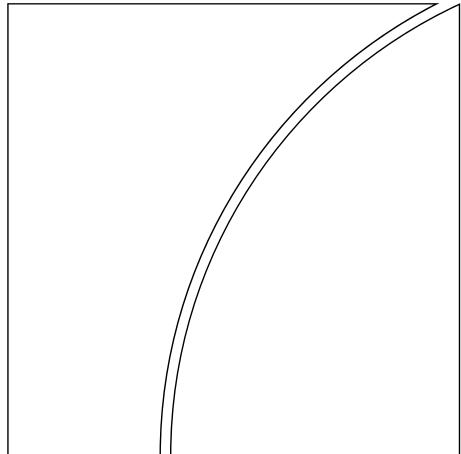


BANK FOR INTERNATIONAL SETTLEMENTS



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The chapters of this Report went to press on 14–15 June 2012.

## **Conventions used in this Report**

|          |                                      |
|----------|--------------------------------------|
| lhs, rhs | left-hand scale, right-hand scale    |
| billion  | thousand million                     |
| ...      | not available                        |
| .        | not applicable                       |
| -        | nil or negligible                    |
| \$       | US dollar unless specified otherwise |

Differences in totals are due to rounding.

The term “country” as used in this publication also covers territorial entities that are not states as understood by international law and practice but for which data are separately and independently maintained.

# 82nd Annual Report

*submitted to the Annual General Meeting  
of the Bank for International Settlements  
held in Basel on 24 June 2012*

Ladies and Gentlemen,

It is my pleasure to submit to you the 82nd Annual Report of the Bank for International Settlements for the financial year which ended on 31 March 2012.

The net profit for the year amounted to SDR 758.9 million, compared with SDR 816.0 million for the preceding year. Details of the results for the financial year 2011/12 may be found on pages 129–32 of this Report under “Net profit and its distribution”.

The Board of Directors proposes, in application of Article 51 of the Bank’s Statutes, that the present General Meeting pay a dividend of SDR 305 per share, with the four new shareholders receiving a pro rata share of the dividend. This dividend would total SDR 168.4 million, payable in any constituent currency of the SDR, or in Swiss francs.

The Board further recommends that SDR 29.5 million be transferred to the general reserve fund, SDR 6.0 million to the special dividend reserve fund and the remainder – amounting to SDR 555.0 million – to the free reserve fund.

If these proposals are approved, the Bank’s dividend for the financial year 2011/12 will be payable to shareholders on 29 June 2012.

Basel, 15 June 2012

JAIME CARUANA  
General Manager



# Overview of the economic chapters

## Chapter I: Breaking the vicious cycles

The global economy has yet to overcome the legacies of the financial crisis to achieve balanced, self-sustaining growth. In different ways, vicious cycles are hindering the transition for both the advanced and emerging market economies. After reviewing the past year's economic developments (Chapter II), the economic chapters address fundamental aspects of these vicious cycles: unfinished structural adjustments (Chapter III), risks in the current stances of monetary (Chapter IV) and fiscal policy (Chapter V), and the ongoing challenges of financial reform (Chapter VI). Chapter I underscores the themes and policy conclusions of the latter four chapters, and in a special section examines them in the context of problems in Europe's currency union.

## Chapter II: The year in retrospect

In the advanced economies, the first months of 2011 seemed to offer the beginnings of a self-sustaining recovery, a promise that turned out to be a false dawn. The pattern appears to be repeating itself in 2012, with early signs of strength gradually fading. The same set of hindrances has been at work in the past two years. The crisis exposed the weak foundations of government finances. With budgets in disarray, fiscal authorities have been forced to make deep budget cuts at the same time as other sectors of the economy continue to deleverage. In the euro area, the evolution of fiscal strains into a sovereign debt crisis has severely undermined the confidence of investors and consumers inside and outside the monetary union. Losses on sovereign bonds have led many banks to cut lending, thereby further weakening the recovery. Meanwhile, many emerging market economies have begun to see their previously vigorous rates of economic activity drop off.

## Chapter III: Rebalancing growth

Both advanced and emerging market economies face structural challenges. Sectoral misallocations that built up during the boom, coupled with high levels of household and corporate debt, continue to hobble growth in some advanced economies. These countries must move to repair balance sheets as they facilitate the rebalancing of resources across sectors. Meanwhile, a number of other countries, including many emerging market economies, face the risk of experiencing their own version of the recent boom and bust cycle. Their rebalancing requires shifting from credit expansion and exports towards internal sources of growth, especially as growth models that mainly rely on exports are likely to be less effective than in the past.

## **Chapter IV: The limits of monetary policy**

The major advanced economies are maintaining extraordinarily accommodative monetary conditions, which are being transmitted to emerging market economies (EMEs) in the form of undesirable exchange rate and capital flow volatility. As a consequence of EME efforts to manage these spillovers, the stance of monetary policy is highly accommodative globally. There is widespread agreement that, during the crisis, decisive central bank action was essential to prevent a financial meltdown and that in the aftermath it has been supporting faltering economies. Central banks have had little choice but to maintain monetary ease because governments have failed to quickly and comprehensively address structural impediments to growth. But the need for prolonged accommodation has to be carefully weighed against the risk of generating distortions that will later produce financial and price instability.

## **Chapter V: Restoring fiscal sustainability**

Sovereigns under fiscal pressure have been losing their risk-free status – and the accompanying economic benefits – at an alarming rate. The broad availability of safe assets aids the operation of financial markets and the conduct of monetary policy. And a sovereign whose debt is essentially free of credit risk has ample room to implement countercyclical policies to support macroeconomic stability. Restoring the supply of risk-free assets requires that governments convincingly address high deficits as well as projected increases in their long-term liabilities. Some countries need to take immediate action to significantly reform their public sectors and remove structural impediments to growth. All countries need to prevent adverse feedback loops between the financial sector and the sovereign and build up fiscal buffers in good times.

## **Chapter VI: Post-crisis evolution of the banking sector**

Banks and prudential authorities still face tough challenges in securing financial stability. Banks need to further strengthen capital and liquidity positions to regain markets' confidence. To expedite this process, authorities should ensure that institutions recapitalise and recognise losses on problematic investments. Authorities everywhere must complete their consistent and timely implementation of the agreed Basel III standards and ensure that robust regulation extends to currently unregulated intermediaries. Meanwhile, regulators in rapidly growing economies should be aware of the potentially destabilising risk-taking encouraged by buoyant local markets. The long-term objective of policy must be to pave the way to a robust business model of banking featuring strong and transparent balance sheets, self-sustaining international operations, and stable profits that do not rely on official support.

## I. Breaking the vicious cycles

The world is now five years on from the outbreak of the financial crisis, yet the global economy is still unbalanced and seemingly becoming more so as interacting weaknesses continue to amplify each other. The goals of balanced growth, balanced economic policies and a safe financial system still elude us. In advanced economies at the centre of the financial crisis, high debt loads continue to drag down recovery; monetary and fiscal policies still lack a comprehensive solution to short-term needs and long-term dangers; and despite the international progress on regulation, the condition of the financial sector still poses a threat to stability. From time to time, encouraging signs raise hopes – but they are quickly dashed, delivering another blow to the confidence of consumers and investors.

As many advanced economies have been struggling, emerging market economies have been rising, in some cases fuelled by rapid credit expansion or a vast wave of export-led growth. This two-speed recovery generates large and potentially destabilising current account imbalances and volatile gross capital flows. The export boom in many emerging markets has crowded out the development of more durable internal sources of growth, leaving countries more vulnerable as growth begins to slow down. As the economic developments of the past year (see Chapter II) have demonstrated, a self-sustaining recovery in the advanced economies and a rebalancing of global growth remain elusive.

In short, vicious cycles are distorting both advanced and emerging economies. How can these vicious cycles be turned into virtuous ones? The ongoing challenges of *structural adjustment*, *monetary* and *fiscal* policy risks, and *financial reform* encompass the broad global threats that are still with us. These four topics, and the steps needed to set the global economy firmly on the path to sustainable long-term growth, are the focus of Chapters III–VI in this Report. In the remainder of this chapter, we highlight the policy recommendations for the global economy. And, before concluding, we also discuss the particularly vicious cycles currently bedevilling Europe, where the monetary union faces the above challenges plus those of an incomplete institutional setup.

### Structural challenges persist

The global economy remains unbalanced, as activity in many advanced economies continues to falter while economies elsewhere are expanding, in some cases rapidly (Chapter III). This is unlikely to be sustainable.

Economies that were at the centre of the financial crisis must face their crisis legacies of debt and misallocated resources head-on. The leverage-driven real estate boom left an enormous overhang of debt after the inevitable implosion. The necessary deleveraging process for households is far from

complete and has been slow by historical standards. Household debt remains close to 100% of GDP in some countries, including Ireland, Spain and the United Kingdom; in others, including France and Italy, household and corporate debt have both increased relative to GDP since 2008.

An important factor slowing the deleveraging process among households is the simultaneous need for balance sheet repair and deleveraging in the financial and government sectors. Unusually slow deleveraging in every major sector of activity partly explains why the recovery in the advanced economies has been so weak. And given the ongoing need to improve balance sheets, any effects from stimulative fiscal policy will be limited by overindebted agents using additional income to repay debt rather than spend more. As a result, weak growth is likely to continue.

Persistent imbalances across industries are also impeding recovery. Because labour and capital do not easily shift across industries, the misallocation of resources during the boom tends to work against recovery in the aftermath of a crisis. Hence, countries where the sectoral imbalances were most apparent are facing higher and more protracted unemployment as their industrial structure only slowly adjusts.

Meanwhile, countries that are growing rapidly confront the problems of identifying and reacting to the emergence of financial booms and, in many cases, of shifting away from a reliance on exports. Evidence of overshooting in some emerging markets is not hard to find. In several cases, prices for real estate and other assets have been surging while private indebtedness and debt service costs relative to income have been rising far above long-term trends. The lessons from the hardships now being endured in the advanced economies in the wake of similar experiences are not lost on today's emerging market policymakers, especially given recent signs of a slowdown in emerging market economies. But with the prospect of continued slow growth in much of the world, countries whose success has depended on exports would do well to speed their efforts to build capacity for internal growth.

## Overburdened central banks face risks

Over the past year, central banks in the advanced economies have continued or even expanded their purchases of government bonds and their support of liquidity in the banking system. At \$18 trillion and counting, the aggregate assets of all central banks now stand at roughly 30% of global GDP, double the ratio of a decade ago. And real policy interest rates – nominal rates minus headline inflation – remain substantially negative in most major advanced economies. The global economy is certainly better off today because central banks moved forcefully after the 2008 collapse of Lehman Brothers and in the years since. One of the latest examples of such action was the European Central Bank's offer of three-year loans to banks in late 2011 and again in early 2012. That €1 trillion programme, which increased the Eurosystem central bank balance sheet by roughly €500 billion, was perhaps the single most important factor halting the freeze in banks' funding markets and, indirectly, supporting some euro area government bond markets.

The extraordinary persistence of loose monetary policy is largely the result of insufficient action by governments in addressing structural problems. Simply put: central banks are being cornered into prolonging monetary stimulus as governments drag their feet and adjustment is delayed. As we discuss in Chapter IV, any positive effects of such central bank efforts may be shrinking, whereas the negative side effects may be growing. Both conventionally and unconventionally accommodative monetary policies are palliatives and have their limits. It would be a mistake to think that central bankers can use their balance sheets to solve every economic and financial problem: they cannot induce deleveraging, they cannot correct sectoral imbalances, and they cannot address solvency problems. In fact, near zero policy rates, combined with abundant and nearly unconditional liquidity support, weaken incentives for the private sector to repair balance sheets and for fiscal authorities to limit their borrowing requirements. They distort the financial system and in turn place added burdens on supervisors.

With nominal interest rates staying as low as they can go and central bank balance sheets continuing to expand, risks are surely building up. To a large extent they are the risks of unintended consequences, and they must be anticipated and managed. These consequences could include the wasteful support of effectively insolvent borrowers and banks – a phenomenon that haunted Japan in the 1990s – and artificially inflated asset prices that generate risks to financial stability down the road. One message of the crisis was that central banks could do much to avert a collapse. An even more important lesson is that underlying structural problems must be corrected during the recovery or we risk creating conditions that will lead rapidly to the next crisis.

In addition, central banks face the risk that, once the time comes to tighten monetary policy, the sheer size and scale of their unconventional measures will prevent a timely exit from monetary stimulus, thereby jeopardising price stability. The result would be a decisive loss of central bank credibility and possibly even independence.

Although central banks in many advanced economies may have no choice but to keep monetary policy relatively accommodative for now, they should use every opportunity to raise the pressure for deleveraging, balance sheet repair and structural adjustment by other means. They should also be doubly watchful for the build-up of new imbalances in asset markets.

Fast-growing economies are in a different situation. But there too, central banks are under pressure. The threats to monetary and financial stability in many emerging market economies have, as noted above, been in evidence for some time. Monetary policymakers there will need to continue to search for the right balance, but the task is being made even more difficult by recent signs of faltering growth combined with extraordinarily accommodative policies in the advanced economies.

## The abysmal fiscal outlook

Since 2007 – the year the financial crisis began – government debt in the advanced economies has increased on average from about 75% of GDP to

more than 110%. And average government deficits have ballooned from 1.5% to 6.5% of GDP. One could be forgiven for thinking that, without the financial crisis, government fiscal foundations today would be fairly sound. But the seemingly endless growth of tax receipts during the boom years only temporarily shored up those foundations. By pushing down tax receipts and driving up the government's social safety net costs, the financial crisis created an explosion of deficits and debt that directed the authorities' attention with new force to the underlying menace that no longer seemed so far away: the gross underfunding of governments' health care and pension obligations and an unmanageably large public sector.

In some countries, staggeringly large support programmes for the financial sector wreaked havoc on government finances. The feedback between the financial and the government sectors thus made a key contribution to accelerating fiscal decay; and the connection between banking stress and market pressures on sovereign credit has tightened considerably in the past couple of years, especially in Europe.

As we discuss in Chapter V, the fiscal maelstrom has toppled many sovereigns from their unique perch where the market considered them to be essentially free of credit risk and, in that sense, riskless. The loss is particularly worrisome given weak economic conditions and a global banking system still largely dependent on government support. The shrinking supply of safe assets is harming the functioning of financial markets and driving up funding costs for the private sector. And it is helping push banks into risky practices, such as rehypothecation – that is, the use of the same collateral for multiple obligations.

Over the past year, much of the world has focused on Europe, where sovereign debt crises have been erupting at an alarming rate. But, as recently underscored by credit downgrades of the United States and Japan and rating agency warnings on the United Kingdom, underlying long-term fiscal imbalances extend far beyond the euro area.

Although debt in emerging markets has on average remained fairly stable relative to GDP, governments there should take heed: credit and asset price booms in many cases have been masking underlying weaknesses in their fiscal accounts, much as they did in advanced economies before the financial crisis. If recent signs of a slowdown persist, the fiscal horizon of emerging market economies could darken quickly.

So, governments across the globe need to tackle their fiscal predicaments. In most advanced economies, the fiscal budget excluding interest payments would need 20 consecutive years of surpluses exceeding 2% of GDP – starting now – just to bring the debt-to-GDP ratio back to its pre-crisis level. And every additional year that budgets continue in deficit makes the recovery period longer. The question is not whether governments must adjust, but how? Some say that governments should focus exclusively on resolving the long term, ignoring the short term. Others say that the only credible consolidation plan is the one that starts now – anything else risks pushing sovereign creditworthiness off the cliff.

