VI. Post-crisis evolution of the banking sector

The recent financial crisis has conveyed clear messages to market participants and to regulators entrusted with safeguarding financial stability. One is that banks had mismanaged their liquidity positions, both domestically and internationally, and failed to secure stable and diversified sources of income and to contain costs. Another is that opaque balance sheets significantly impaired analyses of risk, thus preventing a timely awareness of the weakness of banks' capital buffers. And the troubles that beset the banks imposed material losses on their stakeholders, brought financial intermediation to a halt and plunged the global economy into recession. The lessons learned from the crisis have influenced markets' and analysts' perception of banks and have led to new regulatory initiatives that will shape banks' post-crisis business models.

In the interim, banks have made efforts to strengthen their resilience, but have not succeeded in putting their troubles behind them. Prices in the equity and debt markets indicate that, in 2012, the general conditions in the banking sector are similar to the conditions that prevailed after the collapse of Lehman Brothers. Faced with negative market assessments and a crisis of confidence among peer institutions, many banks depend strongly on central bank funding and are not in a position to promote economic growth.

Policymakers have a role to play in improving the robustness of the banking sector. An immediate priority is to ensure that banks burdened by legacy assets repair their balance sheets by recognising losses and recapitalising. This would help restore confidence in the sector, thus reopening access to traditional funding markets. In parallel, rigorous, through-the-cycle assessments should shape regulatory measures in rapidly growing economies where buoyant markets exaggerate the financial strength of banks and encourage risk-taking. In the long term, the new regulatory environment should strengthen banks' incentives to adopt business models that generate sustainable profits and reduce reliance on official support and that mitigate the risk of financial distress spreading across borders.

This chapter reviews the current state of the banking sector and discusses necessary conditions for the sector's robust performance in the future. After reporting market assessments of the sector's post-crisis evolution, it examines banks' balance sheets and sources of profitability. Much of the analysis is based on a sample of 100 banks, including internationally active institutions from advanced economies and large banks from emerging markets. The chapter then recommends policies that public authorities can adopt to help banks overcome the legacy of the crisis. The chapter concludes with a discussion of the long-term challenges faced by the banking sector, paying particular attention to their international dimension.

Market assessments of the banking sector

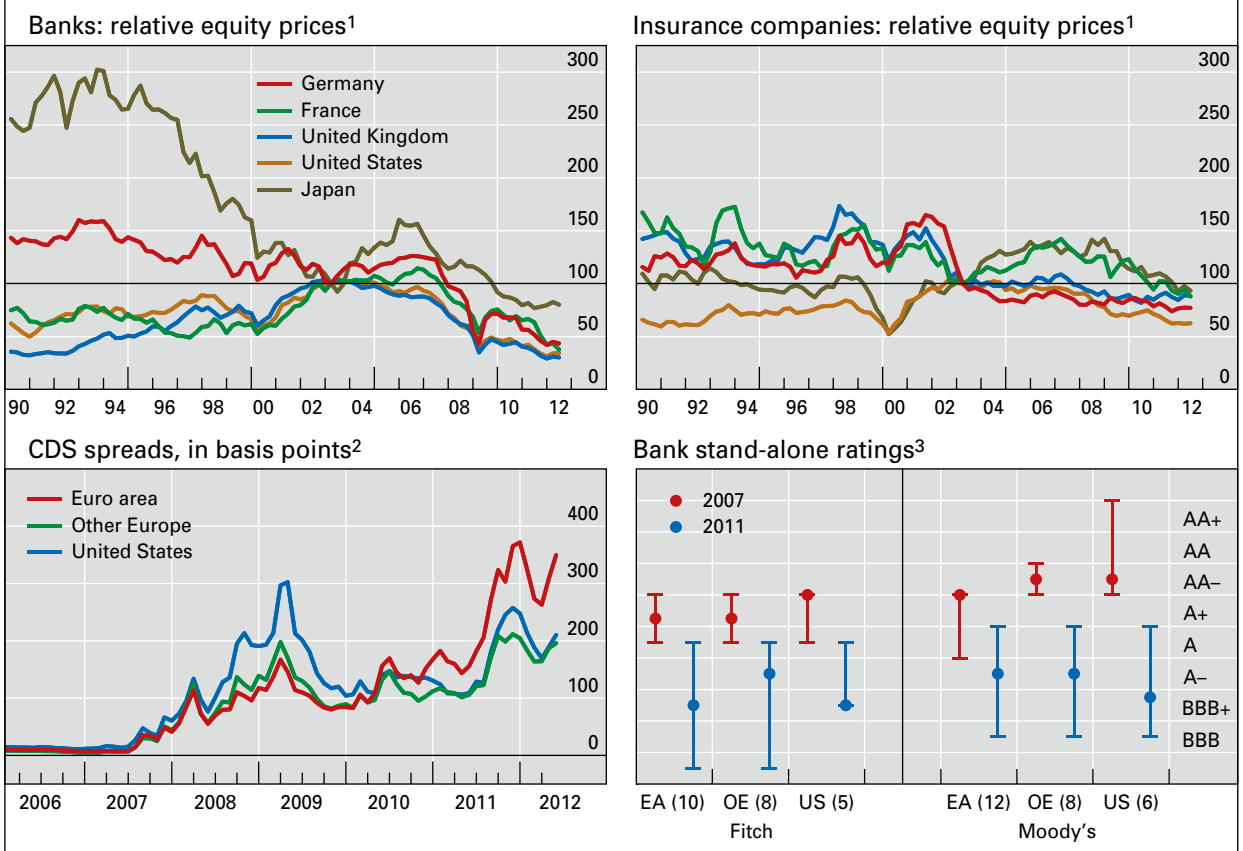
Markets do not perceive the crisis to be over. Concerns about the banking sector's vulnerability continue to depress equity valuations and raise spreads in debt markets. Official support has provided only a partial reprieve.

Equity market valuations

Up to mid-2012, equity prices still signalled general scepticism about the banking sector. Relative to a broad index, bank valuations had improved little and, in certain cases, had even worsened since end-2008 (Graph VI.1, top left-hand panel). In comparison, the *insurance sector* performed better over the same period despite very low interest rates that raise the present value of its liabilities (Graph VI.1, top right-hand panel).

Over a longer time horizon, markets have consistently differentiated between individual banks, rewarding institutions with a stronger capital base by lowering the cost of their equity. This is a natural outcome of investors managing the risk-return trade-off in their portfolios: loss-absorbing capital improves banks' resilience and ensures their sustained access to funding

Market and analyst assessments of the banking sector



EA = euro area; OE = other European countries; US = United States.

[1] Ratio to broad equity index; quarterly averages, 2003 average = 100. [2] Asset-weighted averages. The sample comprises 25 euro area, 12 other European and 15 US banks. [3] Ratings at end of year. The dashes refer to the second lowest and second highest bank ratings; the dots indicate median ratings. The number of banks is indicated in parentheses.

Sources: Bloomberg; Datastream; Markit. Graph VI.1

markets. Data since 1990 on 50 actively traded banks reveal that raising the ratio of total equity to total assets from 2.5% to 5%, while keeping all else the same, lowers the cost of equity by 80 basis points.[1] This relationship persisted throughout the crisis and, if anything, became slightly stronger.

Debt market valuations

Debt market investors concur with investors in equity markets. Even though the extraordinary longer-term refinancing operations (LTROs) launched by the Eurosystem at end-2011 have helped to lower credit default swap (CDS) spreads for euro area lenders, spread levels in the spring of 2012 were similar to or even higher than those in the aftermath of Lehman's collapse (Graph VI.1, bottom left-hand panel). Only the perceptions of *relative* credit risk have changed: while US banks were viewed as being riskier at end-2008, euro area banks have taken their place since 2010.

Rating agencies have also indicated increased concerns about banks' creditworthiness. These concerns have surfaced in "stand-alone" ratings – assessments of banks' financial strength in the absence of official support. Not only have these ratings deteriorated over the past five years for many banks, but they also signal the growing disparities between banks in terms of financial health (Graph VI.1, bottom right-hand panel).

Banks' profitability and its sources

Markets' and analysts' views of the state of the banking sector incorporate assessments of institutions' profitability. Of particular value are sustainable profit streams that can support asset growth, thus providing a shield against adverse external developments. Securing such profits is a key near-term challenge for many banks. (See Box VI.A on page 67, for a discussion of shadow banking.)

The pre-impairment operating profits – ie profits before impairment charges – of banks headquartered in advanced countries have recovered from their 2008 troughs (Graph VI.2, left-hand panel). However, the weak earnings of a number of large banks in the first quarter of 2012 have cast doubt on the sustainability of profit growth. A key driver of the growth between 2009 and 2011 was trading income, which the crisis exposed as unreliable. By contrast, net interest income, which had held up during the crisis, barely changed as a proportion of banks' assets over the same period.

