their peaks of early 2007, but they still remained at very high levels (see Chart S107). This translated into a slight pick-up in expected default frequencies among these institutions (see Chart S106). All in all, these equity market-based indicators suggested that, despite the market turbulence, market participants continued to assess the shock-absorption capacity of these institutions as being relatively comfortable.

Chart 4.25 Variance of euro area banks' equity returns explained by common and financial sector factors

(Jan. 2006 – May 2008, % of equity returns variance)



Sources: Bloomberg and ECB calculations.

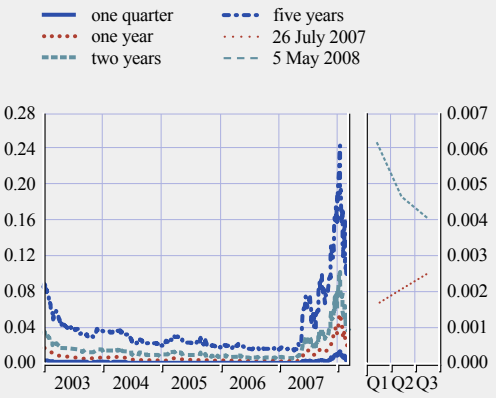
However, both distance-to-default and expected default frequency are model-based indicators calculated using stock prices as an input. Because LCBG equity prices (which reflect the present discounted value of future earnings) reacted to the recent market turmoil less strongly than CDS spreads (which reflect the assessment of default risk) equity-based indicators may have provided an over-optimistic outlook, possibly underestimating default correlations among LCBGs in the case of an adverse systemic event.

Thus, growing concerns about the credit risks posed by LCBGs were more marked among credit market indicators. This was evident, for instance, in a further substantial widening of bank CDS spreads after late November 2007 (see Chart S108). These spreads reached new historical highs in the first quarter of 2008, almost double the previous peak levels seen in 2002. While much of the change in bank CDS spreads seems to have been due to growing unease among market participants about the potential for further write-downs, as well as concerns about the future evolution of the broader credit cycle, several technical factors may explain the more marked deterioration in the credit risk assessment implied by these indicators than that provided by the equity market-based ones. For instance, a notable deterioration in credit derivative market liquidity is highly likely to have increased the sensitivity of bank CDS spreads to bad news. In addition, the widening of these spreads may have also been amplified by the rapid unwinding of synthetic CDOs that took place in the structured credit markets in early 2008.

This widening of CDS spreads in the first few months of 2008, together with a rise in the correlations between banks' equity returns, also pushed a market-based indicator of a systemic event – more specifically, the probability of two or more LCBGs defaulting simultaneously – to all-time high levels, which were reached just on the eve of the Bear Stearns rescue in mid-March 2008.[13] Moreover, since July 2007 hazard rates (the probabilities of a systemic event happening during a particular quarter) have increased much more for near-term quarters. This reversed the slope of the "joint default probability curve", indicating market perceptions that simultaneous default in the near term had become more likely than at longer horizons (see Chart 4.26). This appears to suggest that market participants expected that the operating environment for LCBGs could become more challenging in the very short term, most probably in the light of the erosion of some banks' earnings, but that conditions would eventually stabilise. That said, apart from the fact that the CDS spreads may have overshot their intrinsic values for the reasons described above, there are a number of caveats which should be taken into account when interpreting movements in this indicator.[14]

Chart 4.26 Implied probabilities of two or more euro area large and complex banking group defaults

(left-hand panel – cumulative probability over specified period; right-hand panel – short-term hazard rates)