In choosing some position between these two extremes, a few points are clear from the outset. The main priority should be forceful and credible long-

term measures, even when it means making painful choices now. Governments in the advanced economies will have to convincingly show that they will adequately manage the costs for pensions and health care as their populations grow older. Spending cuts and revenue increases may be necessary in the near term as well. Countries in the deepest trouble will need to do much more, quickly pushing through significant reform of their public sectors. In many countries, ongoing deleveraging in the private sector weakens near-term aggregate demand and hampers fiscal reform. In those cases, authorities should create sufficient room for manoeuvre to support balance sheet repair in the private sector, including by recapitalising banks as they recognise losses.

But trust lost is never easily regained. The road back to risk-free status for sovereigns is a long one. Some countries have already run out of options and will have no choice but to take immediate steps to restore fiscal balance. Others will need to strike the right balance between long- and short-term measures to be successful. A key challenge for governments as they strive for that balance is to avoid losing the confidence of investors.

Economies less affected by the financial crisis should view their current position of relative strength as an opportunity to put their government finances on a sustainable long-term path. Doing so sooner rather than later will give them the flexibility to react when the next crisis inevitably hits. In addition, all countries will need to stem adverse feedback between the financial sector and the sovereign. To this end, countries should move swiftly to make their banks more resilient and make sure that, as conditions improve, they build fiscal buffers.

### The changing financial sphere

While financial institutions struggle to overcome the effects of the crisis, they also confront a changed market environment and new regulations. In some places they have made significant progress on recapitalisation but, as we discuss in Chapter VI, their adjustment to the new conditions has a long way to go and needs to be pushed ahead. The magnitude of this unfinished business is clear from investors' continued distrust of banks: the cost of buying compensation for a bank default (the spread on bank credit default swaps) is as high now as it was at the peak of the crisis, and bank equities continue to lose ground relative to the broad market.

Despite the progress on recapitalisation, many banks remain highly leveraged, including those that appear well capitalised but in fact have outsize derivatives positions. Big banks continue to have an interest in driving up their leverage without enough regard for the consequences of failure: because of their systemic weight, they expect the public sector to cover the downside. Another worrying sign is that trading, after a brief crisis-induced squeeze, has again become a major source of income for large banks.

These conditions are moving the financial sector towards the same high-risk profile it had before the crisis. Recent heavy losses related to derivatives trading are a reminder of the dangers associated with such a development. Surely, fundamental progress on the structure of the financial system will be

marked when its largest institutions can fail without the taxpayer having to respond, and when the overall size of the sector relative to the rest of the economy stays within tighter limits.

Some mechanisms can help align market participants' interests with those of the public. One is the reform of remuneration policies at banks. Another involves bank bondholders, who together with the public sector are at risk of picking up the tab if a financial intermediary's net worth turns negative. The incentives of bond investors will be better aligned with the public interest if the investors see more clearly that they will bear losses if banks get into trouble. This will require some combination of *bail-in bonds* – in which bondholders' losses in resolution are known with some certainty beforehand – and improved resolution powers. Making risks to investors clearer and ending crisis-related support for banks, including government guarantees on their bonds, will push investors to better scrutinise the financial health of banks before investing in them. Greater transparency has a pivotal role to play here: it will increase bondholders' ability to monitor the banks because the risks the institutions are taking will be more visible.

In short, public policy must move banks to adopt business models that are less risky, more sustainable and more clearly in the public interest. Governments can give the banking sector a healthy push in this direction if officials make sure that newly agreed regulations are implemented universally and without delay. Apart from enhancing transparency, this would also ensure a level playing field for internationally active banks. Most importantly, authorities should continue forcing banks to bring leverage down – and keep it there by preventing them from deploying new instruments and tactics that would push it back up. But such efforts should not stop with traditional banks. Prudential authorities everywhere still face the challenge of putting in place robust regulations that extend to the shadow banking sector.

## What now for European monetary union?

The world is watching the crisis gripping the euro area with trepidation for the spillovers it may have. But at its root the European crisis is a potential harbinger, a virulent and advanced convergence of the problems to be expected elsewhere if policy fails to break the vicious cycles generated by the global weaknesses we describe in this Report – sectoral imbalances, excess leverage, public overindebtedness and overburdened central banks.

For now, the destructive feedback created by these problems is concentrated in the euro area, where the fiscal authorities in some countries, forced to consolidate, can no longer support either their banks or their economies. The rapid loss of investor confidence in these countries has caused an equally rapid fragmentation of euro area financial markets. In this environment, how can the common currency regain its credibility so that Europe can return to prosperity and continue on the road to further integration?

In part, the euro area crisis involves underlying problems that were revealed by the financial crisis and are common to many advanced economies. Likewise, resolving it will require, in part, corrections that are also common:

private sector balance sheet adjustment, sectoral rebalancing, fiscal consolidation and banking recapitalisation. Europe has made progress on this agenda: reforming labour markets and social insurance systems and, through adoption of the fiscal compact, requiring countries to have general government budgets in balance or in surplus.

But full resolution of the euro area crisis also requires strengthening the institutional foundations of the currency union itself. To understand the importance of this issue, recall that the European monetary union integrated financial markets and created a centralised monetary authority so that capital could flow freely and easily across the common currency area. Yet while the region's borders have become irrelevant for finance and for central banking, authorities in one country still have only limited responsibilities for actions that a financial intermediary takes in another country. Hence, the public in one country of the currency union cannot be expected to financially backstop actions taken elsewhere in the union. The conclusion is hard to escape that a pan-European financial market and a pan-European central bank require a pan-European banking system. Put slightly differently, a currency union that centralises the lender of last resort for banks must unify its banking system. Banks in Europe must become European banks.

Recent promising suggestions for movement on the banking front offer quick progress because they would operate within the existing terms of the currency union. First, they would unify banking rules now fragmented along national boundaries. Second, common banking rules would centralise responsibility in a common regulator, supervisor, deposit insurer and resolution authority.

If adopted, these measures will break the adverse feedback between the banks and the sovereign and other destructive links that are making the crisis so severe. They will revive interbank lending and sovereign access to funding markets. They will allow the Eurosystem to withdraw from its unconventional and undesirable role as an intermediary. And they will restore confidence in the single currency so that both institutional and retail depositors return to the banks in their local markets. With day-to-day normality attained through a unified currency *and* banking system, leaders will have the time they need to finish building the broader institutional framework that the monetary union needs for its long-term viability.

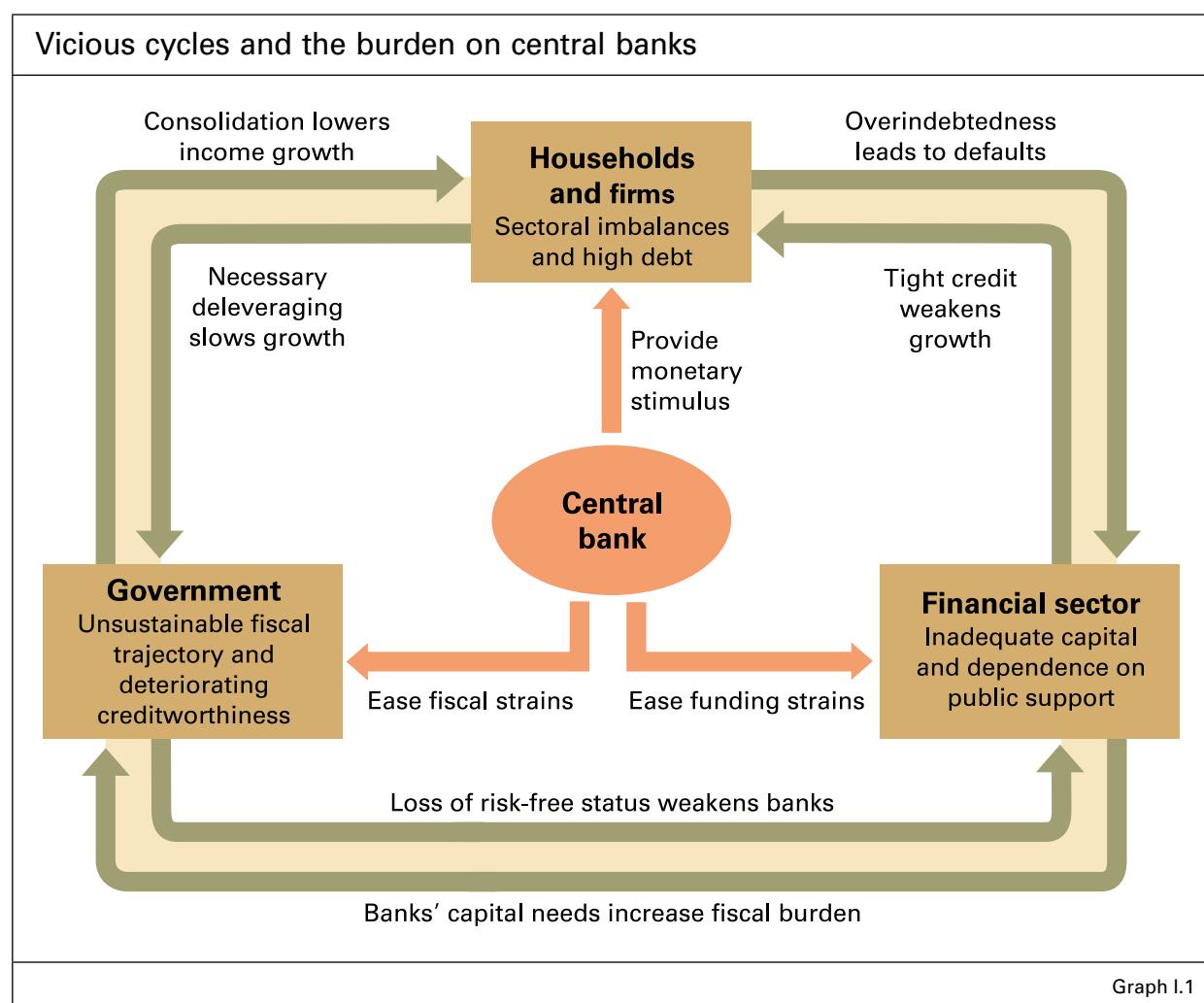
## Summing up

Moving the global economy to a path of balanced, self-sustaining growth remains a difficult and unfinished task. As we argue in this Report, a number of interacting structural weaknesses are hindering the reforms required in advanced and emerging market economies. Those hoping for quick fixes will continue to be disappointed – there are none. And central banks – already overburdened – cannot repair these weaknesses. All of this is understood by advanced economy consumers who are reducing debts and are reluctant to spend; it is understood by firms postponing investment and hiring; and it is understood by investors wary of the weak and risky outlook – why else would

they accept negative real interest rates on government bonds in many advanced economies?

A look at the economy as a whole shows that three groups need to adjust (Graph I.1): the financial sector needs to recognise losses and recapitalise; governments must put fiscal trajectories on a sustainable path; and households and firms need to deleverage. As things stand, each sector's burdens and efforts to adjust are worsening the position of the other two. The financial sector is putting pressure on the government as well as slowing deleveraging by households and firms. Governments, with their deteriorating creditworthiness and need for fiscal consolidation, are hurting the ability of the other sectors to right themselves. And as households and firms work to reduce their debt levels, they hamper the recovery of governments and banks. All of these linkages are creating a variety of vicious cycles.

Central banks find themselves in the middle of all of this, pushed to use what power they have to contain the damage: pushed to directly fund the financial sector and pushed to maintain extraordinarily low interest rates to ease the strains on fiscal authorities, households and firms. This intense pressure puts at risk the central banks' price stability objective, their credibility and, ultimately, their independence.



Graph I.1

Breaking these vicious cycles, and thereby reducing the pressure on central banks, is critical. Reaching this goal requires cleaning up and strengthening banks at the same time as the size and riskiness of the financial sector are brought under control. As we have urged in previous Reports, banks must adjust balance sheets to accurately reflect the value of assets; they have made progress on this score, but policymakers should move them along more quickly. As they do, they must ensure speedy recapitalisation and see that banks build capital buffers as conditions improve. More broadly, authorities must implement agreed financial reforms, extend them to shadow banking activities, and limit the size and significance of the financial sector so that the failure of an institution does not ignite a crisis.

In the euro area, the noxious effects of the vicious cycles have reached an advanced stage that reflects not only weaknesses seen elsewhere but also the incomplete nature of financial integration in the currency union. Europe will overcome this crisis if it can address both issues: attain structural adjustment, fiscal consolidation and bank recapitalisation; and unify the framework for bank regulation, supervision, deposit insurance and resolution. That approach will decisively break the damaging feedback between weak sovereigns and weak banks, delivering the financial normality that will allow time for further development of the euro area's institutional framework.

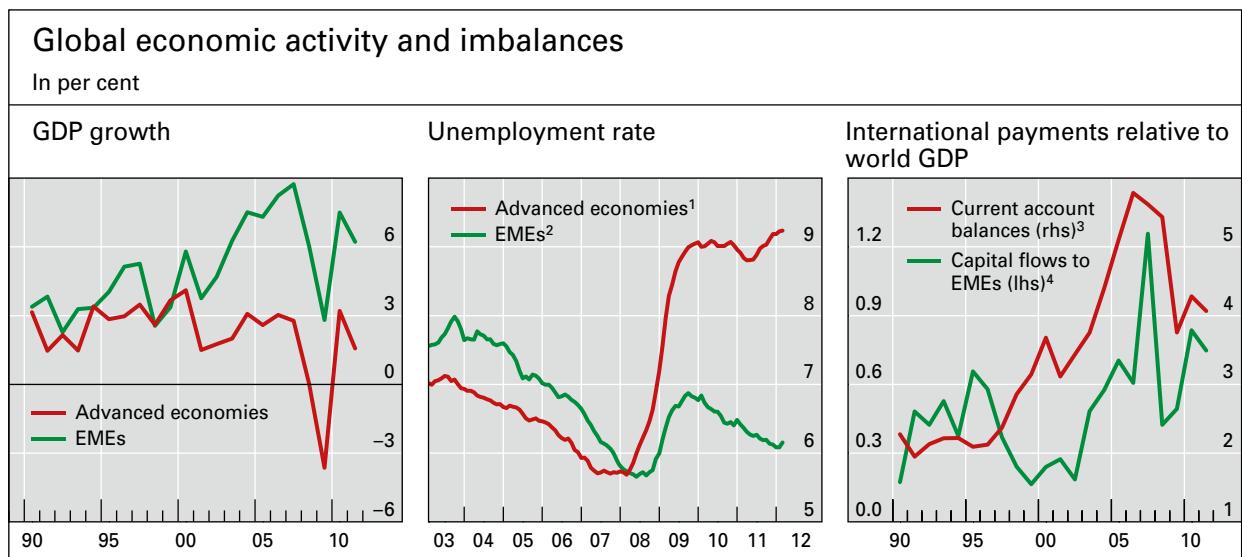
Overall, in Europe and elsewhere, the revitalisation of banks and the moderation of the financial industry will end their destructive interaction with the other sectors and clear the way for the next steps – fiscal consolidation and the deleveraging of the private non-financial parts of the economy. Only then, when balance sheets across all sectors are repaired, can we hope to move back to a balanced growth path. Only then will virtuous cycles replace the vicious ones now gripping the global economy.

## II. The year in retrospect

The global economic recovery faltered over the past year. Rising commodity prices and the intensification of the euro area sovereign debt crisis hit at the time when unresolved structural weaknesses were still weighing on the global economy. Increases in commodity prices had boosted inflation pressures in fast-growing emerging market economies (EMEs), which prompted tighter policies to moderate demand growth. In slow-growing advanced economies, which had more spare capacity, higher commodity prices did not generate as much inflationary pressure, but they undermined discretionary spending, which was already subdued because households were paying down debts. The intensification of the euro area crisis led to a global rise in risk aversion, growing concerns about exposures to sovereign risk and ultimately to banking sector stress. Following a new round of central bank interventions, there were signs of stronger global expansion in the first few months of 2012. But with sectoral and geographical imbalances still present in the world economy, sustained growth remained elusive.