The strong reliance of emerging market banks on net interest income sets them apart from their advanced economy counterparts. Such income has consistently accounted for three quarters of these banks' pre-impairment operating profits, compared with one half in the case of banks from advanced countries. That said, the net interest income of some emerging market banks may be unsustainably high. For instance, government-imposed floors on net

[1] J Yang and K Tsatsaronis, "Bank stock returns, leverage and the business cycle", *BIS Quarterly Review*, March 2012, pp 45–59.

Box VI.A: Shadow banking

This box provides a brief review of shadow banking, paying particular attention to its increased importance in financial intermediation and related policy initiatives. While definitions differ, the term "shadow banking" broadly refers to financial activities carried out by *non-bank* financial institutions that create leverage and/or engage in maturity and liquidity transformation. Thus, even though they are subject to different regulatory frameworks, shadow and traditional banks operate alongside each other. Shadow banking exists because historical and institutional factors, the rapid pace of financial innovation and specialisation have all increased the attractiveness of performing certain types of financial intermediation outside traditional banking. In normal times, shadow banking enhances the resilience of the broader financial system by offering unique financial products and a range of vehicles for managing credit, liquidity and maturity risks. But shadow banking also creates risks that can undermine financial stability in the absence of prudential safeguards.

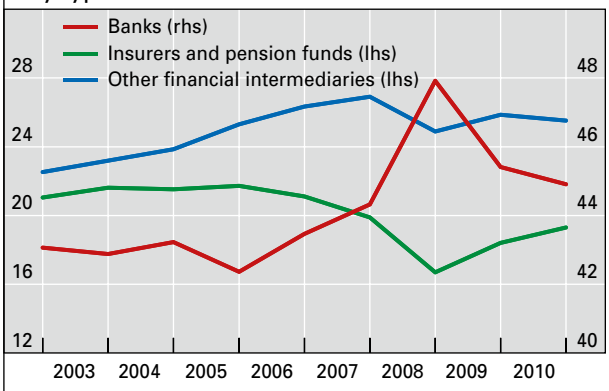
Shadow banking activity can amplify financial cycles since it tends to grow during booms and contract during busts. Such was the role of this activity in the global financial crisis as well as in the crises in Sweden and Japan in the 1990s. At present, intermediation by shadow banks in China is reportedly feeding the credit and asset price boom there. During booms, shadow banking facilitates increases in leverage and in liquidity and maturity mismatches, thus contributing to the build-up of vulnerabilities. Importantly, the risks associated with non-bank financial intermediation are often not on regulators' radar screens and are beyond the reach of public policy tools, such as deposit insurance, bank capital and liquidity requirements, and the provision of central bank funding. These risks may threaten the traditional banking system, which provides shadow banking with a range of services such as guarantees, credit lines and the "warehousing" of assets for securitisation. In recent years, some of the main areas of concern have included the securitisation chain, the repo markets and the activity of money market funds (MMFs).

As shadow banking grows, so does the proportion of financial intermediation that policymakers cannot easily assess and control. While data scarcity and inconsistent statistical definitions make it difficult to gauge the size and scope of shadow banking activity, rough aggregate measures suggest that it expanded during the years preceding the global financial crisis (Graph VI.A, left-hand panel). According to data compiled by the Financial Stability Board (FSB), financial assets held by "other financial intermediaries" in a sample of advanced economies rose from an estimated $23 trillion in 2002, or around 23% of total financial system assets, to more than $50 trillion (or 27%) at the end of 2007.[1] While the growth of other intermediaries' assets slowed during the global crisis, driven by a sharp fall in activities linked to securitisation and repo markets, its level is still high. At end-2010, structured finance vehicles, finance companies, securities brokers and dealers, and MMFs combined accounted for about a third of

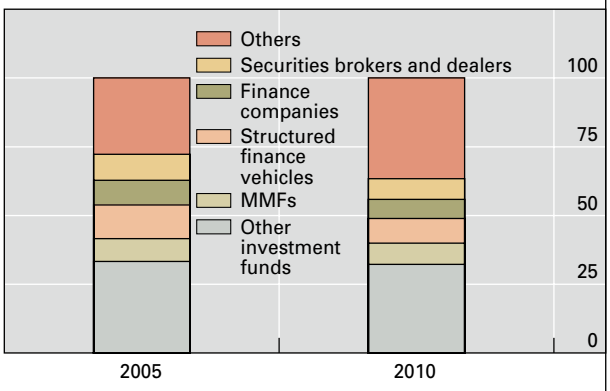
The shadow banking system: size and composition[1]

In per cent

Share of financial system assets, by type of institution[2]



Assets of non-bank financial intermediaries[3]



[1] The sample comprises institutions in Australia, Canada, France, Germany, Italy, Japan, Korea, the Netherlands, Spain, the United Kingdom and the United States. [2] Figures do not add up to 100% because other categories are not shown. [3] As a percentage of total financial assets not held by banks, insurance companies or pension funds.

Sources: FSB calculations; national data; BIS international banking statistics. Graph VI.A

these holdings, and other (non-MMF) investment funds accounted for another third (Graph VI.A, right-hand panel).

Given the size of shadow banking and the rapid pace of financial innovation, recent policy initiatives have focused on regular monitoring and targeted interventions guided by broad principles. Driving these initiatives is the need to prevent the build-up of leverage and maturity and liquidity mismatches that could undermine financial stability. The FSB is working to enhance the monitoring of the shadow banking system, and it is examining the regulation of traditional banks' securitisation activity and securities lending as well as their interactions with repo markets, MMFs and other shadow banking entities. Other policy initiatives seek to improve reporting standards and increase the available information on non-bank financial intermediation.

The run on MMFs during the crisis, and authorities' targeted response, show how broad policy principles can be applied to specific institutional structures. While MMFs are present in many jurisdictions, they have an especially prominent role in the United States, where corporations and retail investors use them as vehicles for short-term funding, cash management or investment. In mid-2011, MMFs' assets under management amounted to $2.7 trillion in the United States, $1.5 trillion in Europe and some $400 billion in the rest of the world. Because of the way they are structured, most US and many European MMFs must maintain a stable net asset value (NAV) – defined as the ratio of the value of total assets, net of any liabilities, to the number of fund shares outstanding. While such a structure facilitates cash management, it increases the risk of runs by uninsured investors when falling asset values threaten to push a fund's NAV below par. The prospect of a run led several fund sponsors to provide emergency support to their funds, both before and after the collapse of Lehman Brothers.[2] And US authorities found it necessary to create a series of emergency facilities after Lehman's collapse in order to prevent the problems of the MMF sector from causing further disruption to the financial system.

The risk of runs on MMFs by uninsured investors reflects the underlying mismatch between the liquidity of fund assets, which are generally short-term but have varying degrees of liquidity, and fund liabilities, which are highly liquid as most funds promise redemption on demand. In an attempt to address the risk posed by this mismatch, in 2010 the US Securities and Exchange Commission adopted rules strengthening liquidity and credit risk standards for MMFs. In addition, European securities regulators have published harmonised standards for European funds classified as MMFs.

More recently, an FSB workstream led by the International Organization of Securities Commissions (IOSCO) has examined further options for strengthening the regulation of MMFs. Some of the proposals under consideration include: mandating that funds have a variable NAV; imposing capital requirements on funds that need to maintain a constant NAV; and implementing "hold-back" mechanisms that restrict redemptions in the event of a large number of simultaneous redemption requests. In effect, proposals such as these, if implemented, would align the regulation of MMFs more closely with that of traditional banks.

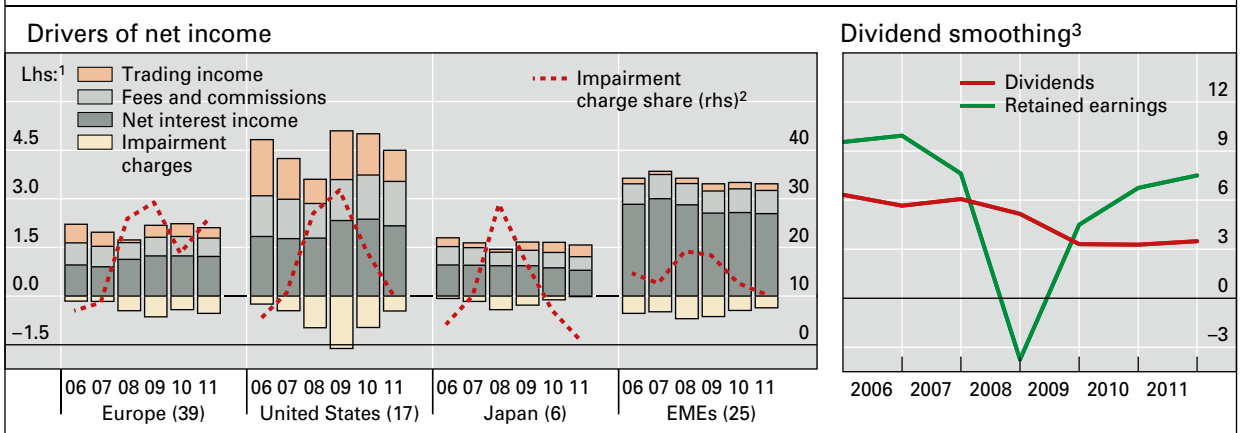
[1] "Other financial intermediaries" are those not classified as banks, insurers, pension funds or public financial institutions in flow of funds statistics. [2] See N Baba, R McCauley and S Ramaswamy, "US dollar money market funds and non-US banks", *BIS Quarterly Review*, March 2009, pp 65–81.

interest margins have boosted the profitability of Chinese banks. Since such practices depress depositors' returns, however, banks are vulnerable to a shrinking deposit base as attractive saving alternatives emerge outside the banking sector.