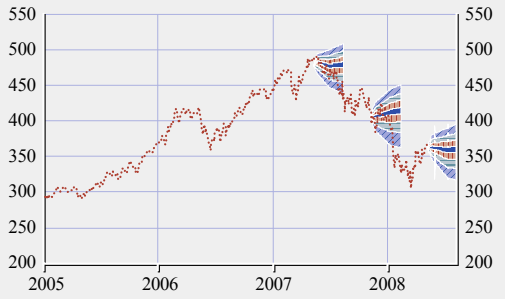
Sources: Bloomberg and ECB calculations.
Note: The right-hand panel depicts instantaneous probabilities (hazard rates) of a systemic event occurring in each of the coming three quarters. For May 2008 a snapshot of the hazard rate term structure in the chart indicates a higher probability of a systemic event in the next quarter (next three months from the date indicated in the chart) than in the next but one quarter (fourth to sixth month ahead) or the third quarter (seventh to ninth month ahead).

13 See Box 16 in ECB (2007), *Financial Stability Review*, December, for a description of how this indicator is constructed.

14 For instance, the indicator is rather strongly dependant on the strength of the signal-to-noise ratio of the price discovery process in the CDS markets. If, for example, the CDSs of LCBGs have been affected by other than fundamental factors, the true implied probabilities of default should be commensurately lower. Notwithstanding these caveats, recent patterns in this indicator appear to imply a rise in the perceptions of systemic risk for euro area institutions among market participants.

Chart 4.27 Option-implied risk-neutral density bands for the Dow Jones EURO STOXX bank index

(Jan. 2005 – Aug. 2008, index value, 10%, 30%, 50%, 70% and 90% confidence intervals of estimations on 11 May 2007, 8 Nov. 2007 and 6 May 2008)



Sources: Bloomberg and ECB calculations.

Perceptions of heightened downside risk in the short term have also been present in the size and shape of risk-neutral density (RND) functions for euro area bank stock prices as implied in the pricing of options. In particular, this distribution of perceived possible outcomes for the Dow Jones EURO STOXX bank index became wider, reflecting greater uncertainty, and more negatively skewed after early November 2007 as market participants were prepared to pay higher premiums in order to avoid downside risk (see Chart 4.27). Notable in the latter respect is that although the early November 2007 estimates of the probability distribution were already relatively wide and tilted towards lower values, the actual index value ended up below even the 90% confidence interval of the implied distribution. This shows that the severity of the drop in bank equity prices surprised market participants just as it had done over the previous six months. To some extent, this larger than expected decline in stock prices was driven by announcements by many LCBGs of substantial write-downs, the scale of which had not been broadly anticipated in early November 2007.

After early November 2007 changes in the size and shape of the implied probability distribution suggested that, although uncertainty remained high, perceptions of the likelihood of LCBG share prices recovering had increased somewhat. Nevertheless, the distribution remained negatively skewed in May 2008, which means that downside risks were still seen as outweighing the upside risks as assessed by the market.

Turning to the longer-term horizon, price-earnings (P/E) ratios for euro area LCBGs based on ten-year trailing earnings fell substantially in the second half of 2007 and in the first months of 2008, reaching their lowest values since 2003 (see Chart S113). This would appear to suggest either that the substantial repricing of bank equities reflected expectations that the profit-generating capacity of these institutions was permanently lowered by, for instance, the impairment of the "originate-and-distribute business model" over the longer term or that stock prices were driven below their intrinsic values by heightened uncertainty. The downward revisions of short-term profit expectations after mid-2007 discussed above provide some support for the former hypothesis, although the second cannot be entirely ruled out.

All in all, recent patterns in market-based indicators suggest that the risk outlook for euro area LCBGs deteriorated further over the six months after early November 2007. In particular, market participants had become more uncertain about the future performance of these financial firms. The substantial widening of credit spreads, together with the simultaneous decline in equity prices, suggested that market participants had revised downwards their expectations of banks' future earnings to such a degree that they also saw a risk that banks' capital buffers could be eroded going forward.