### The global recovery faltered in 2011

The global economic recovery slowed in 2011. For the year as a whole, world output grew by 3.9%, slightly slower than the average growth rate of the decade prior to the financial crisis, but down significantly from 5.3% in 2010. The pace of economic growth in advanced economies halved, to just 1.6%



<sup>1</sup> Simple average of Australia, Canada, France, Germany, Ireland, Italy, Japan, Spain, Switzerland, the United Kingdom and the United States. <sup>2</sup> Simple average of Brazil, China, Chinese Taipei, the Czech Republic (since April 2004), Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, the Philippines, Poland and Singapore. <sup>3</sup> Sum of all countries' absolute current account balances. <sup>4</sup> Net private flows.

Sources: IMF, *World Economic Outlook*; Bloomberg; Datastream; national data; BIS calculations.

Graph II.1

(Graph II.1, left-hand panel). This reflected a significant weakening of the economy in the United States and the United Kingdom and a sharp drop in activity in Japan after the March 2011 earthquake, while growth in the euro area as a whole was broadly unchanged.

Overall, the economic momentum in advanced economies was too weak to generate a robust, self-sustaining recovery. The drag on private consumption persisted. Unemployment remained high, or even increased further (Graph II.1, centre panel). Falling property prices and high levels of debt continued to weigh on household balance sheets in the mature economies hit hardest by the financial crisis (see Chapter III). Household sector weakness also weighed on business spending. Very weak public sector finances generally left no room for further fiscal stimulus.

Emerging market economies grew by around 6% in 2011, with the pace of growth moderating only slightly from 2010 (Graph II.1, left-hand panel). Emerging Asia grew at 7.8%, led by China (9.2%) and India (7.2%); Latin America grew at 4.5%. Growth in central and eastern Europe was broadly unchanged at 5.3% for 2011 as a whole.

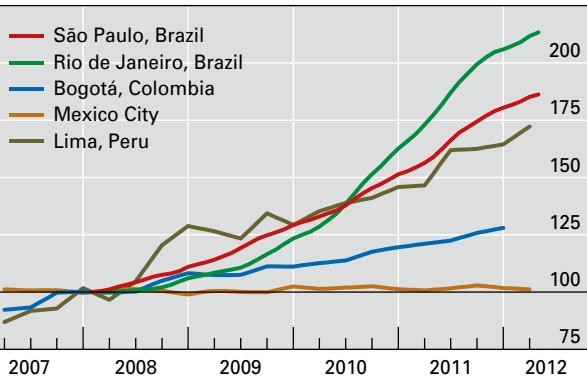
During the period under review, rapid growth in EMEs was in many cases associated with signs of domestic overheating, including rising inflation, strong credit growth and rising asset prices. Real credit continued to expand rapidly in emerging Asia and Latin America, and real residential property prices rose close to or above previous historical highs in major cities in China and Latin America (Graph II.2). However, house price increases seem to have decelerated more recently, and in some cases prices have even declined.

Reflecting the two-speed global expansion, external imbalances remained wide. Although slightly lower than in 2010, global current account imbalances

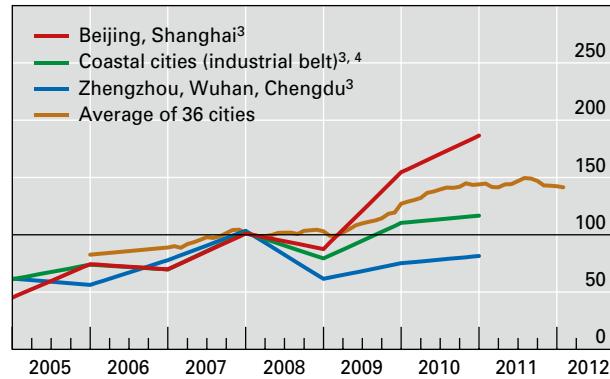
## Real property prices in selected emerging market cities<sup>1</sup>

1 January 2008 = 100

### Latin America<sup>2</sup>



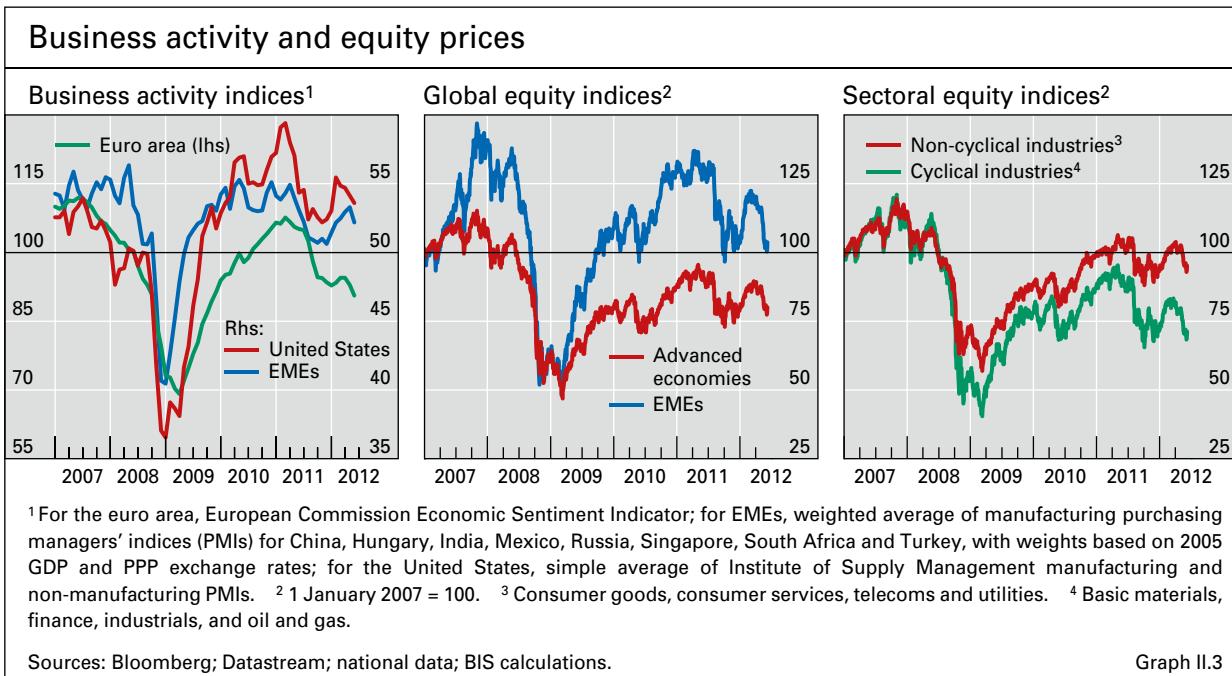
### China



<sup>1</sup> Nominal prices deflated by national consumer price indices. <sup>2</sup> For Brazil, FipeZap index of residential property prices; for Colombia, price indices for new dwellings; for Mexico, SHF index of dwelling prices; for Peru, index of sale prices per square metre (apartments, selected Lima districts). <sup>3</sup> Average residential land prices. <sup>4</sup> Changchun, Dalian, Fuzhou, Guangzhou, Hangzhou, Nanning, Ningbo, Qingdao, Shenyang, Shenzhen and Xiamen.

Sources: J Wu, Y Deng and H Liu, "House price index construction in the nascent housing market: the case of China", *Institute of Real Estate Studies Working Paper Series*, National University of Singapore, June 2011; Bank of the Republic (Colombia); Central Reserve Bank of Peru; CEIC; National Administrative Department of Statistics (DANE, Colombia); National Development and Reform Commission (China); Sociedad Hipotecaria Federal (Mexico); national data; BIS calculations.

Graph II.2



remained at about 4% of world GDP, which is high by historical standards (Graph II.1, right-hand panel, red line). Major advanced economies again recorded sizeable current account deficits, with the notable exceptions of Germany and Japan. Current account surpluses in emerging Asia, though shrinking, remained sizeable. Latin America and central and eastern Europe ran current account deficits. The net private capital flow into EMEs in 2011 was still one of the strongest on record (Graph II.1, right-hand panel, green line). Despite this, few emerging market currencies strengthened significantly against the major currencies, and many depreciated.

The global recovery started to falter in the second quarter of the year. At that time, indicators of business activity weakened significantly in the United States, followed by those for EMEs; and in the second half of 2011, they deteriorated relatively sharply in Europe (Graph II.3, left-hand panel). The prices of many growth-sensitive financial assets declined. Major equity indices around the world fell, with the prices of cyclical stocks declining relatively sharply (Graph II.3, centre and right-hand panels). Corporate bond spreads generally rose, notably for low and sub-investment grade ratings.

These developments reflected two major shocks which exposed underlying weakness in the global economy associated with domestic and external imbalances. First, commodity prices, which had already increased significantly, remained high against the backdrop of strong demand from EMEs. This eroded household income in the United States and other advanced economies at a time of high unemployment and ongoing balance sheet repair. In contrast, the main effect in a number of EMEs was higher inflation, which led to policy tightening. Second, financial market investors became increasingly wary about the credit quality of several euro area governments and the exposure of European banks to sovereign credit risk. In the second half of the

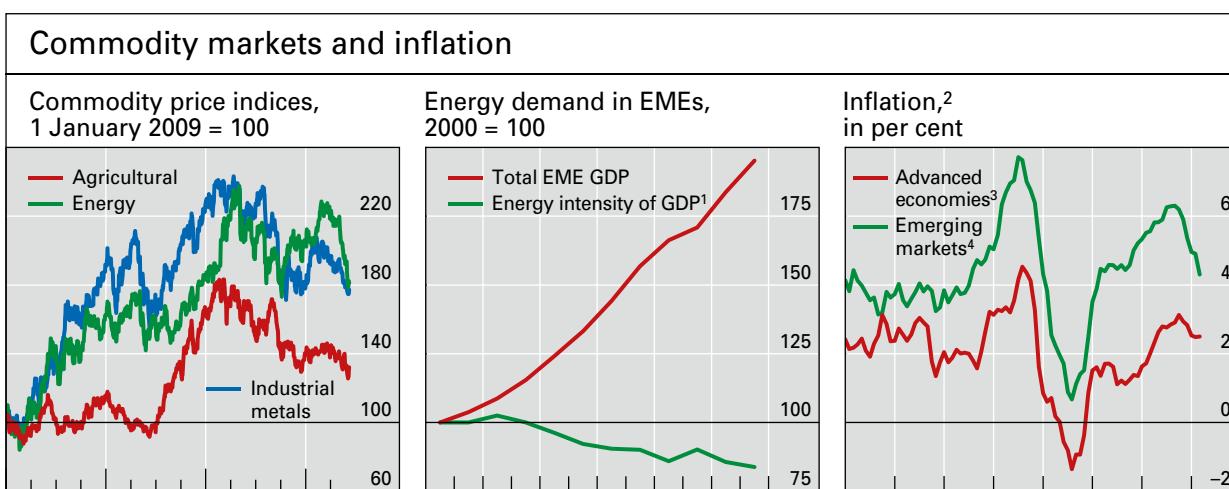
year, a sharp increase in global risk aversion, fiscal restraint and growing deleveraging pressure on banks sapped demand.

### High commodity prices had differential effects around the world

Commodity prices increased sharply until the end of the first quarter of 2011 (Graph II.4, left-hand panel). From their cyclical trough in mid-2010, agricultural commodity prices doubled and energy and industrial metals prices rose by more than 50%. Commodity prices then fell by 20–30% over the following six months. From the end of the third quarter, however, energy prices rebounded by around 20%, while agricultural commodity and industrial metals prices were relatively stable. In 2011, all of these commodity prices remained significantly above 2009–10 average levels.

A series of negative supply shocks contributed to the strong price performance. Bad weather and poor harvests lifted agricultural commodity prices in the second half of 2010 and early 2011. Similarly, political unrest in the Middle East and North Africa in the early months of 2011 threatened to disrupt oil supplies and drove up oil prices at that time. Modest increases in output from the major oil-producing countries were not sufficient to stop this trend. Oil prices were again driven higher in late 2011 and early 2012 by geopolitical supply risks, this time related to Iran.

In addition to supply shocks, the pattern of global growth helped keep commodity prices high. The integration of EMEs into global production chains and their rapid economic development led to strong demand, especially for energy and industrial metals, but also for agricultural commodities. As Graph II.4 (centre panel) shows, GDP growth has outpaced gains in energy efficiency in major EMEs during the past decade. With limited spare capacity, the prices of oil and other commodities have been highly sensitive to changes



<sup>1</sup> Proxied as oil consumption of Brazil, India, Korea and Mexico relative to their combined GDP. <sup>2</sup> Weighted averages of consumer price inflation in the listed economies based on 2005 GDP and PPP exchange rates. <sup>3</sup> The euro area, Japan, the United Kingdom and the United States. <sup>4</sup> Brazil, China, India (wholesale price index), Indonesia, Korea, Malaysia, Mexico, the Philippines, Poland, South Africa and Thailand.

Sources: IMF, *World Economic Outlook*; International Energy Agency; Datastream; national data; BIS calculations.

Graph II.4

in growth expectations. In 2011, the associated commodity price movements tended to act as a brake on the global recovery.

Strong commodity price gains in early 2011 and tight spare capacity lifted headline inflation later in the year in EMEs. By mid-2011, average inflation in these economies exceeded 6%, one of the highest rates of the past decade (Graph II.4, right-hand panel). Inflation pressures were strong, as energy and food account for a much larger share of consumption than in advanced economies.

In advanced economies, rising energy prices also lifted headline inflation, but spare capacity limited second-round effects. High energy prices undermined the purchasing power of a household sector already burdened by high unemployment and persistent balance sheet strains. In the United States, for instance, households spent an additional 2% of their income on fuel. With the unemployment rate above 9% and house and equity prices falling, US consumer confidence declined sharply over the summer of 2011.

Partly as a result of these differential effects of commodity prices, monetary policy responses in EMEs diverged from those in advanced economies during the second and third quarters of 2011. Many EMEs tightened monetary policy in response to rising inflation, while central banks in major advanced economies either reversed previous tightening or loosened further via extraordinary measures.

### The euro area sovereign debt crisis intensified

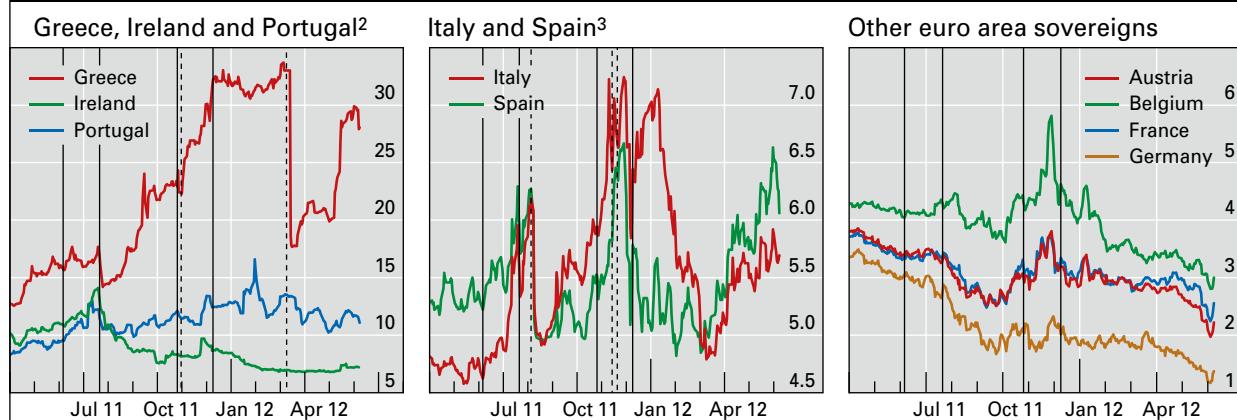
In mid-2011, the euro area sovereign debt crisis intensified. In the preceding months, government bond yields in countries on official support programmes – Greece, Ireland and Portugal – had increased substantially (Graph II.5, left-hand panel), while those elsewhere had been much more stable. But then yields for Italy and Spain, two much larger debtors, rose sharply and continued to drift up for much of the second half of the year (Graph II.5, centre panel). Furthermore, towards the end of 2011, yields on some of the highest-rated euro area government bonds, including those of Austria, Belgium and France, also increased, widening relative to those for Germany (Graph II.5, right-hand panel).