Differences between advanced economy and emerging market banks have also surfaced in loan and credit impairment charges. For European, Japanese and US banks, these charges dropped from about 30% of pre-impairment operating profits in 2008–09 to less than 20% a year later. The ratio for European banks rose again in 2011, to 25%, which suggests that legacy assets continue to weigh on them. By contrast, the ratio for emerging market banks remained below 20% amid rapid credit growth between 2006 and 2011 (Graph VI.2, left-hand panel).

Banks' profitability and payout policy

In per cent



[1] As a percentage of total assets; averages for banks in a given country or geographical region. The number of banks in the 2010 sample is indicated in parentheses. Net interest income plus fees and commissions plus trading income equals pre-impairment operating profits. Netting of derivatives positions, allowed under US GAAP, inflates the income-to-asset ratio for US banks relative to banks reporting under IFRS and Japanese GAAP. [2] In pre-impairment operating profits. [3] As a percentage of total equity. The 2010 sample includes 82 banks worldwide.

Sources: Bankscope; BIS estimates. Graph VI.2

Efforts to strengthen balance sheets

The importance of strong capital and liquidity buffers is difficult to overstate. In the face of losses, better capitalised banks are more likely to remain solvent, to continue providing financial services and to deliver robust returns to their equity investors over the long term. And when market confidence evaporates, it is well managed liquidity positions that support financial intermediation. Even though liquidity risk is inherent in maturity transformation, banks will be in a better position to control this risk if they rely more on stable retail funding than they did prior to the crisis.

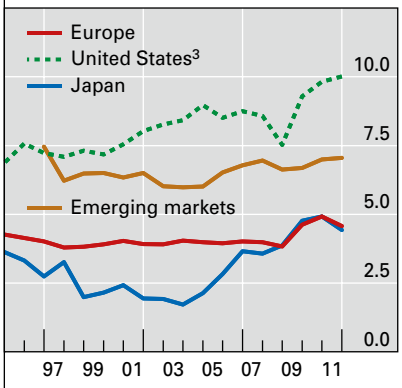
Capital base

Banks worldwide have markedly strengthened their capital base in recent years (Graph VI.3, left-hand panel). Between 2008 and 2011, large European, US and Japanese banks raised their common equity-to-total assets ratios by 20%, 33% and 15%, respectively. In the case of emerging market banks, this ratio has trended upwards since 2004.

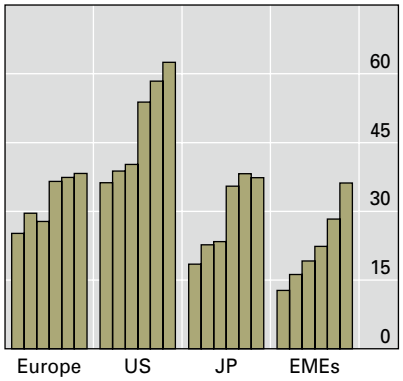
The drivers of improved capital ratios have differed from one banking system to another. Japanese banks, for example, have raised their capital ratios by boosting their common equity by 60% while substantially expanding their balance sheets, by 20% between 2008 and 2011 (Graph VI.3, centre and right-hand panels). By contrast, the slower growth of equity capital at US and European banks has accompanied slower asset expansion at US banks and a shrinkage of assets at European banks. Even though such balance sheet developments have generated headwinds for global economic recovery, they are consistent with a welcome downsizing of the banking sector over the long term.

Loss absorbency of bank balance sheets[1]

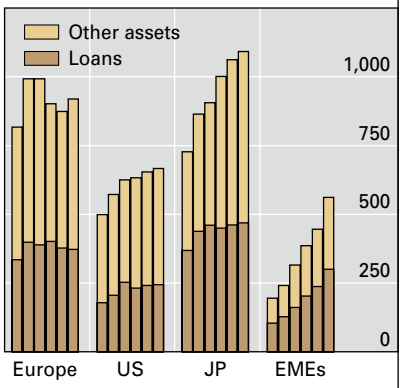
Capital ratios, in per cent[2]



Common equity, 2006–11, in billions of US dollars[4]



Total assets, 2006–11, in billions of US dollars[4, 5]



[1] For the sample of banks, see Graph VI.2, left-hand panel. [2] Common equity divided by total assets; averages. [3] Netting of derivatives positions, allowed under US GAAP, inflates the capital-to-asset ratio for US banks relative to banks reporting under IFRS and Japanese GAAP. [4] Averages. [5] Loans plus other assets equals total assets.

Sources: Bankscope; BIS estimates. Graph VI.3

While the growth of banks from advanced economies has slowed, banks headquartered in emerging markets have been gaining in importance. Reporting steadily rising common equity, the average emerging market bank in a sample of large institutions worldwide is on a par with its US counterpart in terms of loan volumes; it has also substantially increased its securities investments (Graph VI.3, right-hand panel). Chinese and Indian banks in particular expanded their balance sheets by roughly 75% between 2008 and 2011.

Banks' traditional payout policy, combined with unstable income streams, undermines their ability to consistently replenish capital cushions out of earnings. Although retained earnings have been positive since 2008 (Graph VI.2, right-hand panel), this is due largely to trading income, which tends to disappear at times of financial stress. In addition, banks have pursued a policy of smoothing dividends, even during the crisis. In 2008, when their earnings plummeted, banks dug into their already low capital buffers in order to keep dividend payments at roughly pre-crisis levels (5% of book equity). This practice could signal that shareholders' short-term interests were at odds with the objective to reduce banks' credit risk. It might also reflect expectations that official support would be forthcoming if necessary to keep banks afloat.

Going forward, regulators will encourage large banks to use a wider range of instruments, such as convertible bonds, in managing their capital base. These include bail-in bonds, which protect depositors and taxpayers by absorbing losses if a bank fails, and contingent convertible instruments (cocos), which convert to equity if a bank is in distress in order to keep it solvent and active. Several European banks have already issued cocos with conversion triggers based on regulatory capital ratios. The role such financial instruments will play in the future will depend to a large extent on whether they

can attract sufficient demand from non-bank investors and whether the conversion mechanism insulates issuer banks from speculative behaviour.

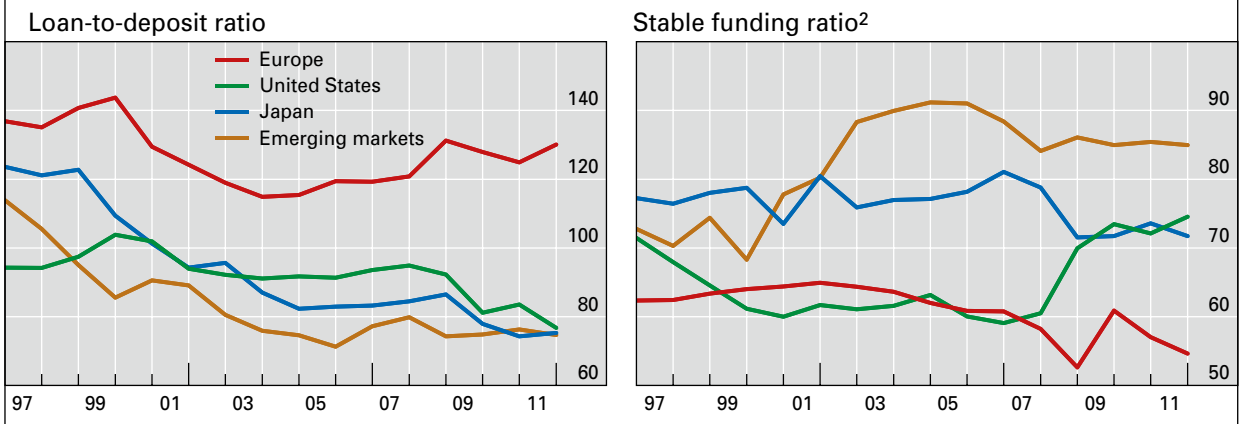
Liquidity positions

European banks' reliance on wholesale funding, which proved unstable during the crisis, remains high. Their ratio of (typically illiquid) loans to (stable) retail deposits increased to 130% during the crisis and has hardly fallen since (Graph VI.4, left-hand panel). This is in stark contrast to other banking systems, which reported a loan-to-deposit ratio of roughly 75% in 2011. The stable funding ratio – ie the sum of retail and long-term funding as a percentage of total funding – paints a qualitatively similar picture (Graph VI.4, right-hand panel), suggesting that maturity transformation on European banks' balance sheets is substantial. As the associated liquidity risks materialised in the course of 2011, banks across the euro area lost access to traditional funding markets, prompting the Eurosystem to conduct extraordinary LTROs in December 2011 and February 2012.