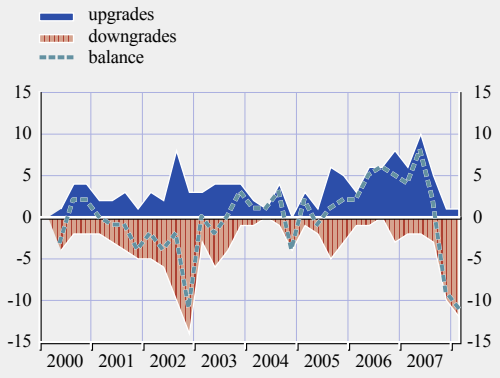
DOWNWARD RISK FOR RATINGS CONTINUES

The overall high level of ratings that was reported for euro area LCBGs in the December 2007 FSR was maintained in the first few months of 2008, and the average rating remained in the AA- category (see Table S7). Moreover, on an asset-under-management weighted basis, by the first quarter of 2008 around 75% of the assets of euro area LCBGs were under the control of institutions with ratings of AA- or higher.

However, rating outlooks, which are considered to be a medium-term indicator of the potential

Chart 4.28 Rating actions for large and complex banking groups in the euro area

(Q1 2000 – Q1 2008; number)



Sources: Moody's, Fitch Ratings and Standard and Poor's.
Note: This includes both outlook and actual rating changes.

direction of a long-term credit rating (beyond one to two years), deteriorated markedly (see Table S7). Across the sample, in the six months after the finalisation of the December 2007 FSR, the three major rating agencies assigned eleven negative outlooks, as against two positive outlooks. Overall, the balance of positive to negative quarterly rating actions, which includes both changes in rating outlooks and changes in rating levels, decreased significantly in the period after the finalisation of the December 2007 FSR (see Chart 4.28).

Notwithstanding the fact that the global financial turmoil clearly marked a turning point in rating trends, with a gradual erosion of the largely positive rating bias seen in recent years, the overall high level of ratings for euro area LCBGs reflected a consensus among the rating agencies that most of these institutions have sufficiently large financial buffers to weather a prolonged deterioration in the operating environment. Although individual negative rating actions cannot be ruled out if pronounced market volatility persists, rating agencies do not expect wide-scale or multi-notch downgrades of major euro area banks.

Against the background of the exceptional volatility in bank earnings that was generated by the write-downs in the second half of 2007, by early May 2008 rating agencies were expecting euro area LCBGs to experience a softening in profitability going forward in 2008. Some uncertainty remained about the speed and extent of recovery in activity in some investment banking business lines. For instance, certain segments of the capital markets, especially structured credit markets, were expected to remain depressed for an extended period. In addition, it was expected that the profitability of most banking activities would continue to be dampened by higher funding costs and that underlying performance may come under pressure if the debt market dislocation were to deepen.

In more traditional commercial banking activities, rating agencies anticipated growing margin pressures if banks proved unable to pass on the higher costs of wholesale funding. Most banks have been putting increased emphasis on capturing retail customer deposits, which could also put pressure on margins in a context of stable or declining short-term market rates. Finally, given the likely slowdown in credit growth in the period ahead, in particular in property markets, rating agencies believed that banks are likely to concentrate more efforts on cost control in order to compensate for slower revenue growth. However, rating agencies also saw a likelihood that retail banks will fare better than those which have greater reliance on capital market activities.

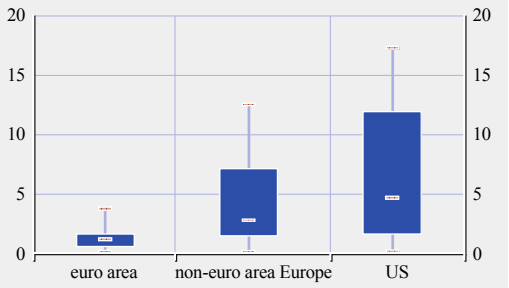
Rating agencies expect the credit risk facing euro area LCBGs to rise as the recent market turmoil and tighter credit conditions start to affect economic activity. This deterioration in credit quality is nevertheless expected to be moderate given the rather strong asset quality of euro area banks. In addition to issues discussed in Section 4.2, other factors that are seen by rating agencies as straining bank capital positions going forward are the prospects of lower capital requirements under Basel II, lower internal capital generation, reduced access to the securitisation and syndication markets, and

possible further unrecognised exposures to off-balance-sheet vehicles.