Several factors contributed to this intensification. First, official lenders, who were considering a second support package for Greece, demanded private sector involvement in reducing Greece's debt burden as a condition for additional loans. This raised uncertainty among bondholders regarding their treatment in any future euro area support programmes. Second, euro area growth was beginning to falter, making it harder for governments in the region to strengthen their financial positions in the near term. Third, the downgrade of the United States by one rating agency heightened investors' focus on fiscal sustainability.

A series of policy initiatives aimed at addressing the crisis followed in the second half of 2011. The ECB resumed purchasing euro area government bonds in August. Italian and Spanish sovereign yields initially declined sharply, but resumed their climb after just a few weeks, reflecting market concerns

## Euro area sovereign bond yields<sup>1</sup>

Ten-year yields, in per cent



<sup>1</sup> The solid vertical lines in each panel mark the dates of: the first official call for private sector involvement in sovereign debt reduction (6 June 2011); the conclusion of the July 2011 EU summit (21 July 2011), which included a second official support package for Greece and expanded potential uses of stabilisation funds; the conclusion of the October 2011 EU summit (26 October 2011), which raised the lending capacity of the stabilisation facility; and the adoption of the EU fiscal compact (9 December 2011), aimed at limiting future structural budget deficits. <sup>2</sup> The dashed vertical lines mark the dates of: the announcement of a Greek referendum on Greece's second official support package (31 October 2011); and the agreement with private sector creditors on a Greek debt swap (8 March 2012). <sup>3</sup> The dashed vertical lines mark the dates of: the first reported purchases of Italian and Spanish government bonds by the ECB (5 August 2011); the instalment of a technocratic government in Italy (13 November 2011); and the election in Spain (20 November 2011).

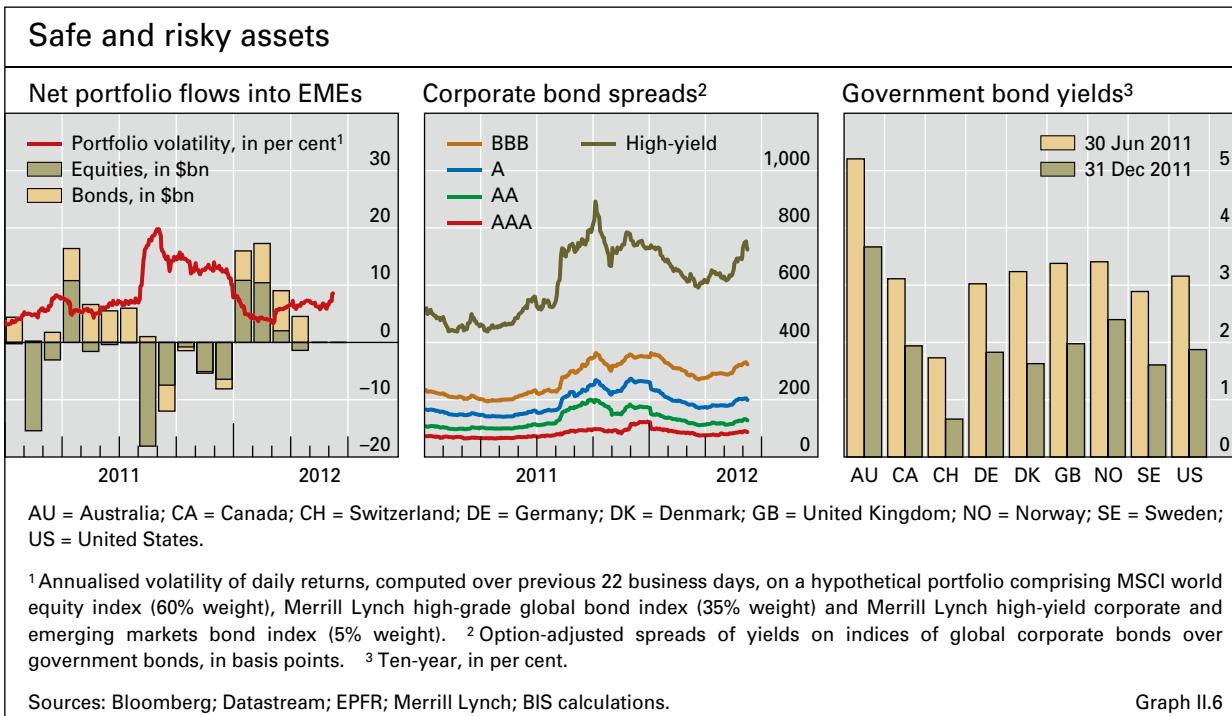
Sources: Bloomberg; national data.

Graph II.5

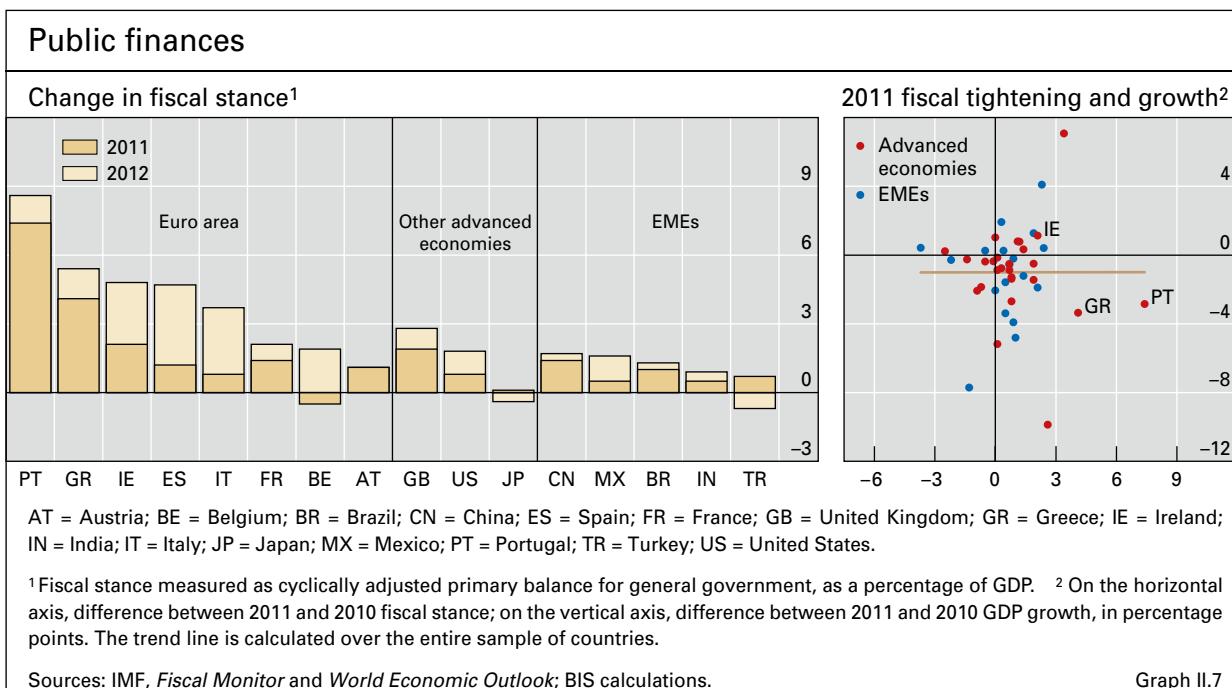
about the governments' ability to implement the fiscal consolidation measures agreed with European partners. Expansion of the potential uses of the euro area stabilisation fund in July and of its lending capacity in October appeared to have even less durable effects on yields. Towards the end of 2011, however, the fiscal compact to limit structural budget deficits ushered in more significant and sustained reductions in yields (see Chapter V).

The sovereign debt crisis heightened risk aversion in global financial markets. Investors adjusted their portfolios in recognition of greater sovereign risks. For example, when the volatility of portfolios increased in August, international investors started selling emerging market bonds and equities – a shift that continued for much of the second half of 2011 (Graph II.6, left-hand panel). Demand for equities and corporate bonds in advanced economies also declined, leading to lower prices and higher spreads, especially for lower-rated bonds (Graph II.6, centre panel).

Some financial assets benefited from safe haven flows. These included Australian, Canadian, German, Nordic, Swiss, UK and US government bonds, whose yields dropped to extremely low levels by historical standards during the second half of 2011 (Graph II.6, right-hand panel). Such was this demand that yields on some shorter-dated bonds became negative for a time. The yen and the Swiss franc also appreciated markedly as a result of portfolio adjustments in favour of safe haven assets. To counter these trends, the Japanese authorities sold yen in the currency markets, with sales reportedly reaching a record volume on one day, while the Swiss National Bank capped the value of the franc against the euro.



Many advanced and emerging economies tightened their fiscal policies (Graph II.7, left-hand panel). While advanced economies tightened policies in response to fiscal sustainability concerns, emerging economies did so rather to contain domestic demand. Euro area countries experienced the sharpest tightening. In Greece, Ireland and Portugal, official support programmes also prescribed substantial fiscal tightening that required deficit cuts of several percentage points of GDP. Large euro area economies such as

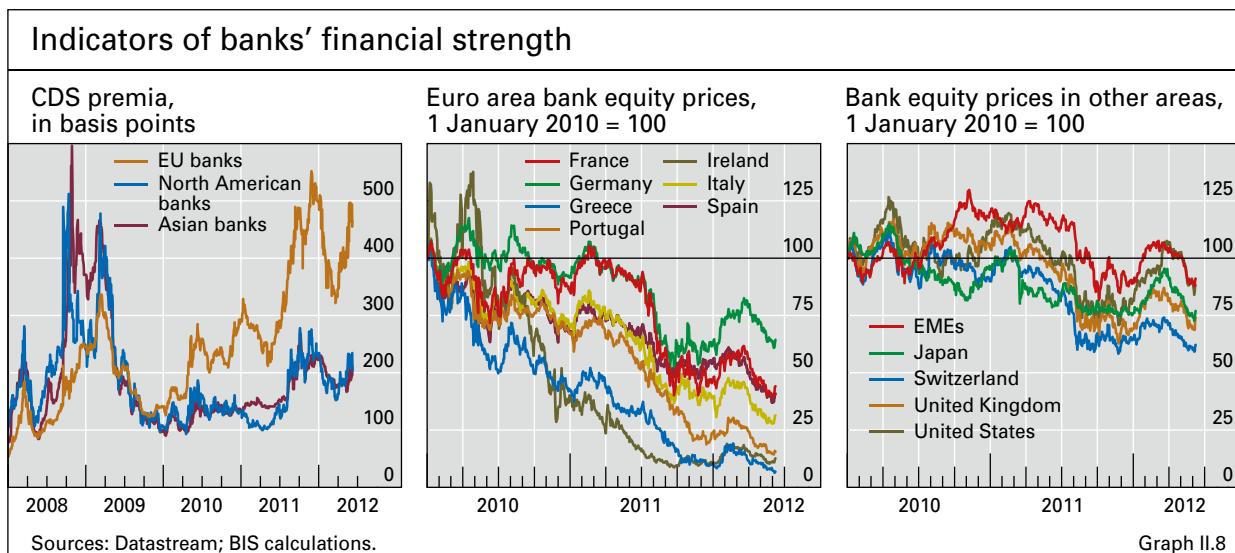


France, Italy and Spain also tightened their fiscal stance substantially. Outside the euro area, the United Kingdom continued to rein in its budget deficit, under a negative outlook from two of the major rating agencies. The United States also tightened its fiscal stance somewhat despite the extension of temporary payroll tax cuts and supplementary unemployment benefits during 2011 and 2012. Japan was the only major advanced economy to loosen its fiscal stance, in order to implement post-earthquake reconstruction expenditures. A number of EMEs also tightened fiscal policy moderately in order to contain domestic demand. However, this fiscal consolidation does not seem to have been systematically associated with weaker economic growth in 2011 (Graph II.7, right-hand panel).

### European bank funding and credit supply declined

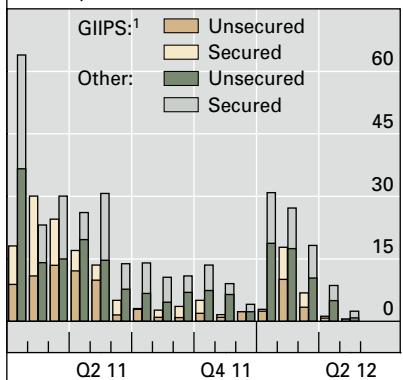
The euro area sovereign debt crisis put European banks under growing stress in the second half of 2011. This reflected uncertainty about banks' exposure to sovereign credit risk and questions about governments' ability to support weak banks. European banks' credit default swap (CDS) premia rose sharply, as their perceived creditworthiness deteriorated (Graph II.8, left-hand panel). Bank equity prices plummeted in countries where the value of sovereign debt had fallen most, and declined sharply elsewhere in the euro area (Graph II.8, centre panel). But the crisis also affected banks elsewhere, as shown by the behaviour of equity prices (Graph II.8, right-hand panel) as well as of CDS premia.

Euro area bank funding conditions quickly worsened in autumn 2011. Depositors began to withdraw funds from banks in Spain and, to a lesser extent, Italy, adding to continued deposit outflows from banks in Greece and Ireland. Markets for unsecured debt essentially closed for many euro area banks (Graph II.9, left-hand panel). And the cost of borrowing in the interbank market increased, significantly for euros, but also for dollars and sterling (Graph II.9, centre panel). Dollar funding for euro area banks was in short



## Bank funding conditions

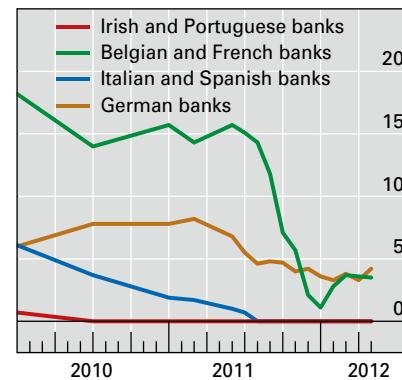
Bank bond issuance in the euro area, in billions of euros



Three-month Libor-OIS spreads, in basis points



US money market fund claims on banks<sup>2</sup>



<sup>1</sup>Greece, Ireland, Italy, Portugal and Spain. <sup>2</sup>Claims on euro area banks of the 10 largest US prime money market funds, as a percentage of the funds' assets under management. As of 30 April 2012, these 10 funds held \$642 billion in assets and all US prime money market funds held \$1.42 trillion in assets.

Sources: ECB; Bloomberg; Dealogic; Fitch Ratings.

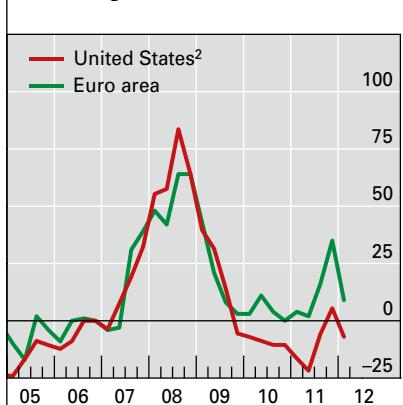
Graph II.9

supply partly because US money market funds cut their exposures (Graph II.9, right-hand panel).