Individual banks will soon come under regulatory pressure to improve their liquidity positions. The Basel Committee on Banking Supervision (BCBS) reports that, as of 30 June 2011, around half of the 205 banks included in a quantitative impact study needed to make adjustments to their business activities, reduce maturity mismatches or increase their liquid assets or longer-term funding in order to comply with forthcoming changes in liquidity requirements.[2] These banks had shortfalls of €1.76 trillion in liquid assets (which represented 3% of the total assets in the aggregate sample) or €2.78 trillion in stable funding. Of course, the different shortfalls should not simply be added up, as a given action could allow a bank to meet simultaneously different liquidity requirements.

Liquidity and funding of large banks worldwide

Weighted averages, in per cent[1]



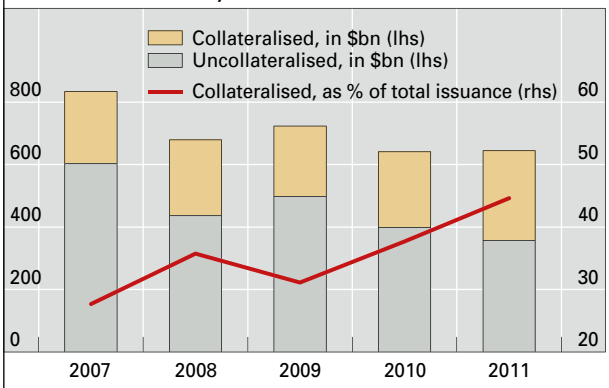
[1] Weights are based on banks' long-term funding. For the sample of banks, see Graph VI. 2, left-hand panel. [2] Customer deposits plus long-term funding, as a percentage of total funding.

Sources: Bankscope; Dealogic; BIS international financial statistics; BIS estimates. Graph VI.4

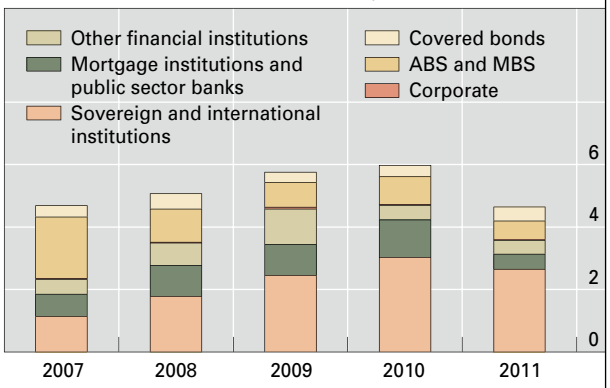
[2] Basel Committee on Banking Supervision, *Results of the Basel III monitoring exercise as of June 2011*, April 2012.

Collateral use and supply

Bond issuance by euro area banks[1]



Issuance of AAA-rated securities, in $trn



ABS = asset-backed securities; MBS = mortgage-backed securities.

[1] Collateralised debt includes covered bonds and asset-backed securities.

Source: Dealogic. Graph VI.5

Asset encumbrance

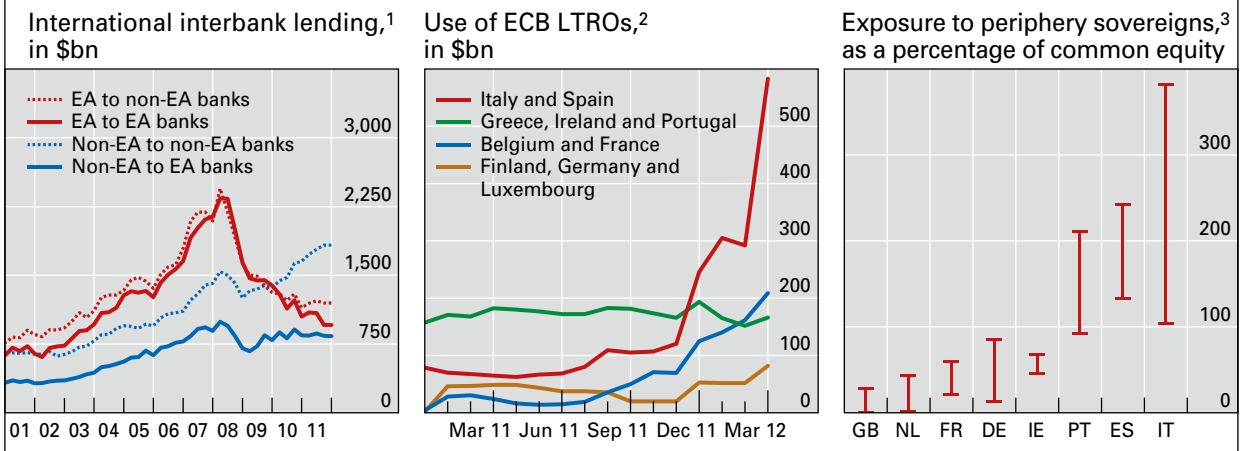
A crisis of confidence in funding markets has led banks to pledge an increasing proportion of their assets as collateral for new debt issues. European banks in particular have thereby offered more protection to creditors unnerved by these banks' legacy assets and exposures to troubled sovereigns (Graph VI.5, left-hand panel). This practice, however, encumbers assets in the sense that they are no longer available to holders of a bank's unsecured debt in the event the bank fails. Since this raises the riskiness of unsecured debt, collateralised debt becomes even more attractive to investors, potentially setting in motion a vicious cycle. And when private sources of funding withdraw from markets, banks use collateral to obtain official support, thus further encumbering their balance sheets.

Industry estimates indicate that 20% of European banks' assets were encumbered in 2011. This aggregate number reflects the increased reliance of some institutions on secured loans from central banks. A case in point is the Greek banking sector, where the ratio of encumbered to total assets rose tenfold between 2005 and 2011, to one third. For Irish, Italian and Portuguese banks, this ratio more than doubled during the same period.

Asset encumbrance also weakens the ability of the system to absorb shocks. The higher the proportion of its pledged assets, the more vulnerable a bank is to margin calls in the event of collateral depreciation. And if a system-wide event triggered such calls, many banks would need to replenish their collateral at the same time. Similar and simultaneous adjustments to banks' balance sheets would weaken the intermediation capacity of the system.

As banks' demand for pledgeable collateral has been on the rise, there are signs that the supply of high-quality primary collateral has been shrinking (Graph VI.5, right-hand panel; see also Chapter V). This development strengthens incentives for firms to reuse collateral, pledging the *same* primary

Low confidence in the banking sector



[1] Consolidated international claims of BIS reporting banks to other banks located inside and outside the euro area. [2] Longer-term refinancing operations. Data are end-of-month balance sheet positions of national central banks vis-à-vis domestic monetary financial institutions. For France, average of daily values over the maintenance period beginning in the same month. For Spain, average values for the calendar month. [3] Bank-specific ratios of the sum of gross long exposures to the sovereigns of Greece, Ireland, Italy, Portugal and Spain, to common equity; end-September 2011. The lower (upper) dash indicates the lowest (highest) ratio in a particular national banking system. The sample includes four UK (GB), four Dutch (NL), four French (FR), five German (DE), three Irish (IE), four Portuguese (PT), five Spanish (ES) and five Italian (IT) banks.

Sources: ECB; European Banking Authority; Datastream; national data; BIS international banking statistics. Graph VI.6

asset several times so that it helps finance multiple investments by different institutions ("rehypothecation"). Collateral repledging lubricates financial transactions but also undermines systemic stability, for instance by reinforcing the adverse effect of simultaneous margin calls.[3]

Immediate policy challenges

Restoring the health of the banking sector requires immediate policy actions. Such actions would seek to rebuild market confidence in troubled banks. In addition, in rapidly growing economies, regulators should ensure that buoyant markets do not lead to risk-taking that undermines financial stability.

Many banks have not yet recovered from the crisis and thus have not regained the trust of investors, as evidenced by debt holders' increased demand for collateral (see above). In addition, price-to-book ratios as low as 50% indicate that equity investors have recently been as concerned about the underlying value of banks' assets as they were in the worst phases of the recent crisis.

Banks themselves have lost confidence in their peers, especially in the euro area. Between end-2008 and end-2011, international interbank lending in the euro area shrank drastically on a consolidated basis, thereby reversing an equally dramatic surge between 2003 and 2008 (Graph VI.6, left-hand panel, solid red line). Since banks from outside the region have not filled the gap (solid blue line), some euro area banks have resorted to central bank funding on a massive scale (centre panel).