All in all, by early May 2008, rating agencies assessed most euro area LCBGs as being in considerably better shape than was the case prior to the cyclical downturns experienced in the 1990s, given higher overall levels of capital and vastly improved risk management capabilities. This calls for an affirmation of the high rating levels which, however, remain vulnerable to downgrades if expectations about future earnings resilience are not met.

Chart 4.29 Turbulence-related loss in 2007 after-tax net income reported by large and complex banking groups

(2007; € billions; maximum, minimum, interquartile distribution and median)



Sources: Individual institutions' financial reports and ECB calculations.

4.4 OVERALL ASSESSMENT

The publication of euro area LCBGs' financial results for 2007 has shown that most of these institutions endured significant declines in net income during the last two quarters of the year, which also weighed down their performances on a full-year basis. The extent of the declines has been mixed across institutions, due mainly to differences in valuation changes on different amounts and types of exposures. This can be seen in Chart 4.29, which shows the distribution of euro area LCBGs' turbulence-related losses in 2007 after-tax net income as disclosed by banks in their financial reporting. The chart also illustrates that the disclosed losses by euro area LCBGs have been far smaller than the losses reported by their non-euro area European and US peers. Owing to the continuing deterioration in market conditions in the first quarter of 2008, it is rather likely that further mark-to-market valuation losses on securities will be disclosed by LCBGs.

The continuous strengthening of profitability over recent years had allowed euro area banks to retain profits, which contributed positively to their capital ratios. Against this positive trend, recent turbulence-related reductions in retained income, as well as increases in risk-weighted assets, led to a slight weakening of the weighted average euro area LCBG Tier 1 ratio. Nevertheless, solvency measures exceeded the respective regulatory minima for these capital ratios for all euro area LCBGs at the end of 2007, which indicates a reasonable amount of remaining shock-absorption capacity among these institutions.

There are some indications that banks in the euro area have started responding to the losses they incurred in their investment exposures by tightening their lending standards and by cutting exposures to some riskier business lines, such as commercial real estate, leveraged buy-out financing and prime brokerage services offered to hedge funds. While such a risk reduction strategy could be seen as a rational reaction from an individual bank's point of view, collectively it may prevent leveraged market players from taking contrarian positions. Such contrarian positioning in the current circumstances could help stabilise the financial markets.

Looking ahead, as spillovers to asset markets and the real economy play themselves out, it can be expected that the euro area banking sector's profitability performance in 2008 will be adversely affected. Even if such spillover effects remained concentrated on the US macro-financial environment, the portfolios of LCBGs could be impacted, as demonstrated for example by the losses suffered by financial guarantors. In particular, factors that are likely to dampen profitability include the possibility of further valuation losses, increased funding costs, and declining

non-interest income from securitisation and financial market activities. Furthermore, it cannot be ruled out that future credit flows could be negatively influenced by persistently high funding costs and the significant drop in securitisation activity, although demand for private sector credit seems thus far not to have been materially affected in the euro area.

Market indicators are currently pricing in substantial risks for euro area LCBGs, although some of the indicators have shown a slight recovery since the end of the first quarter of 2008. A combination of funding liquidity risk (due to ongoing money market frictions), market risk (from ABS valuation losses) and tentatively also borrower credit risk (as reflected in the elevated levels of non-financial corporate sector CDS spreads, which also increase banks' hedging costs) is affecting the risk premia attached to banks by bond and equity market investors. This will further aggravate banks' funding costs. Ultimately, these factors are contributing to an increase in the probability of a systemic event, as perceived by market participants, which suggests that the period ahead will remain challenging for euro area LCBGs.