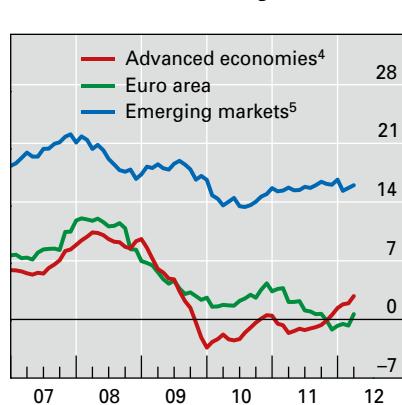
Growing deleveraging pressure led to a rising home bias in euro area bank lending. On balance, euro area banks tightened lending standards for firms in the final quarter of 2011, more sharply than in the United States (Graph II.10, left-hand panel). While the growth rate of credit from euro area banks to domestic non-financial borrowers fell to zero (Graph II.10, centre

## Bank credit

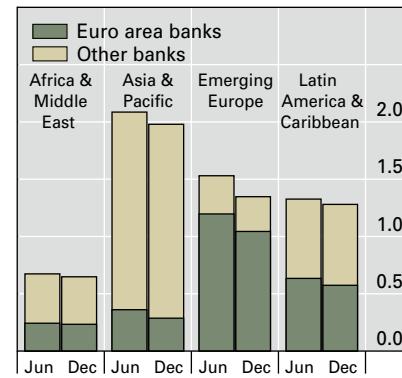
Lending standards for firms<sup>1</sup>



Domestic bank credit growth<sup>3</sup>



Foreign claims on emerging markets<sup>6</sup> in 2011, in \$trn



<sup>1</sup>Net percentage of bank survey respondents tightening standards. <sup>2</sup>Lending to large and medium-sized firms. <sup>3</sup>Year-on-year changes in bank claims on the domestic non-financial sector, weighted by 2005 PPP exchange rates, in per cent. <sup>4</sup>The euro area, Japan, the United Kingdom and the United States. <sup>5</sup>Argentina, Brazil, Chile, China, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey. <sup>6</sup>Foreign claims by nationality of reporting bank on an immediate borrower basis.

Sources: ECB Bank Lending Survey; Federal Reserve Senior Loan Officer Survey; IMF, *International Financial Statistics*; Datastream; BIS consolidated banking statistics by nationality; national data; BIS calculations.

Graph II.10

panel), their credit to other regions weakened more substantially. Between the middle and end of 2011, foreign claims of euro area banks on borrowers in EMEs fell by 12%: 4% in Africa and the Middle East, 20% in Asia and the Pacific, 13% in emerging Europe and 9% in Latin America and the Caribbean (Graph II.10, right-hand panel). Cuts were especially sharp for loans with high risk weights, such as leveraged loans or project finance, and for loans that often require dollar funding, such as aircraft and ship leases or trade financing.

That said, to a considerable extent, other forms of financing substituted for euro area bank lending. In some cases, this included loans from other large international lenders (Graph II.10, right-hand panel). Some Australian, Japanese and UK banks that already had a focus on emerging Asia increased lending in the region. Domestic lenders also boosted credit, notably in Latin America, although less so in emerging Europe, where western European banks had a large market share. In addition, some larger corporate borrowers turned to bond markets, where gross issuance increased by almost 30% in the final quarter of 2011.

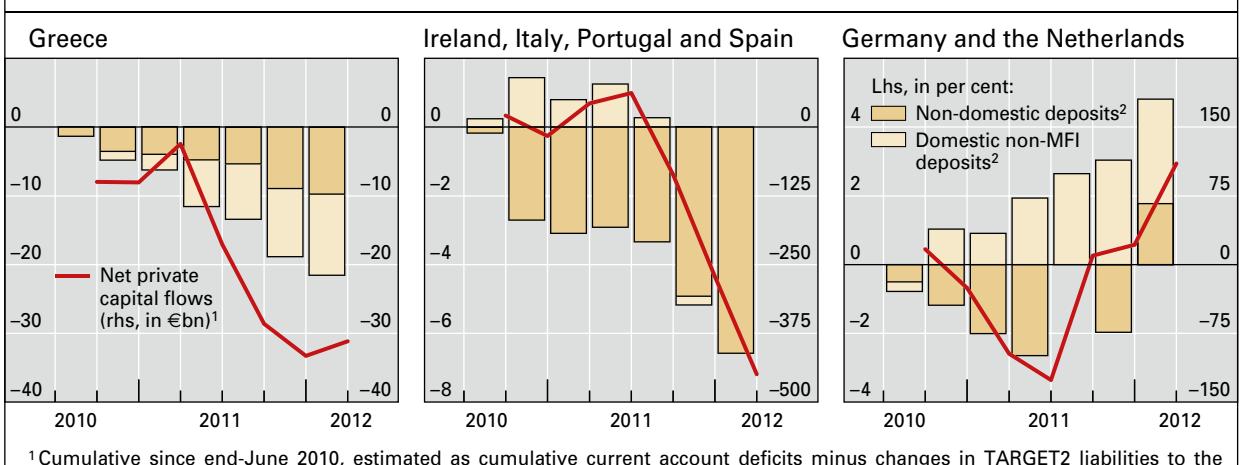
### Global growth remained fragile in early 2012

Economic weakness and growing strains in global financial markets towards the end of 2011 triggered a new round of central bank support measures (see Chapter IV). The Federal Reserve committed to buy an additional \$400 billion of long-dated US Treasury securities, funded by sales of shorter-term notes. It also announced that it planned to keep its short-term policy rate at exceptionally low levels until at least the end of 2014. The Bank of Japan and the Bank of England further increased the size of their asset-buying programmes. The central banks of Brazil, China, India, Indonesia, the Philippines and Turkey also loosened monetary policy. In December 2011, the ECB announced offerings of funding to euro area banks for three years, against an expanded set of collateral. Major central banks had already agreed to reduce the prices of currency swap lines between themselves, allowing them to exchange euros for dollars with banks more cheaply than previously.

These measures triggered significant improvements in bank funding markets (Graph II.9) and financial markets more broadly. The ECB's two auctions of three-year funding in December 2011 and February 2012 allowed euro area banks to prefund much of their unsecured debt redemptions due by 2014. In addition, banks used some of the cash to purchase assets, including euro area sovereign bonds. The yields on these securities declined significantly (Graph II.5). More generally, additional policy support helped to boost a wide range of asset prices during the first few months of 2012. The completion of an orderly restructuring of Greek debt in March also removed a downside risk to asset prices.

Global economic activity seemed to recover somewhat in the first quarter of 2012. In the United States, the unemployment rate declined, hand in hand with a significant increase in consumer confidence and spending. In Japan, machinery orders and corporate investment lifted business activity, as the economy continued to rebound from the effects of the March 2011 earthquake.

## Euro area bank deposits and private cross-border capital flows



<sup>1</sup>Cumulative since end-June 2010, estimated as cumulative current account deficits minus changes in TARGET2 liabilities to the ECB minus cumulative disbursements from EU-IMF programmes where applicable. For further details, see H-W Sinn and T Wollmershäuser, "Target loans, current account balances and capital flows: the ECB's rescue facility", *NBER Working Papers*, no 17626, November 2011. Latest available observation used. <sup>2</sup>Cumulative change, including repos, as a percentage of total deposits at end-June 2010. MFI = monetary financial institution.

Sources: Central banks; Eurostat; IMF; BIS calculations.

Graph II.11

Following a contraction in the last quarter of 2011, GDP in the euro area stabilised. And activity in several EMEs increased at a faster pace, notably in Latin America and Southeast Asia.

That said, sustainable economic growth remained elusive, and economic activity fell in the second quarter. In April and May, a number of economic indicators for the United States were weaker than expected and employment growth slowed again. Indicators of activity in China weakened significantly from the start of 2012, although this partly reflected a response to measures aimed at bringing growth down to more sustainable levels. Output growth also slowed markedly in Brazil and India, notably in the agricultural and manufacturing sectors. In the euro area, output appeared to be contracting again in the second quarter of 2012.

Financial risks in the euro area also intensified in the second quarter of 2012, driven primarily by concerns about the post-election policy orientation of Greece. Deposit and other capital outflows increased from countries perceived as vulnerable to a further deepening of the crisis. In particular, deposit withdrawals from banks in Greece reportedly accelerated in May. These banks had already lost around one third of their foreign deposits and one quarter of their domestic non-financial deposits (Graph II.11, left-hand panel). Foreign depositors had also withdrawn funds from banks in Ireland, Italy, Portugal and Spain, while domestic deposits had been more stable (Graph II.11, centre panel). In contrast, deposits at banks in Germany and the Netherlands increased significantly in the first quarter of 2012 (Graph II.11, right-hand panel). Similarly, estimates of overall capital flows show net private outflows from Greece, Ireland, Italy, Portugal and Spain and inflows into Germany and the Netherlands (Graph II.11, red lines).

### III. Rebalancing growth

Five years after the onset of the subprime crisis, global economic growth is still unbalanced. Among the advanced economies still confronting the fallout of a major credit and housing bust are, most notably, Ireland, Spain, the United Kingdom and the United States. The slump in the construction and other real estate-related sectors has been particularly acute in Ireland and Spain. These sectoral imbalances are likely to have significant and long-lasting effects on employment. As households and firms struggle to service their debts, the banking systems of these countries are staggering under a high volume of non-performing loans. Credit ratios and debt service costs are also rising in several countries that escaped a housing bust, although the proportion of troubled loans remains low. Further, some economies that have relied heavily on export-led growth are also likely to face challenges soon.

In this chapter, we first turn to the structural imbalances that must be corrected before economies can return to a path of steady growth. Then we focus on private sector debt (see Chapter V for a discussion of public debt) both in countries that experienced a home-grown financial crisis and in others that did not. A final section discusses policy implications.

#### Structural adjustment

Growth models in many countries will need to change. Rising property prices led to rapid growth in construction and other real estate-related activities in some countries. These imbalances need to be resolved if these economies are to grow sustainably. The collapse of the housing sector has also revealed long-standing structural weaknesses, such as rigid labour or product rules, that seem insignificant in good times but hinder adjustment when the economy is hit by a shock.

Other economies have specialised in exports to countries that are likely to grow less rapidly in the future. They face a different set of challenges. Some are highly competitive, at least in certain individual sectors, but they are nonetheless vulnerable to a growth slowdown in their trading partners.

#### *Unemployment after the housing bust*

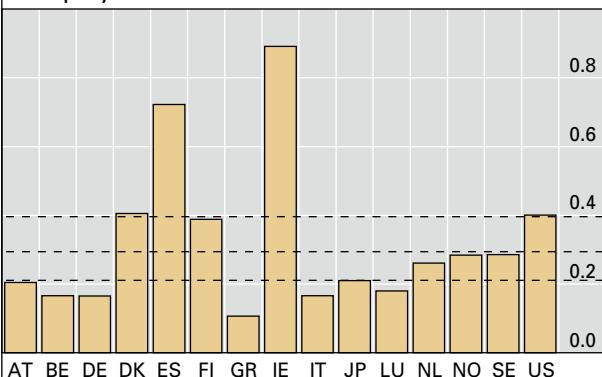
Unemployment remains high in many advanced economies, not only those hit by sovereign debt concerns (see Chapter II). One reason for the persistence of high unemployment is sectoral imbalances built up pre-crisis, the full extent of which has only now become apparent.<sup>1</sup> During the housing boom, the construction, real estate and finance sectors strongly outgrew the rest of the economy. In Ireland, for instance, construction increased its share of total

<sup>1</sup> See BIS, *81st Annual Report*, June 2011, Chapter II.

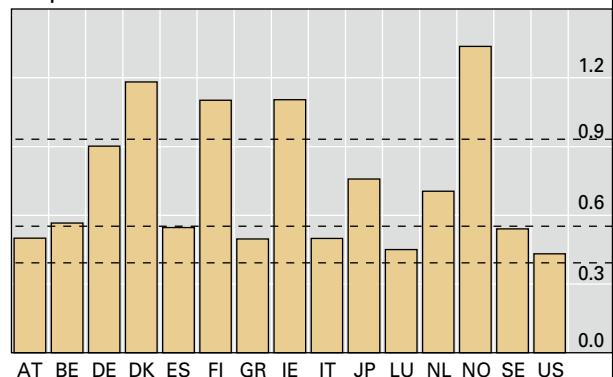
## Sectoral imbalances in employment and output in the Great Recession<sup>1</sup>

Concentration of job and output losses (average absolute changes in sectoral shares between 2008 and 2009), in percentage points

Employment



Output<sup>2</sup>



AT = Austria; BE = Belgium; DE = Germany; DK = Denmark; ES = Spain; FI = Finland; GR = Greece; IE = Ireland; IT = Italy; JP = Japan; LU = Luxembourg; NL = Netherlands; NO = Norway; SE = Sweden; US = United States.

<sup>1</sup>The dashed lines indicate, from bottom to top, the first, second and third quartiles of a sample of downturns (periods of negative growth) in the countries shown over the period 1980–2009. <sup>2</sup> Value added.

Sources: OECD, *Economic Outlook*, STAN; BIS calculations.

Graph III.1

employment from 8.6% to 13% between 1997 and 2007; in Spain, the share increased from 10% to 14%. In the United States, by contrast, this measure barely moved during the same period, inching up from 4.5% to 5.2%. But the overgrown Irish and Spanish construction sectors unravelled very quickly during the Great Recession, with their share of employment slumping below 1997 levels. High unemployment rates in these countries show that the laid-off workers have generally not found other sources of employment, reflecting how the reallocation of resources across sectors can be difficult. This can slow the recovery.

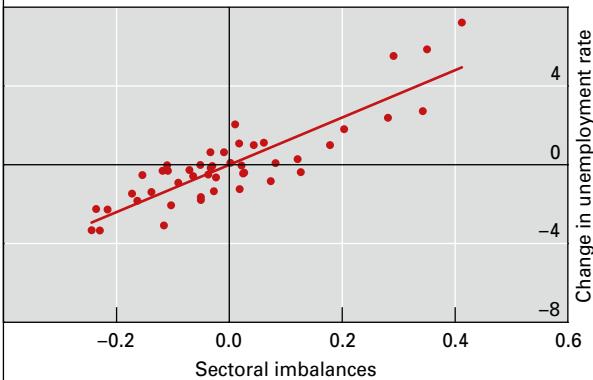
Imbalances tend to reveal themselves when times turn bad. A good measure of the sectoral imbalances that developed during the boom is therefore the concentration of job and output losses in particular industries during the subsequent downturn, as industries that have grown beyond a sustainable size tend to contract most. For instance, job losses after the financial crisis were much more concentrated in particular sectors in Ireland and Spain than in Germany or Japan (Graph III.1, left-hand panel), which did not experience home-grown housing and construction booms but “imported” the crisis through trade and financial channels. In fact, the job losses experienced by Ireland and Spain during the Great Recession were much more concentrated in particular sectors than those of past downturns (the dashed lines across the bar chart indicate the sample quartiles). The experience of the United States is somewhere in between that of the two groups of countries.

The concentration of output losses (Graph III.1, right-hand panel) provides a somewhat different view from that of job losses. Some of the countries experiencing highly concentrated job losses, such as Ireland, also saw a highly concentrated drop in output, but others did not. In fact, at less than 0.4, the correlation between sectoral imbalances computed using employment and output is quite low. For example, some countries such as Germany or Norway,

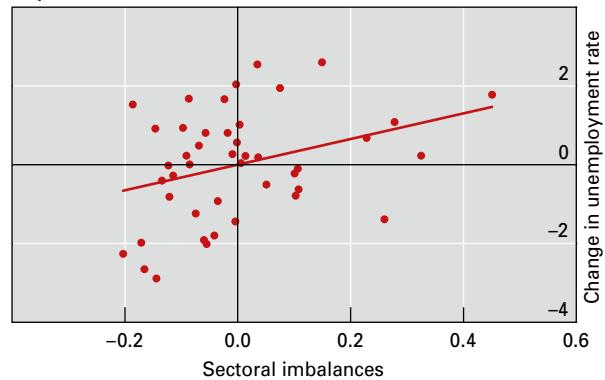
## Sectoral imbalances<sup>1</sup> and unemployment

Deviation from sample mean, in percentage points

Downturns<sup>2</sup>



Expansions<sup>3</sup>



<sup>1</sup> Average of absolute changes in sectoral shares of total employment during downturns for countries in Graph III.1. <sup>2</sup> Episodes of negative GDP growth for the period 1980–2009. <sup>3</sup> Two-year windows after end of downturn.