[3] See H Shin, "Financial intermediation and the post-crisis financial system", *BIS Working Papers*, no 304, March 2010.

Sovereign debt holdings are an important drag on banks' efforts to regain the trust of their peers and the markets at large. Of these holdings, exposures to sovereigns on the euro area's periphery are perceived as carrying particularly high credit risk (see Chapter V). And for many banks headquartered in the periphery countries, such exposures are much higher than common equity (Graph VI.6, right-hand panel). They are also sizeable in the case of large national banking sectors in other euro area countries. Thus, getting sovereign finances in order is a key step towards a healthy banking system.

Confidence in the banking sector is also undermined by the opaqueness of banks' internal ratings models, which measure asset riskiness and guide banks in setting their equity capital buffers. In a large cross section of big banks that use internal ratings models, the end-2011 ratio of total equity to total assets averaged 7% but was below 4% for one fifth of the institutions (for information on the sample, see Graph VI.2). Given differences in banks' balance sheets, such large disparities in the size of capital buffers could be a sign of efficient risk management if the internal models are correct. Conversely, they could be a sign of systemic vulnerability if some models deliver overly optimistic conclusions in order to justify low capital-to-assets ratios. Since the recent crisis exposed flaws in internal ratings models, the rigorous assessment of these models and the harmonisation of their application across jurisdictions and individual institutions have become priorities for the BCBS.

In order to restore confidence in the banking sector, it is also critical that policymakers put pressure on institutions to speed up the repair of their balance sheets, as suggested by the successful resolution of the Nordic crisis in the 1990s. And public authorities could use fiscal space, where available, to alleviate the strain on banks. Once banks have recognised losses on troubled assets and have recapitalised, their balance sheets will become stronger and more transparent. This will help to reopen banks' access to private sources of unsecured funding, thus reducing asset encumbrance.

In addition, the writedown of bad assets would realign banks' incentives with the objective of fostering sustainable economic growth. Japan's banking crisis in the 1990s revealed that it may be in banks' short-term interest to carry problematic loans on their balance sheets in the hope of potential recovery. Such forbearance often means that banks offer advantageous terms to their troubled borrowers in order to keep them afloat as long as possible. In the process, banks earn profits by overcharging strong borrowers. This practice distorts relative prices and leads to a misallocation of credit. Signs of similar forbearance emerged in 2011 in the United Kingdom, in an estimated one third of commercial real estate loans and 5–10% of household loans, as well as in the euro area (see also Chapter IV).[4]

[4] For analysis of the Japanese experience, see J Peek and E Rosengren, "Unnatural selection: perverse incentives and the misallocation of credit in Japan", *American Economic Review*, vol 95, no 4, September 2005, pp 1144–66, and R Caballero, T Hoshi and A Kashyap, "Zombie lending and depressed restructuring in Japan", *American Economic Review*, vol 98, no 5, December 2008, pp 1943–77. For discussions of forbearance by European banks in 2011, see Bank of England, *Financial Stability Report*, no 30, December 2011, and A Enria: "Supervisory policies and bank deleveraging: a European perspective", speech at the 21st Hyman P Minsky Conference on the State of the US and World Economies, 11–12 April 2012.

Banks' stakeholders should bear the burden of losses associated with balance sheet repair. Such an outcome would improve the credibility of official commitments to wean banks off government support. In turn, the loss of government support would strengthen market discipline, as it would give private investors an incentive to pay closer attention to banks' inherent health.

Despite the good performance of banks headquartered in emerging market countries, there are questions about their underlying strength as well. Reminiscent of advanced economies on the eve of the recent crisis, some emerging market economies have been experiencing credit and asset price booms (see Chapter III) that have inflated local banks' results. Questions about the sustainability of these booms naturally lead to questions about the sustainability of bank performance. The task of authorities in emerging market economies is thus to ensure that prudential policy reflects rigorous, through-the-cycle assessments of the banks' riskiness.

Long-term challenges for banks' new business model

To enjoy long-term success, banks will need to adapt to a new financial environment, shaped by the lessons of the recent crisis. A key challenge will stem from permanently higher demand for assets that can be pledged as collateral. As the role of central counterparties increases, for instance, the collateral they demand for financial transactions is likely to encumber a growing share of banks' assets, even after the current crisis of confidence has ended (see above). High asset encumbrance, together with new resolution frameworks that will impose greater losses on bondholders in the event of a bank's failure, will permanently raise banks' funding costs, all else being equal.

The rest of this section discusses additional long-term challenges. First, it assesses another source of upward pressure on banks' funding costs – ie the withdrawal of official support. Second, it discusses the scope for banks to offset higher financing costs by managing their operating costs. The section concludes with a review of the changing landscape of international banking.

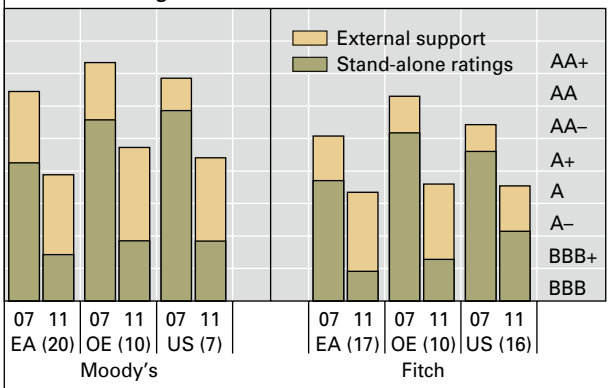
Official support

The withdrawal of official support for banks is still in the early stages. A number of sovereigns have made explicit commitments to eliminate guarantees to bank stakeholders; others, with deteriorating finances, are finding it increasingly difficult to provide such guarantees (see also Chapter V). Nevertheless, the perception that banks continue to receive substantial official support persists.

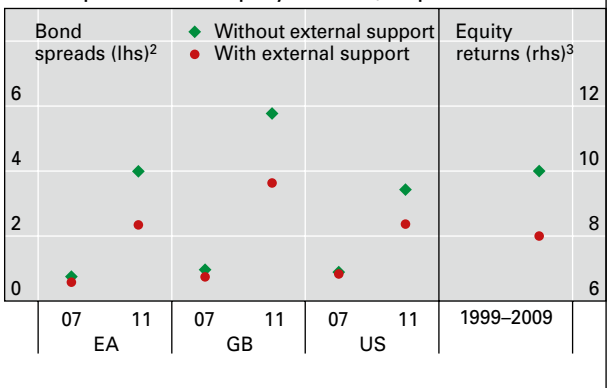
Rating agencies assess the extent to which official support enhances banks' creditworthiness, which in turn lowers banks' funding costs. Investors in bank bonds are not directly exposed to borrowers' inherent riskiness, which is reflected in stand-alone ratings (Graph VI.1, bottom right-hand panel), because they enjoy the protection of explicit and implicit government guarantees, which

Impact of official support on credit and equity markets

Credit ratings[1]



Bond spreads and equity returns, in per cent



EA = euro area banks; GB = UK financial firms; OE = other European banks; US = US banks.

[1] A stand-alone rating is referred to as an "individual rating" by Fitch and as a "bank financial strength rating" by Moody's. The stand-alone rating plus the rise due to external support equals the all-in rating, referred to as a "long-term issuer default rating" by Fitch and an "issuer rating" by Moody's. The number of banks is indicated in parentheses. [2] Option-adjusted spreads of bank bond indices over government bonds, corresponding to banks' all-in ratings (with support) or stand-alone ratings (without support) by Moody's. Weighted averages at the end of the indicated year. Weights are proportional to each bank's long-term funding. Fitch ratings lead to virtually identical results. [3] Average expected return on equity for GSIBs (with support) and non-GSIBs (without support). See J Yang and K Tsatsaronis, "Bank stock returns, leverage and the business cycle", *BIS Quarterly Review*, March 2012, pp 45–59.

Sources: Bloomberg; Datastream; Merrill Lynch; BIS estimates. Graph VI.7

all-in ratings take into account.[5] A comparison of all-in and stand-alone ratings reveals that rating agencies deem the official support for banks to have increased substantially between 2007 and 2011 (Graph VI.7, left-hand panel). At end-2011, such support lowered the spreads that banks had to pay for long-term bonds by an estimated 1–2 percentage points, or by 10 times more than prior to the crisis (Graph VI.7, right-hand panel).

Likewise, equity investors have consistently accepted lower returns from institutions perceived to receive more official support. An example of such institutions is global systemically important banks (GSIBs): if they run into trouble, public authorities are likely to shore them up in order to avoid a system-wide fallout. All else being equal, from 1999 to 2009 the average expected rate of return on GSIBs' shares was 2 percentage points below that on non-GSIBs' shares (Graph VI.7, right-hand panel; see also Yang and Tsatsaronis (2012), op cit).

By lowering funding costs, official support strengthens equity investors' short-term preference for greater leverage. The holders of equity stakes in any company tend to weigh asymmetrically the upside profit potential, from which they gain fully through higher dividends or stock price appreciation, and the downside risk of losses, which cannot exceed the size of the original investment. As leverage increases the volatility of profits, it boosts the potential gains but has no impact on maximum losses.