Sources: OECD, *Economic Outlook*, STAN; BIS calculations.

Graph III.2

where the drop in employment was not particularly concentrated, experienced a severely unbalanced downturn based on output. Conversely, the output drop in Spain was more uniformly spread across sectors than were employment losses.

Large sectoral imbalances frequently entail a steeper rise in unemployment during the downturn (Graph III.2, left-hand panel). In fact, the sectoral concentration of job losses explains the increase in unemployment even better than the magnitude of the output drop (Okun's law).<sup>2</sup> For example, unemployment increased by 8 percentage points more in Spain than in Japan between 2007 and 2009. According to our estimates, around 70% of this difference, or 5.6 percentage points, can be explained by the more unbalanced pattern of the downturn in Spain. On average, cross-country differences in sectoral imbalances account for 60% of cross-country differences in changes in unemployment during recessions while the decline in GDP accounts for less than 20%.

Large sectoral imbalances lead not only to larger increases in unemployment during recessions but also to slower declines in unemployment during the subsequent expansions (Graph III.2, right-hand panel).<sup>3</sup> In fact, unemployment continues to increase in countries with high imbalances even after GDP starts to recover. This should not come as a surprise, given the difficulties in reallocating resources across sectors. A high concentration of job losses during the downturn is followed by a slower reduction in unemployment in the first two years of the recovery, even after controlling for GDP growth. For example, Spain, which with Ireland experienced the most concentrated job

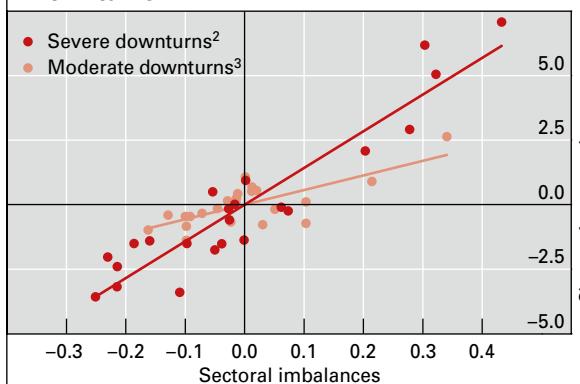
<sup>2</sup> This result is obtained by estimating a regression for a cross section of OECD countries where the change in the unemployment rate during the downturn depends on both the change in GDP and the sectoral concentration of job losses during this period. It suggests that the increase in unemployment during a downturn depends not so much on the depth of the downturn, but on how unbalanced it is.

<sup>3</sup> We define the expansion period as the two years after the end of a downturn.

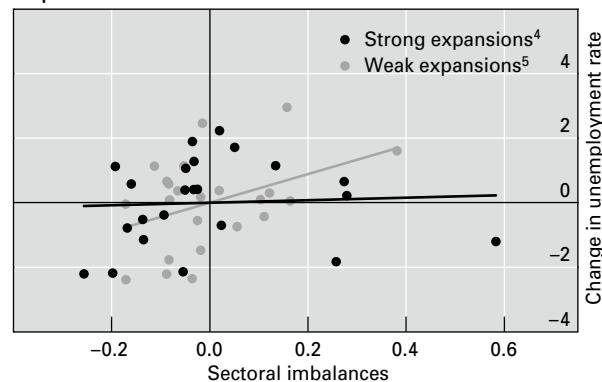
## Sectoral imbalances<sup>1</sup> and unemployment, by strength of change in GDP

Deviation from sample mean, in percentage points

### Downturns



### Expansions



<sup>1</sup> Average of absolute changes in sectoral shares of total employment for countries in Graph III.1, calculated for the periods identified as downturns. <sup>2</sup> Downturns in which the change in GDP is below the median for downturns. <sup>3</sup> Downturns in which the change in GDP is above the median for downturns. <sup>4</sup> Expansions in which GDP growth is above the median for expansions. <sup>5</sup> Expansions in which GDP growth is below the median for expansions.

Sources: OECD, *Economic Outlook*, STAN; BIS calculations.

Graph III.3

losses, also saw the largest increase in unemployment during the subsequent expansion. These estimates also suggest that, everything else being equal, unemployment in the United States would have declined 1.3 percentage points more rapidly in the two years after the recent downturn if the country's sectoral balance of job losses had resembled that of Germany.

The impact of sectoral imbalances on unemployment is particularly large in severe recessions and weak recoveries (Graph III.3). This suggests that output growth has only an indirect role in explaining unemployment during recessions, by raising the cost of sectoral imbalances. In expansions, by contrast, GDP growth has both a direct and an indirect role in explaining unemployment. Higher GDP growth in expansions leads to a sharper drop in unemployment even if sectoral imbalances are large. Imbalances matter only in low-growth expansions, when they slow the reduction in unemployment.

A severe downturn and an unprecedented level of sectoral imbalances therefore represent the worst possible mix for labour market developments in the coming years. Unfortunately, this is the prospect that Ireland, Spain and the United States now face. These countries all experienced an unbalanced downturn followed by a weak recovery, which helps to explain why unemployment has remained so high. Looking forward, this combination of large sectoral imbalances and a tepid recovery could set the scene for a prolonged period of high unemployment.

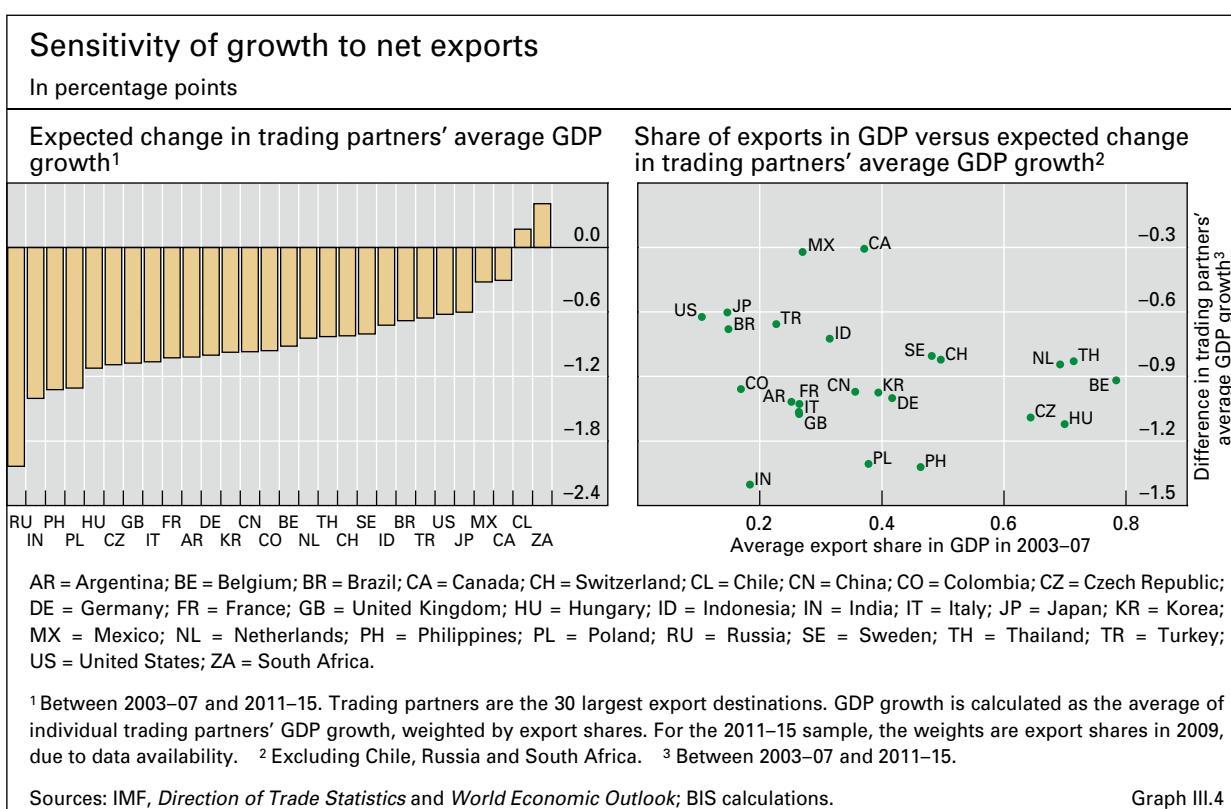
### *Reliance on external demand*

Many economies are forecast to grow slowly for some time. As exports to these economies will not provide the same boost to output as in the past, countries that have relied on export-driven growth will need to shift to a more domestic-oriented model. For instance, the left-hand panel of Graph III.4 shows that only two of 28 representative emerging and advanced economies can expect their

trading partners to grow more rapidly in 2011–15 than in 2003–07.<sup>4</sup> All the other economies will face a (sometimes significant) deterioration in the growth of their export markets if growth forecasts prove accurate. Countries such as Russia or India could experience considerable headwinds if growth slows as expected in their trading partners (Ukraine and Turkey for Russia, Middle East markets for India) during 2011–15. These headwinds could also be significant for most European countries, which trade heavily with each other and where growth forecasts have been sharply cut back.

The greater an economy's export dependency, the more it will suffer from declining growth in its export markets. The right-hand panel of Graph III.4 thus plots the expected drop in external demand growth (illustrated in the left-hand panel) against the average share of exports in GDP during 2003–07. Of course, the impact on economic growth will also depend on the import content of exports, for which only limited data are available. Two country groupings emerge from this diagram.

A first group of countries comprises small open economies with a large share of exports in GDP – more than 60% – that are expected to suffer a large drop in their trading partners' growth. This group includes Belgium, the Czech Republic, Hungary, the Netherlands and Thailand. For example, around one fifth of Thai exports goes to countries where growth is expected to drop by no less than 2 percentage points in 2011–15 as compared with 2003–07.



<sup>4</sup> We estimate the expected decline in output growth by comparing the average rate of GDP growth of the top 30 export markets in 2003–07 with the projections for 2011–15.

A second group includes countries that should be relatively immune to external developments, either because they are large economies where exports represent only a small share of total GDP – such as the United States, Japan or Brazil – or because growth in their external demand is expected to fall only moderately – these include Canada, Indonesia, Mexico and Turkey. In particular, Canada, Mexico and the United States could escape many of the ill effects of sluggish growth elsewhere because they trade significantly with each other and their own growth is expected by many analysts to be relatively robust.

China and the largest western European countries (France, Germany, Italy and the United Kingdom) are located somewhere between these two groups. They are likely to face a significant drop (of around 1 percentage point) in the growth of their trading partners, but their exports represent no more than around 40% of their GDP, which will limit the fallout from slower external demand growth. Among these countries, Germany may be the most vulnerable.

## Debt sustainability

Unsustainable debts were ultimately the source of the financial crisis, and there is little evidence that the situation has become much better since. Measures of debt sustainability have not improved much in the countries at the heart of the financial crisis and have worsened in many other economies.

House prices in Ireland, Spain, the United Kingdom and the United States – countries that experienced a housing boom and bust – are well below pre-crisis levels, and many households and firms are struggling to repay debt contracted during the boom.<sup>5</sup> Aggregate figures suggest that households in Spain, the United Kingdom and the United States have made some progress in deleveraging. In Ireland, debt-to-income ratios have remained high, since sizeable debt repayments have been offset by an equivalent drop in disposable income. The non-financial corporate sectors in Ireland, Spain and the United Kingdom have made much less progress in deleveraging. In the United States, the indebtedness of the non-financial corporate sector remained rather stable during the housing boom, suggesting that there is no generalised need to deleverage after the bust.

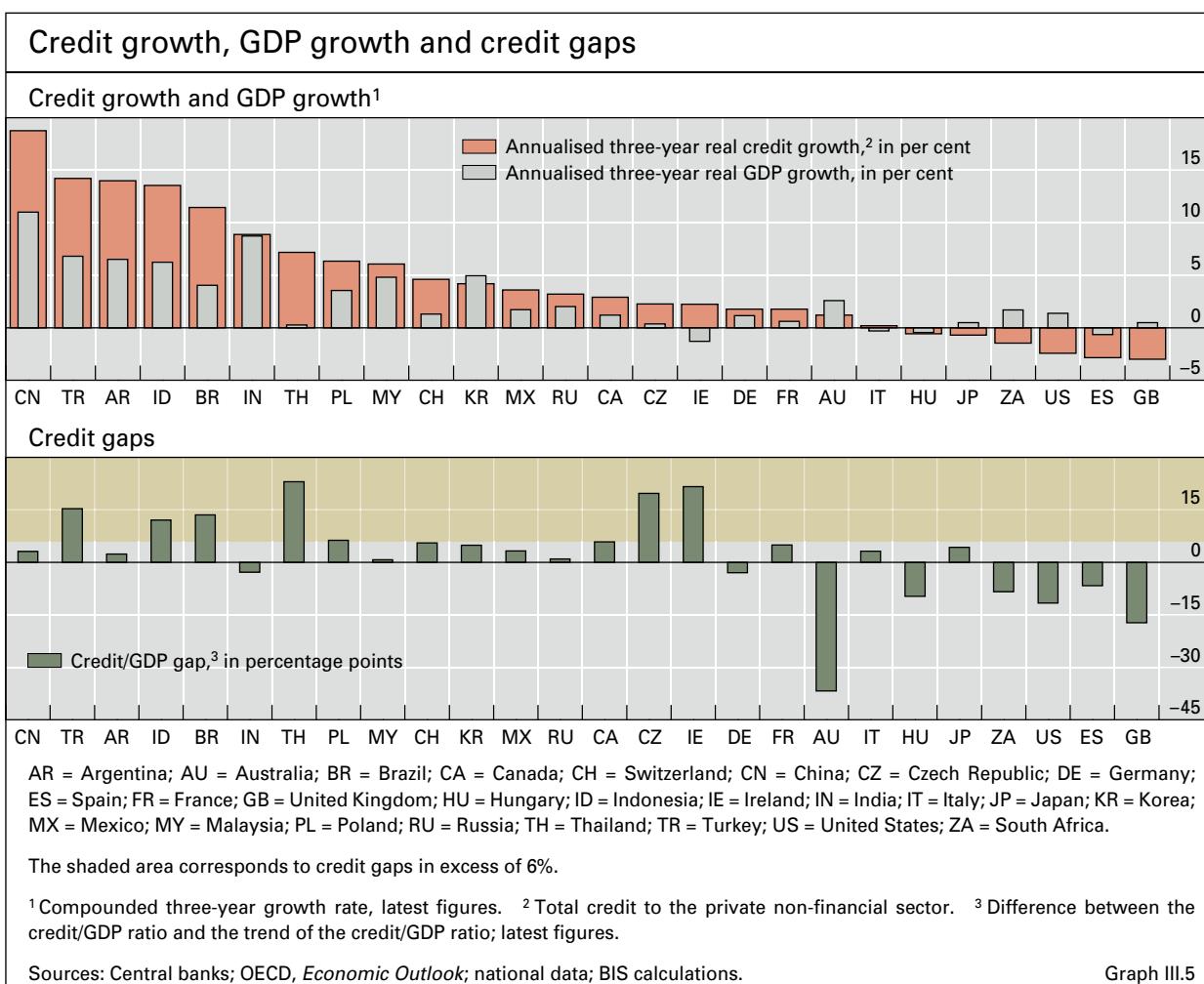
That said, aggregate debt-to-income ratios may paint too benign a picture. Finer data for the United States suggest that aggregate deleveraging did not come about through writedowns of unsustainable debt.<sup>6</sup> Rather, it was driven primarily by a fall in the number of households increasing their mortgage debt (eg through home equity extraction) and by a sharp reduction in new mortgage borrowing. Meagre borrowing by first-time buyers entails weak activity in the housing market, which in turn reflects the overhang of unsold houses. In fact, the share of households reporting that they were somewhat likely or very likely

<sup>5</sup> See BIS, *81st Annual Report*, June 2011, pp 24–7, for a discussion of deleveraging in the private non-financial sector.

<sup>6</sup> Writedowns were large, but they did not translate into a one-to-one reduction in debt because properties are often remortgaged after being sold off. For this reason, aggregated data do not reveal the contribution of charge-offs to changes in household debt.

to be unable to meet their mortgage payments over the next year has barely fallen. This shows that progress in deleveraging has been limited.<sup>7</sup> We are not aware of similar data for Ireland, Spain or the United Kingdom, but the small number of houses bought and sold suggests that the picture is not too different. The lower writedowns on household debt in these countries than in the United States tell a similar story.

While the stock of debt to GDP has fallen in the four countries that experienced a housing bust together with a financial crisis, debt-to-GDP ratios have continued to rise in many other economies (Graph III.5, top panel). Credit has burgeoned in several major emerging market economies in recent years. For instance, real credit grew by almost 20% annually over the last three years in China, although it has been slowing recently. Real credit in Turkey, Argentina, Indonesia and Brazil has also far outpaced GDP, and credit growth has even accelerated during the past three years. But it is not only in emerging



<sup>7</sup> See N Bhutta, "Mortgage debt and household deleveraging: accounting for the decline in mortgage debt using consumer credit record data", Federal Reserve Board *Finance and Economics Discussion Series*, 2012–14, and K Dynan, "Is a household debt overhang holding back consumption?", Brookings Institution, 2012, mimeo.

market economies that credit is growing rapidly. Households in several of the advanced countries that escaped a housing or credit boom but whose banking systems are nevertheless under stress (eg France, Italy and Switzerland) have taken on substantial additional debt, much of it to finance real estate. Only in Germany have households continued to reduce their debt-to-income ratios.

Rapid credit growth is not necessarily bad. Financial systems in many emerging economies are still relatively underdeveloped, and many households and firms are shut out of formal credit markets. Thus, rapid credit expansion could reflect financial development as much as financial excess. And even in advanced economies, rapid credit growth need not by itself herald the onset of financial vulnerabilities.

That said, financial deepening takes time: credit growth that overwhelms the capacity of financial institutions to screen and process loans may result in bad lending decisions and financial stress even when the share of credit in GDP is low. Similarly, a bloated financial sector can also suck in more than its share of talent, hampering the development of other sectors.<sup>8</sup>

Unfortunately, there is no conclusive way to distinguish between financial imbalances and financial deepening involving rapid but sustainable credit growth. But credit growth that is significantly above its long-term trend, opening up a so-called credit gap, often foreshadows a financial crisis. At present, several (but not all) of the countries experiencing rapid credit growth have credit gaps in excess of 6%, levels that in the past have often presaged serious financial distress (Graph III.5, bottom panel).<sup>9</sup>

Asset prices too look increasingly frothy in many emerging economies. In some important local Brazilian markets, real estate prices have almost doubled since the onset of the subprime crisis. Appreciation of real estate assets in China is even more pronounced, with land prices in Beijing and Shanghai increasing almost fivefold since 2004. Other local markets have not been so bullish, although prices have risen substantially in many cases (see Chapter II). In all these emerging markets, imbalances seem to be building up mainly within certain regions or market segments (eg high-end housing in China). Even so, it does not necessarily follow that any potential bust will be any less damaging for the financial system if mortgages are also concentrated in these areas.

Measures of debt service cost also suggest that high debt levels could be a problem. The fraction of GDP that households and firms in Brazil, China, India and Turkey are allocating to debt service stands at its highest level since the late 1990s, or close to it. This measure could move even higher should interest rates rise from their current low levels (Graph III.6).<sup>10</sup> Debt tends to

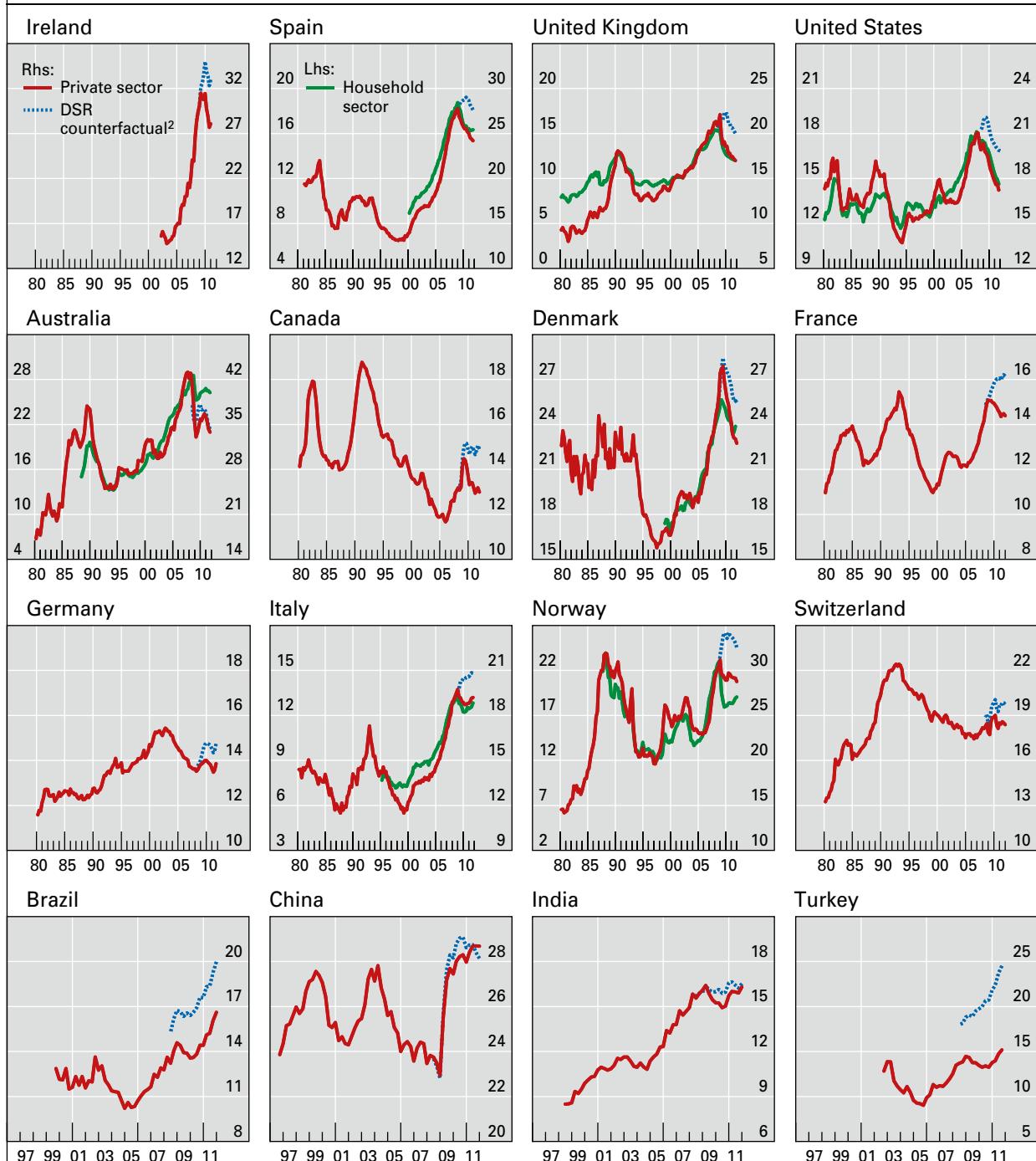
<sup>8</sup> See S Cecchetti and E Kharroubi, "Reassessing the impact of finance on growth", BIS, January 2012, mimeo.

<sup>9</sup> We compute credit gaps as the difference between the outstanding stock of debt to GDP and its long-term trend as calculated with a Hodrick-Prescott filter with a high smoothing parameter. For details, see C Borio and M Drehmann, "Assessing the risk of banking crises – revisited", *BIS Quarterly Review*, March 2009, pp 29–46.

<sup>10</sup> Our measures for debt service ratios represent estimates using relatively imprecise information on loan maturity and average interest rates paid on loans. For countries which do not publish these data, we multiply the current debt ratio by the weighted average of short-term interest rates. This shortcut is quite effective in explaining the debt service costs of countries for which better data are available.

## Private sector and household debt service ratios in selected economies<sup>1</sup>

In per cent



<sup>1</sup> The debt service ratio (DSR) is the sum of interest payments and debt repayments, divided by income. An increase in the ratio implies a lowered capacity of debtors to withstand a negative income shock. <sup>2</sup> Actual debt level and 75% quantile of the interest rate distribution since Q1 2000.

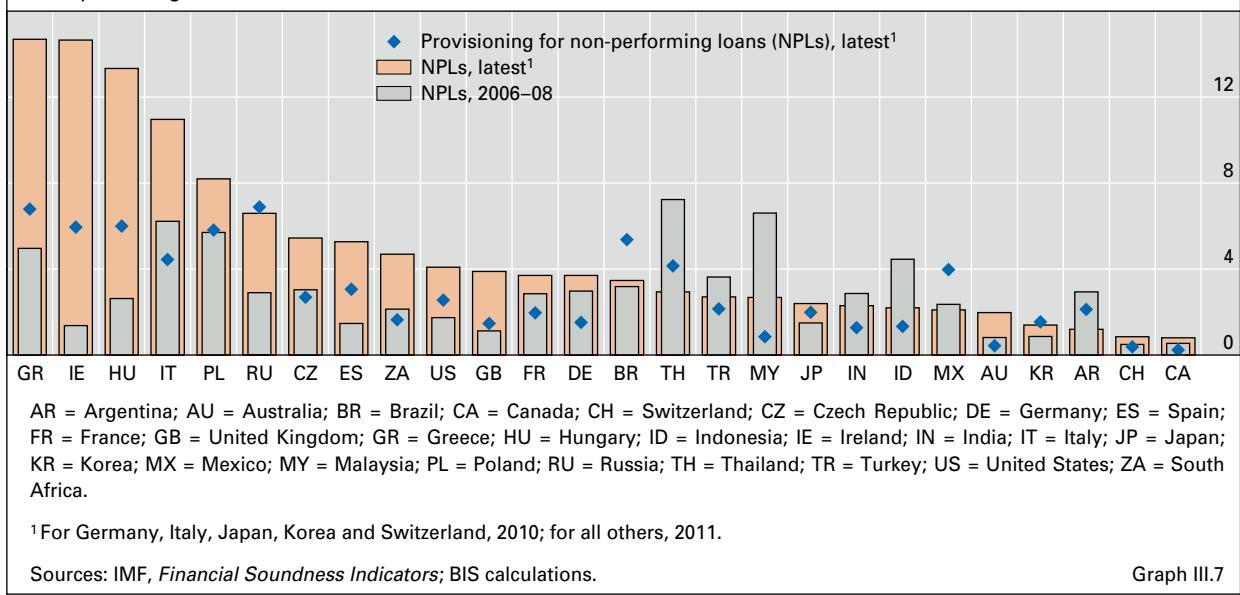
Sources: National data; BIS calculations.

Graph III.6

accumulate on private sector balance sheets when interest rates are low. When rates eventually rise, higher debt service costs can trigger a painful deleveraging. Again, it is not only emerging market economies that exhibit high debt service ratios. Our measures for France, Italy and Norway stand at,

## Bank provisioning and non-performing loans

As a percentage of total loans



Graph III.7

or close to, their highest levels in 30 years. Much of the debt in the countries shown in Graph III.6 has relatively short maturities (the main exceptions being mortgage debt in the United States and, to a lesser extent, France and Germany). Thus, debt service costs could rise substantially if interest rates were to return to the levels seen in recent interest cycles, as indicated by the dotted lines in Graph III.6.

Rapid credit growth in the emerging markets and advanced economies that are experiencing a credit boom has not so far resulted in a significant increase in bad loans. The ratio of non-performing loans to total loans in these countries generally remains around or below the pre-crisis average (Graph III.7). This is obviously not true for the countries that are facing high spreads, such as Greece, Ireland, Italy and Spain. Nor does it hold for some countries in emerging Europe, such as the Czech Republic, Hungary, Poland and Russia. That said, experience has shown that non-performing loans are, at best, contemporaneous signs of financial distress; they do not serve as leading indicators.<sup>11</sup>

## Policy challenges

This chapter has discussed three structural issues that seem to be preventing the global economy from embarking on a path of sustainable growth. The first is the legacy of sectoral imbalances built up during the pre-crisis housing and credit booms. The second is an unhealthy dependence on exports to countries that are likely to grow more slowly over the coming years. And the third is unsustainable levels of debt, be it in the form of debt overhangs in countries that experienced a property boom and bust, or of credit and property

<sup>11</sup> See C Borio and M Drehmann, "Towards an operational framework for financial stability: 'fuzzy' measurement and its consequences", *BIS Working Papers*, no 284, June 2009.

expansions in economies that escaped the previous crisis. In this section, we will discuss the challenges posed by these three factors.

First, housing and credit booms lead to a misallocation of resources that can take a long time to resolve. Overgrown construction and other property-related sectors need to shrink, which tends to lift unemployment. Propping up contracting sectors may provide short-run relief but can hamper long-term growth by slowing the efficient reallocation of resources or adding to public debt. Identifying which sectors will be the drivers of future growth is hard, if not impossible, although large current account deficits before the crisis<sup>12</sup> suggest that, in some countries, a rebalancing towards sectors producing tradable goods or services is desirable. The lifting of restrictions on product and service markets should help to promote this rebalancing.<sup>13</sup> Social safety nets are important in smoothing the transition, but in many countries they face serious strains because of rickety public finances (see Chapter V).

Second, the replacement of export-led growth with a more balanced model requires major structural adjustments that cannot be implemented overnight. The most promising starting point is to remove any distorted incentives in the economy that favour exports over production for the domestic market. The most obvious such distortions are artificially undervalued exchange rates and (direct or indirect) export subsidies.<sup>14</sup> Less obvious, but probably no less important, are excessive (or simply inefficient) regulations that constrain domestic activity. However, fuelling credit and asset prices is the wrong way to stimulate domestic absorption, creating different but equally damaging distortions.

The final challenge is to deal with unsustainable debt. High levels of problem loans in the countries at the epicentre of the crisis show clearly that a significant part of the debt burden is unsustainable. This hinders growth through at least two mechanisms. First, households in the countries that suffered a housing bust have stepped up their saving rates, which will depress growth until a new equilibrium is reached. Second, the impaired balance sheets of financial institutions limit their ability to provide new credit to profitable projects (see Chapter IV). The challenge is to provide incentives for banks and other credit suppliers to recognise losses fully and write down debt (see box). Cleaning up bank balance sheets is also important to ensure a smooth flow of credit to the economy, especially when a sizeable reallocation of resources is required across sectors.<sup>15</sup> Supporting this process may well call for the use of public sector balance sheets.

Unsustainable debt could also become problematic in some countries that are experiencing historically rapid credit growth. Forestalling this will require

<sup>12</sup> See BIS, *81st Annual Report*, June 2011, Chapter III.

<sup>13</sup> See OECD, *Economic Policy Reforms: Going for Growth 2012*, 2012, for a list of obstacles to the sectoral reallocation of resources.

<sup>14</sup> Needless to say, administrative measures are not the only way to distort exchange rates. Well intended countercyclical monetary policy may result in equally artificial exchange rates.