[5] See F Packer and N Tarashev, "Rating methodologies for banks", *BIS Quarterly Review*, June 2011, pp 39–52.

Box VI.B: Capital requirements under Basel II and Basel III

The Basel III framework, which covers the regulation, supervision and risk management of the banking sector, is the cornerstone of the G20 regulatory reform agenda. Following a coordinated effort by 27 countries, the BCBS issued the final rules for the Basel III framework in 2011.[1] Basel III is substantially more comprehensive in scope than its predecessor, Basel II, and it combines micro- and macroprudential reforms that address both institution- and system-level risks.

Basel III includes new elements to boost banks' capital base. First, it incorporates a significant expansion in risk coverage, which increases risk-weighted assets. Specifically, it targets the instruments and markets that were most problematic during the crisis – that is, trading book exposures, counterparty credit risk and securitised assets. Second, and critically, Basel III tightens the definition of eligible capital, with a strong focus on common equity (see Table VI.B). This represents a move away from complex hybrid capital instruments that have proved to be incapable of absorbing losses in periods of stress. Moreover, the definition of common equity is more restrictive under Basel III than under Basel II. Specifically, Basel III calculates common equity after the bank's balance sheet has been adjusted to exclude assets that cannot be liquidated when the bank runs into trouble (eg goodwill and deferred tax assets). In effect, only an estimated 70% of the common equity that banks currently hold and report under Basel II would qualify as common equity under Basel III. Finally, Basel III also sets restrictions on leverage (the ratio of equity to total assets), which serve as a backstop to the risk-based framework.

A unique feature of Basel III is the introduction of capital buffers that banks can use without compromising their solvency, and surcharges, which counter individual banks' contribution to systemic risk. First, a *conservation buffer* is designed to help preserve a bank as a going concern by restricting discretionary distributions (such as dividends and bonus payments) when the bank's capital ratio deteriorates. Second, a *countercyclical buffer* – capital that accumulates in good times and that can be drawn down in periods of stress – will help protect banks against risks that evolve over the financial cycle. Finally, a *capital surcharge* will be applied to systemically important financial institutions (SIFIs), or banks with large, highly interconnected and complex operations, in order to discourage the concentration of risk. These international standards impose lower bounds on regulators: some countries may choose to implement higher standards to address particular risks in their national contexts. This has always been an option under Basel I and II, and it will remain the case under Basel III.

Combining these elements will significantly increase banks' capital requirements. For example, under Basel III a SIFI operating at the peak of the financial cycle could be asked to hold common equity equal to 12% of its risk-weighted assets. Under Basel II's less stringent definition of common equity, the ratio of common equity to risk-weighted assets would have had to increase to at least 15% for the same bank.[2] This means a more than sevenfold increase relative to the Basel II minimum, even without taking into account the tougher and more comprehensive coverage of risk-weighted assets.

[1] See Basel Committee on Banking Supervision, *Basel III: A global regulatory framework for more resilient banks and banking systems,* Basel, June 2011. [2] Estimates from the 30 June 2011 BCBS bank monitoring exercise suggest that banks held common equity (Basel II definition) equal to roughly 10% of risk-weighted assets, equivalent to 7% under the stricter Basel III definition. The 15% in the text assumes that banks' non-qualifying capital (3%) remains a constant share of risk-weighted assets.

Capital requirements, as a percentage of risk-weighted assets

	Basel III					Basel II
	Min	Conservation buffer[1]	Countercyclical buffer	SIFI surcharge[2]	Total[3]	Min
Common equity	4.5	2.5	0–2.5	1–2.5	7–12	2
Tier 1[4]	6				8.5–13.5	4
Total (Tier 1 + Tier 2)	8				10.5–15.5	8

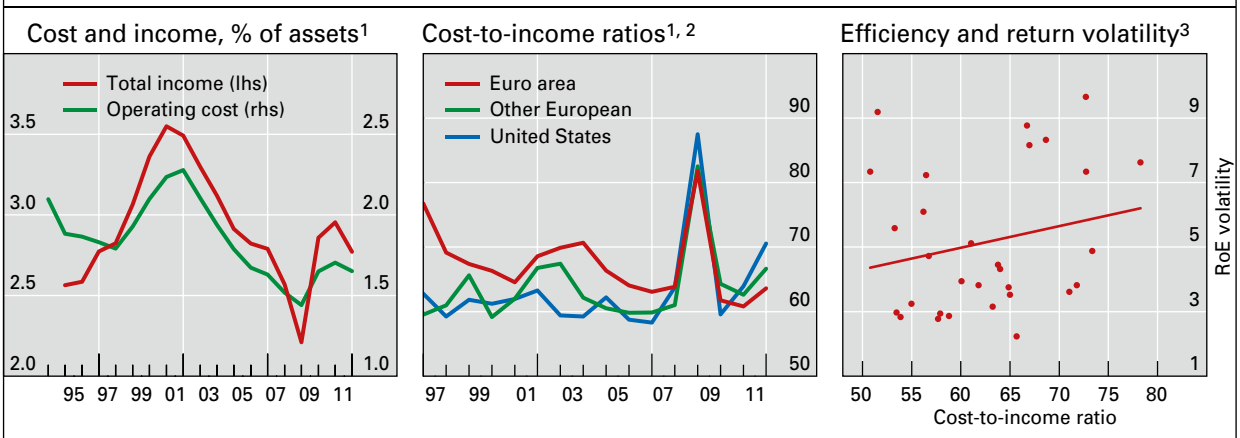
[1] Buffer that restricts distributions if the capital ratio falls below 7%. [2] SIFIs will be placed in buckets according to their systemic importance, whereas non-SIFIs will receive a zero surcharge. An empty bucket will be added on top of the highest populated bucket to provide incentives for banks to avoid becoming more systemically important. If the empty bucket becomes populated in the future, a new empty bucket will be added with a higher additional loss absorbency level applied. [3] A SIFI operating at the peak of the financial cycle could be required to hold up to 12% of common equity against risk-weighted assets under Basel III. Under the Basel II definition of common equity, the ratio of common equity to risk-weighted assets would be roughly 15% for the same bank. [4] Common equity plus additional Tier 1 capital. Table VI.B

As the crisis demonstrated, equity investors' preference for higher leverage is myopic. Over the long term, the higher volatility that comes with higher leverage erodes short-term gains. Moreover, less leveraged banks have been more resilient and delivered greater long-term value to their shareholders as well as other stakeholders.[6] Thus, a business model based on lower levels of official support and on a robust capital base would result in sustainable profits and should be attractive to the buy-and-hold equity investor. The ongoing reform agenda aims to embed this principle in the regulatory framework (see Box VI.B).

Going forward, a decrease in official support would contribute to a healthier banking sector by ensuring that banks factor their inherent financial strength into business decisions. For one, the withdrawal of government guarantees would lead to stricter market discipline, giving banks an incentive to behave more prudently. More generally, lower official support would make it necessary for banks to improve their inherent risk profile in order to conduct traditional activities. For instance, banks are viable financial intermediaries only if they secure lower funding costs than their borrowers, which would otherwise tap markets directly. As funding costs track credit ratings closely, a hypothetical withdrawal of official support from European and US banks at end-2011 would have made it difficult for them to obtain funding more cheaply than potential borrowers rated A– or above (Graph VI.7, left-hand panel). Likewise, lower ratings would have made it impossible for some banks to act as counterparties in repo and derivatives transactions and engage in market-making activities (see also Box VI.C on page 81).

Cost management and stability of profits

In per cent



[1] Averages for the sample of banks described in Graph VI.2, left-hand panel. [2] A lower value indicates greater cost efficiency. [3] For 30 large internationally active banks, from 1994 to 2011. The volatility of return-on-equity (RoE) for a given bank equals the average of the absolute deviations of the bank's RoE from its mean. The cost-to-income ratio is a time average. The positive slope coefficient (0.08) of the regression line is significant at the 1% confidence level.

Sources: Bankscope; BIS estimates. Graph VI.8

[6] See BIS, *80th Annual Report*, June 2010.

Cost management

Cost cutting would be a natural post-crisis strategy in any sector. Banks' modest progress in implementing such a strategy suggests that they have unexploited potential to support healthy bottom-line profits in the long run. Between 1997 and 2011, increases in banks' income were associated with a roughly one-to-one increase in costs (Graph VI.8, left-hand panel), suggesting little in the way of efficiency gains (Graph VI.8, centre panel, and Table VI.1).

Banks' reluctance to aggressively seek efficiency gains, which could benefit their various stakeholders, is unfortunate. For one, better cost management goes hand in hand with a more stable return on equity (Graph VI.8, right-hand panel). In addition, the Nordic experience in the 1990s has shown that cost cuts lead to a sustained recovery.[7] Greater cost efficiency also underpins a more flexible business model that can respond faster to a changing risk environment, thus lowering the likelihood of bank failure.[8]

International banking

Many banks that face pressure to strengthen their capital positions have scaled back both foreign and domestic activities (see also Chapter III). In addition to writedowns of cross-border assets during the crisis, more expensive debt and equity funding also led to reductions in the flow of cross-border credit. As a

Profitability of major banks[1]

As a percentage of total assets

	Pre-tax profits			Net interest margin			Loan loss provisions			Operating costs[2]		
	2009	2010	2011	2009	2010	2011	2009	2010	2011	2009	2010	2011
Australia (4)	0.93	1.14	1.19	1.88	1.89	1.83	0.54	0.31	0.19	1.20	1.24	1.17
Austria (2)	0.60	0.82	0.23	2.45	2.62	2.56	1.23	0.94	0.93	2.05	2.01	1.96
Canada (6)	0.73	1.01	1.08	1.72	1.64	1.60	0.44	0.25	0.18	2.04	1.88	1.87
France (4)	0.18	0.44	0.26	1.01	1.03	1.02	0.36	0.23	0.22	1.09	1.16	1.12
Germany (4)	0.02	0.20	0.20	0.84	0.87	0.88	0.29	0.15	0.12	1.24	1.23	1.21
Italy (3)	0.36	0.37	–1.22	1.91	1.77	1.81	0.77	0.63	0.69	1.76	1.70	1.80
Japan (5)	0.34	0.51	0.54	0.94	0.87	0.82	0.25	0.11	0.02	0.76	0.75	0.85
Netherlands (2)	–0.39	0.30	0.41	0.84	0.98	0.98	0.28	0.13	0.24	1.14	1.26	1.18
Spain (3)	0.98	1.02	0.61	2.47	2.42	2.38	1.00	0.84	0.82	1.57	1.61	1.72
Sweden (4)	0.34	0.61	0.60	1.02	0.89	0.83	0.46	0.11	0.03	0.95	0.88	0.79
Switzerland (3)	0.22	0.60	0.33	0.56	0.54	0.53	0.10	–0.0	0.01	1.97	1.97	1.74
United Kingdom (6)	0.18	0.37	0.33	1.09	1.19	1.15	0.90	0.59	0.46	1.32	1.37	1.41
United States (9)	0.36	0.80	0.93	2.65	2.73	2.49	1.89	1.14	0.54	2.98	3.22	3.23

[1] Largest banks in each country by total asset size. The number of banks in the 2011 data is indicated in parentheses. [2] Sum of personnel and other operating costs. For Japanese banks, no personnel costs included.

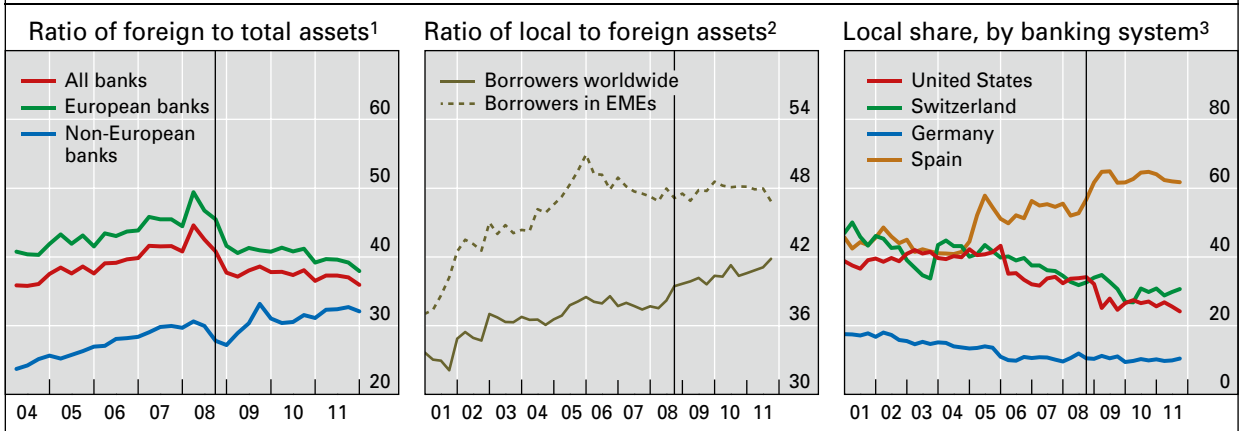
Source: Bankscope. Table VI.1

[7] See C Borio, B Vale and G von Peter, "Resolving the financial crisis: are we heeding the lessons from the Nordics?", *BIS Working Papers*, no 311, June 2010.

[8] See A Koutsomanoli-Filippaki and E Mamatzakis, "Efficiency under quantile regression: what is the relationship with risk in the EU banking industry?", *Review of Financial Economics*, vol 20, no 2, May 2011, pp 84–95.

International banking before and after the crisis

In per cent



The vertical lines indicate end-Q3 2008.

[1] Total foreign claims of BIS reporting banks headquartered in Canada, France, Germany, Italy, Japan, the Netherlands, Switzerland, the United Kingdom and the United States as a percentage of estimated total assets. [2] BIS reporting banks' local claims in local currencies as a percentage of total foreign claims. [3] The percentage of total foreign claims that are both locally lent and locally funded. Formally, it is the ratio of the minimum of local claims and local liabilities to total foreign claims.

Sources: Bankscope; BIS international banking statistics; BIS calculations. Graph VI.9

result, credit to foreign borrowers has fallen as a share of internationally active banks' total assets (Graph VI.9, left-hand panel, red line). Although the share has declined by only 10 percentage points since early 2008, the retrenchment represents an estimated $5 trillion in foreign credit up to end-2011.

The contraction in the international portfolios of some European banks has been particularly noteworthy. For example, Belgian, Dutch, French, German and Italian banks combined reduced their foreign positions by more than $6 trillion (43%) between early 2008 and end-2011. While the bulk of this reduction occurred in the quarters following the collapse of Lehman Brothers, foreign credit fell by more than $1.3 trillion (14%) in the second half of 2011, as concerns over exposures to European sovereigns intensified. International credit contracted faster than domestic lending, thus reorienting these banks' balance sheets towards home markets (Graph VI.9, left-hand panel, green line).

That said, not all banks have reduced their foreign activities. The internationally active Australian, Japanese, Spanish and Swedish banks have stepped in and partially replaced the European banks mentioned above. Combined, these banks' foreign positions have grown by more than $850 billion (18%) since mid-2010, with particularly strong growth of credit to borrowers in emerging economies. In addition, banks from emerging markets have also picked up some of the slack. While internationally active emerging market banks still account for a small share (1.4%) of total foreign credit worldwide, this share has risen markedly since 2007 (Graph VI.10, left-hand panel). For example, from 2009 to 2011, these banks extended an estimated $1.1 trillion in international syndicated loans, representing roughly 10% of the total number of signings (Graph VI.10, right-hand panel). At the same time, euro area banks' share of new loan signings dropped below 25%.

Box VI.C: Reforming OTC derivatives markets

Over-the counter (OTC) derivatives markets were not immune to the counterparty credit risk concerns that crippled the financial system during the crisis. Positions in these markets – where participants bilaterally trade interest rate, foreign exchange, credit and other derivatives contracts with each other or with market-making dealers – grew steadily in the years leading up to the crisis (Graph VI.C, left-hand panel). Yet the lack of information on how market positioning redistributed risk across the financial system left authorities and market participants flat-footed when the crisis occurred. This box reviews international initiatives that aim to address two weaknesses inherent in the bilateral nature of OTC derivatives markets: *counterparty credit risk* and *lack of transparency*.

OTC derivatives contracts often involve lengthy commitments during which a position can potentially generate a substantial counterparty credit exposure. At the same time, derivatives can also embed leverage in balance sheets: large notional exposures often require a small initial outlay of cash, but small changes in the value of underlying securities can abruptly expand potential liabilities. Thus, counterparty credit risk can rise dramatically during times of market turbulence. Greater concentration in these markets since 2007, when several large dealers either failed or left the market, has only compounded these risks (Graph VI.C, right-hand panel). And the anticipated ratings downgrade of some dealers could restrict their ability to make markets, thus leading to even greater concentration in the future.

OTC derivatives markets are also quite opaque. Prices and quantities are known with certainty *only* by the parties to a particular trade. Thus, in the years before the crisis, large concentrations of risk were able to grow out of participants' and regulators' sight. The opacity of these markets also made it impossible for participants to assess the health of their counterparties when the crisis broke, leading many to cut back exposures to large dealers, aggravating liquidity shortages.

The centrepiece of the global reform agenda is the mandatory clearing of standardised derivatives through central counterparties (CCPs). Central clearing of OTC derivatives through CCPs that meet strong standards for capitalisation and risk management can reduce counterparty credit risk in at least two ways.[1]

First, a CCP can impose multilateral netting of exposures. *Bilateral* netting, whereby individual pairs of counterparties agree to net their bilateral positions, can reduce notional exposures substantially; for example, for CDS contracts, bilateral netting is estimated to reduce exposures tenfold. *Multilateral* netting, whereby participants net all (or most) of their positions with a *common* counterparty, such as a CCP, would reduce exposures further. However, a critical mass of gross positions is necessary for the risk-reducing impact of multilateral, relative to bilateral, netting to kick in.[2] Moreover, the benefits of centralised clearing emerge only if contracts are standardised. Differences in terms and conditions across traded instruments would make it difficult for a CCP to match and net contracts. This argues for a public sector role in overcoming such collective action problems by mandating standardisation and central clearing.

Second, a CCP can reduce counterparty credit risk by enforcing collateralisation of exposures. To date, collateral arrangements in OTC derivatives markets vary and not all exposures are collateralised. In contrast, CCPs can set standardised, risk-based rules for initial and variation margins. They can also keep track of the collateral provided and owed by each clearing member, and manage the collateral assets.

A move to CCPs also improves transparency, since CCPs collect data on prices, volumes and positions for standardised products. This facilitates the monitoring of exposures, enabling the private and public sectors to track the build-up of certain kinds of risks in the financial system. Disclosure of information can also aid valuation and price discovery in the markets for non-standardised derivative products.

Three additional reform elements, applying to *non-centrally cleared* OTC derivatives, complement the shift of standardised contracts to central clearing. First, in order to stem risk-taking by banks, Basel III regulation imposes higher capital charges on holdings of non-centrally cleared contracts. Second, the BCBS and IOSCO are considering more stringent standards on margining for non-centrally cleared derivatives to strengthen risk management. Finally, authorities are seeking to mandate that *all* OTC derivatives contracts be reported to trade repositories.

By design, central clearing concentrates credit and other risks in the CCPs themselves. And, as more and more trades are transacted through CCPs, the systemic importance of any given CCP will tend to rise. Managing central counterparty risk requires that standards be put in place to ensure the robustness and resilience of the CCPs themselves. The CPSS-IOSCO *Principles for financial market infrastructures*,

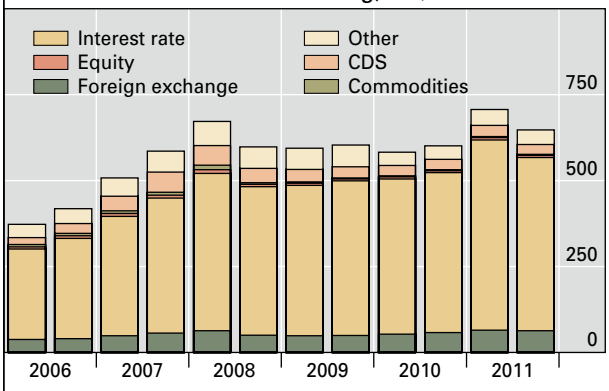
published in April 2012, aim to provide these standards. They offer guidelines for ensuring that CCPs are strongly capitalised, maintain explicit support agreements with their members and conform to strict international standards for risk management.

Moreover, the FSB is coordinating work on four categories of safeguards, to ensure that global CCPs do not introduce new systemic risks. First, there is a need to put in place *cooperative oversight* arrangements, so that authorities have the information and the tools to assess and address risks to their home markets. Second, *fair and open market access*, based on transparent and objective criteria, is important to ensure a level playing field across dealers, customers and platforms. Only open access, combined with cooperative oversight, will discourage the emergence of smaller, domestic CCPs that could contribute to market segmentation without necessarily enhancing efficiency or stability. Third, CCPs need *liquidity backup arrangements*, which first and foremost include self-insurance in the form of a portfolio of liquid assets and prearranged credit lines in all of the currencies of the products they clear. Finally, *robust resolution regimes* should be in place to ensure that essential market services are not disrupted in the event of a CCP failure.

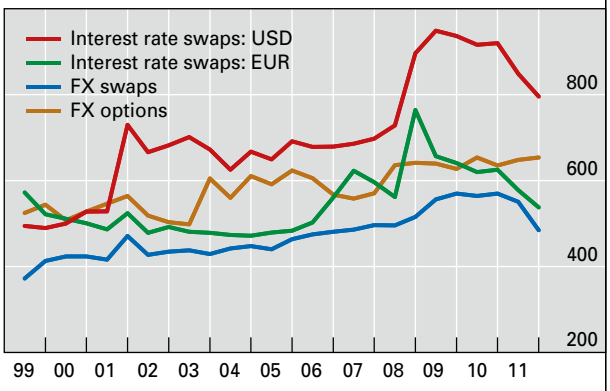
[1] For more information, see CPSS-IOSCO, *Principles for financial market infrastructures*, April 2012. [2] Up to end-2011, progress was uneven across markets. Roughly half of conventional swaps and overnight index swap (OIS) contracts were centrally cleared, but only about one in 10 CDS was.

Global OTC derivatives

Notional amounts outstanding, in $trn[1]



Herfindahl indices of selected OTC markets[2]



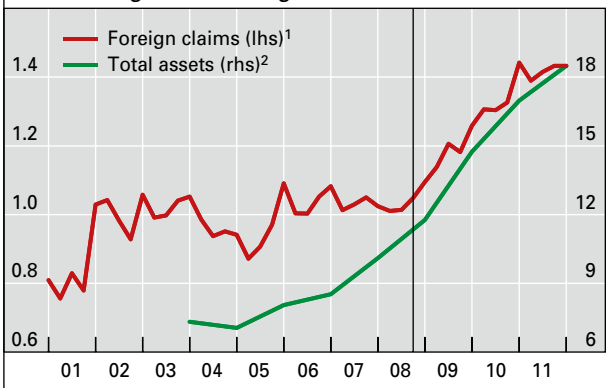
[1] By data type and market risk category. [2] The Herfindahl index of a given market is the sum of the squares of the market shares of firms active in the industry. An industry consisting of a single firm will have a Herfindahl index of 10,000, while an industry where each of 10 firms has a 10% share will have a Herfindahl index of 1,000.

Sources: Central banks of the G10 countries, Australia and Spain; BIS international banking statistics. Graph VI.C

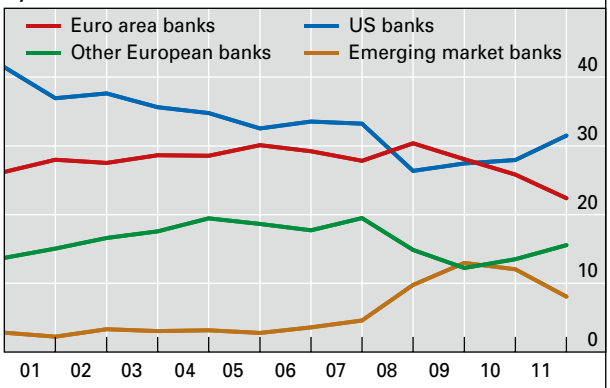
These differences in the degree to which banks have pulled back from foreign markets since the onset of the crisis reflect in part differences across funding models (Graph VI.9). Persistent differences between these models left some banks more vulnerable than others to the disruptions in global funding during the crisis. Indeed, credit that was extended and funded *locally*, as opposed to across borders, proved to be more robust, as it was largely insulated from the disruptions in wholesale funding markets. As a result, supervisors in many host jurisdictions, who watched cross-border credit evaporate, are encouraging the establishment of local subsidiaries and are tightening local funding requirements. Reflecting this policy shift, banks' tendency to lend to foreign residents from offices in the host country has become more marked since 2008 at the aggregate level (Graph VI.9, centre panel). Spanish banks, whose international activities have continued to expand, extend and fund most of their foreign credit locally. By contrast,

Emerging market bank lending

Share in global lending



Syndicated loans[3]



[1] Total foreign claims booked by banks headquartered in Brazil, Chile, Chinese Taipei, India, Malaysia, Mexico and Turkey, as a share in the total foreign claims booked by all BIS reporting banks. [2] Emerging market banks' assets as a percentage of the total assets of a sample of large internationally active banks. For a description of this sample, see Graph VI. 2, left-hand panel. [3] Percentage of total number of new signings of syndicated loans by nationality of participating banks.

Sources: BIS international banking statistics; BIS calculations. Graph VI.10

German banks, which experienced large contractions in their international portfolios during the crisis, intermediate primarily across borders.

Summing up

In the post-crisis period, the banking sector faces both short-term and long-term challenges. In the short term, banks need to repair their balance sheets. This will entail writedowns of bad assets, thus imposing losses on banks' stakeholders, and recapitalisation, which public funds could facilitate. With their balance sheets repaired, banks will be in a better position to regain markets' confidence and strengthen their liquidity positions, both domestically and internationally, by drawing on traditional funding sources. In the long term, banks should have sufficient *inherent* financial strength to perform key intermediation functions without resorting to official support. And since the new regulatory environment will put pressure on their profitability, banks will need to adopt more aggressive cost management strategies than in the past.