<sup>15</sup> See T Hoshi and A Kashyap, "Will the US bank recapitalization succeed? Eight lessons from Japan", *Journal of Financial Economics*, no 97, 2010, pp 398–417, and 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.

## Reducing household debt to a sustainable level

We argue in the main text that the recovery cannot become self-sustaining until the debt of households is brought down to a level that can actually be repaid. Merely waiting for the problem to resolve itself as the economy recovers would be very costly. In this box, we sketch some ways in which authorities could encourage the restructuring of mortgage borrowing, which accounts for the bulk of unsustainable debt.

The first step authorities can take is to induce lenders to recognise losses and revalue loans at market prices. This will reduce the incentive to evergreen lending by rolling over amounts due, and it will also cut the additional cost to lenders of debt relief or foreclosure.

The second step is to create incentives for lenders to restructure loans so that borrowers have a realistic chance of repaying their debt. Experience shows that lenders tend to be reluctant to restructure loans even if provisions cover all or most of the costs of the associated charge-offs. Instead, they often prefer to wait until they are forced by the borrower's delinquency to foreclose on the collateral property. In the United States, 1.9 million houses were in foreclosure in early 2012, only slightly fewer than the peak of over 2 million in late 2009. Foreclosure may be optimal from an individual lender's point of view, but it entails important social costs. Foreclosed houses tend to sell at a steep discount to the prices obtained through voluntary sales, in part because of vandalism and other types of degradation pending foreclosure.<sup>①</sup> Large-scale foreclosures may also drive down house prices in the surrounding area, thus undermining the viability of loans that would otherwise have been sound.

There are several reasons for lenders' reluctance to restructure loans and provide debt relief. First, some loans may recover even after serious delinquency, and this upside is eliminated once the loan is restructured. This could be an especially significant disincentive to restructuring in legal systems where the lender has recourse to the borrower's future income as well as to the mortgaged property. Second, it is not easy to establish what level of debt is actually sustainable, particularly when the trends of both property prices and household incomes are uncertain. As a consequence, many restructured loans subsequently go into default.<sup>②</sup> Third, debt relief may encourage further delinquency in the loan portfolio if lenders are seen as being soft on problem borrowers. Fourth, the lender's managers are obliged to protect the value of the bank's asset base. Disregarding that fiduciary duty may expose them to litigation.

Authorities can change the incentives for lenders to restructure loans in several ways. One frequently used option is to set up an asset management company<sup>③</sup> to buy up loans at attractive prices, ie slightly above current market valuations. Alternatively, authorities can subsidise lenders or guarantee the restructured debt when lenders renegotiate loans. In some cases, changes in the legal framework may be needed to eliminate technical obstacles to debt restructuring.<sup>④</sup>

Inducing lenders to recognise losses and incentivising them to restructure loans will impose fiscal costs (at least in the short term) and could create moral hazard. For instance, if households that borrowed heavily are offered better terms than those that were more prudent, this could encourage reckless borrowing in the future. That concern could be addressed by stricter regulation of mortgage lending practices. The fiscal costs of helping households to cut their debt burden can be substantial, but they may represent a productive use of public funds and one that could support self-sustaining growth over time. Loan restructuring and the provision of debt relief in a way that keeps foreclosures to a minimum also shore up the banking system, thus helping to break the link from weak banks to the creditworthiness of the sovereign (see Chapter V). In the long term, the establishment of an asset management company could even benefit the public purse directly, as has happened in many previous episodes.

<sup>①</sup> See J Campbell, S Giglio and P Pathak, "Forced sales and house prices", *American Economic Review*, no 101(5), 2011, pp 2108–31. <sup>②</sup> See M Adelino, K Gerardi and P Willen, "Why don't lenders renegotiate more home mortgages? Redefaults, self-cures and securitization", *NBER Working Papers*, no 15159, July 2009. By contrast, the securitised status of many US loans does not appear to be a major obstacle to renegotiation. <sup>③</sup> See L Laeven and F Valencia, "Systemic banking crises: a new database", *IMF Working Papers*, no WP/08/224, 2008, for examples of asset management companies. <sup>④</sup> See IMF, *World Economic Outlook*, April 2012, Chapter 3: "Dealing with household debt", for a discussion of some loan restructuring programmes.

two things. First, the rate of credit growth should be held to a level that does not overwhelm the banking system's capacity to undertake proper screening of

creditworthiness. Second, banks and other financial institutions need to be put on a sound enough footing to withstand temporary upsurges in bad assets. At a time when interest rates are low in major advanced economies and emerging markets are experiencing large capital inflows, monetary policy faces a dilemma. Low interest rates will clearly not slow a credit boom, but high interest rates may attract even more capital flows and thus fuel a domestic credit boom. One way out is to accompany higher interest rates with macroprudential measures such as higher capital ratios or tighter loan-to-value ratios. And, even if these tools fail to slow credit growth significantly, they should at least reinforce the financial system against the consequences of a credit bust.

This chapter has discussed structural problems and structural solutions. We have not touched upon the crisis of confidence that besets many economies, particularly in the euro area. Fixing structural problems during a confidence crisis is both more difficult and more important than it is in better times. It is more difficult because unemployment is already high and public funding that could mitigate short-term adjustment costs is scarcer. It is more important because confidence is unlikely to return until authorities have got to grips with structural weaknesses.

## IV. The limits of monetary policy

In the major advanced economies, policy rates remain very low and central bank balance sheets continue to expand in the wake of new rounds of balance sheet policy measures. These extraordinarily accommodative monetary conditions are being transmitted to emerging market economies in the form of undesirable exchange rate and capital flow volatility. As a consequence, the stance of monetary policy is accommodative globally.

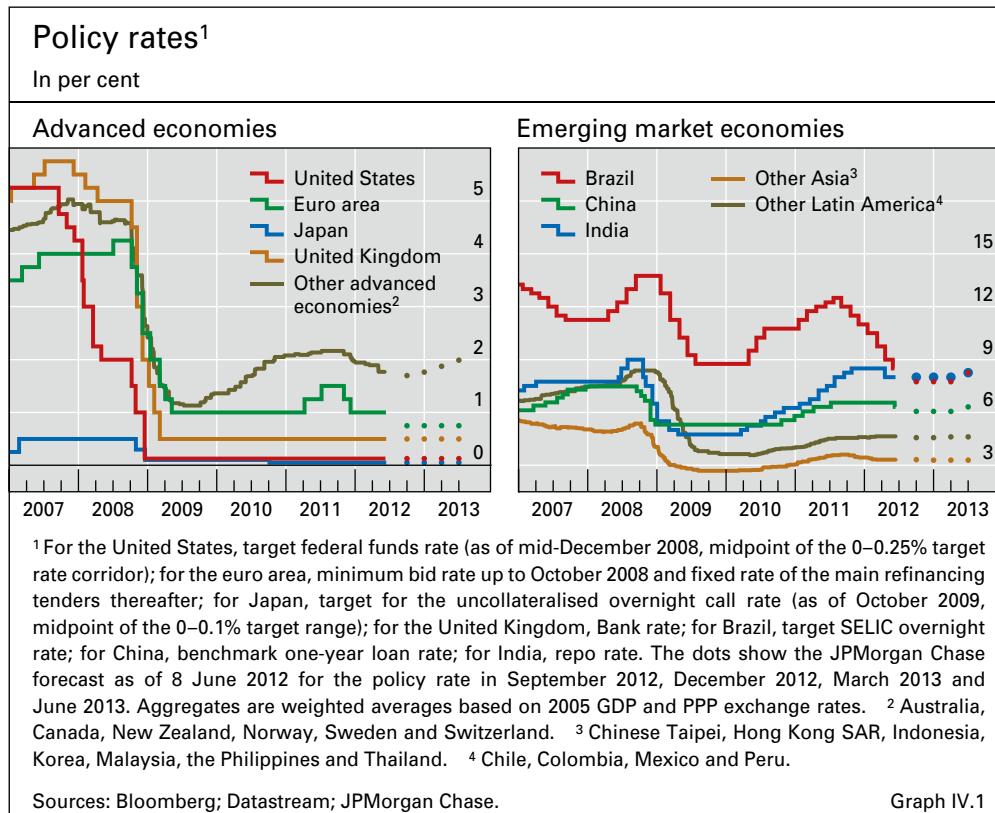
Central banks' decisive actions to contain the crisis have played a crucial role in preventing a financial meltdown and in supporting faltering economies. But there are limits to what monetary policy can do. It can provide liquidity, but it cannot solve underlying solvency problems. Failing to appreciate the limits of monetary policy can lead to central banks being overburdened, with potentially serious adverse consequences. Prolonged and aggressive monetary accommodation has side effects that may delay the return to a self-sustaining recovery and may create risks for financial and price stability globally. The growing gap between what central banks are expected to deliver and what they can actually deliver could in the longer term undermine their credibility and operational autonomy.

This chapter first reviews the main monetary policy measures taken over the past year by central banks in advanced and emerging market economies and provides an assessment of the global monetary policy stance. It then explores the scope and limitations of prolonged and aggressive monetary accommodation: the implications for effective balance sheet repair in advanced economies; the consequences of global monetary policy spillovers to emerging market economies; and the resulting longer-term risks for central banks.

### Monetary policy in advanced and emerging market economies

#### *Monetary policy measures taken over the past year*

Between June 2011 and the beginning of June 2012, central banks halted or reversed the tightening of policy rates that had taken place in many advanced and emerging market economies in the first half of 2011 (Graph IV.1). This occurred against the backdrop of weakening growth and receding inflationary pressures. The European Central Bank (ECB) cut its main refinancing rate back to 1%, while allowing the euro area overnight rate to fall to a level close to its deposit facility rate, which was reduced to 0.25%. In the other major advanced economies, policy rates stayed at their effective lower bound. In the emerging market economies, the Central Bank of Brazil cut rates by 400 basis points starting in August last year, the Reserve Bank of India lowered policy rates by 50 basis points in April 2012, and the People's Bank of China cut its benchmark one-year loan rate by 25 basis points in early June. Some emerging



market central banks, specifically those of China and India, also reduced reserve requirements.

As of early June 2012, markets expected further policy rate cuts in the euro area, China and Brazil and unchanged rates in the United States, United Kingdom, Japan and India in the course of 2012 (Graph IV.1, dots). Forward curves indicated that markets were pricing in low policy rates in the major advanced economies for the next two years (Graph IV.2). These expectations reflected at least in part central banks' forward guidance. In its statement in April 2012, the Federal Open Market Committee said that it expects the federal funds rate to remain at exceptionally low levels at least until late 2014 given the macroeconomic outlook.

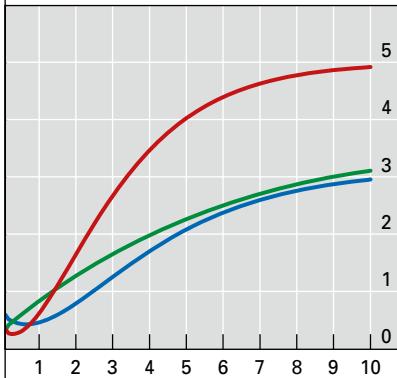
Central banks in the major advanced economies embarked on new rounds of balance sheet policy measures during the period under review. The Federal Reserve, the Bank of England and the Bank of Japan augmented existing or launched new large-scale asset purchase programmes aimed at lowering long-term interest rates and financial risk premia more generally in order to bring about additional monetary easing. In September 2011, the Federal Reserve launched the Maturity Extension Program (MEP) under which the proceeds from selling \$400 billion of shorter-term Treasury securities by the end of June 2012 are used to buy longer-term Treasury securities. The Bank of England and the Bank of Japan increased their asset purchase programmes over the period, by £125 billion and ¥30 trillion, respectively.

The large-scale asset purchases implemented by these three central banks from late 2008 considerably increased their outright holdings of

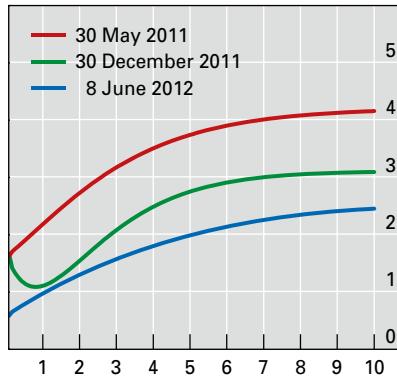
## Forward curves<sup>1</sup>

In per cent

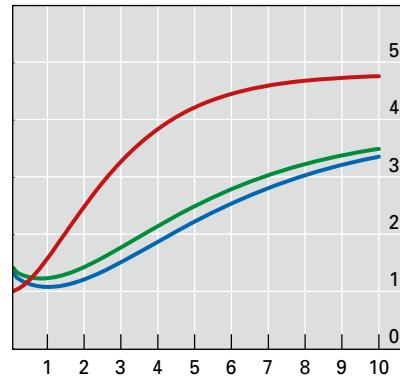
### United States



### Euro area



### United Kingdom



<sup>1</sup> Instantaneous forward rates derived from the Libor/swap curve. The horizontal axis indicates the horizon in years.

Sources: Datastream; BIS calculations.

Graph IV.2

longer-term securities, in particular of government bonds (Graph IV.3, first three panels). This contributed to the fall of long-term interest rates to very low levels (Graph IV.4, left-hand panel).<sup>1</sup>

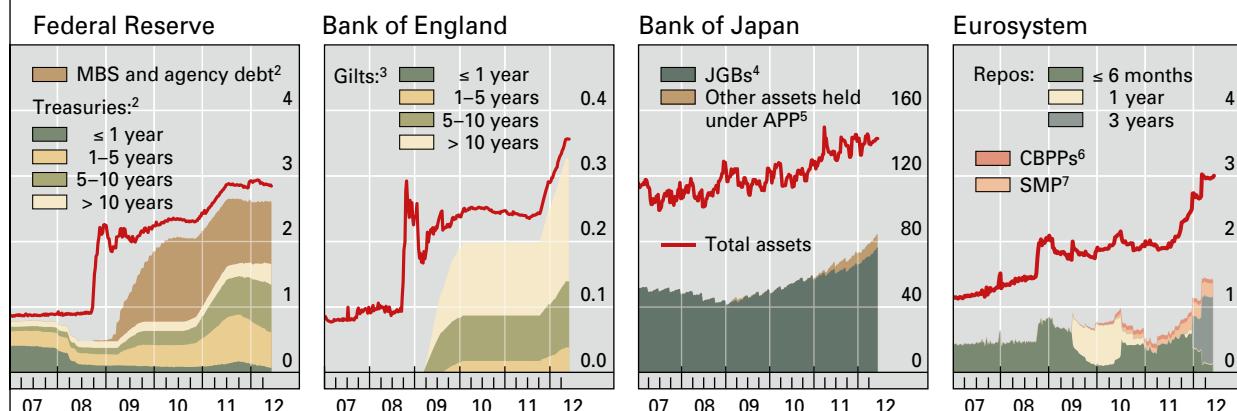
The ECB's balance sheet policy measures during the period under review were targeted at addressing disruptions in the euro area's monetary transmission mechanism arising from deteriorating government and bank funding conditions. Following rapid increases in bond yields for some euro area sovereigns (Graph IV.4, right-hand panel), the ECB reactivated purchases of government bonds under the Securities Markets Programme (SMP) in August 2011. In order to address rapidly worsening bank funding conditions in euro area markets, the ECB conducted two three-year longer-term refinancing operations (LTROs), one in December 2011 and one in February 2012, with full allotment. At the same time, it widened the range of collateral assets accepted in refinancing operations and halved the required reserve ratio. All this relieved funding pressures for banks and sovereigns, but only temporarily. Beginning in March 2012, intra-euro area strains intensified again (see Chapter II).

As a consequence of these measures, the size and maturity of the assets on the Eurosystem's balance sheet increased significantly (Graph IV.3, last panel). By the end of May 2012, the outright holdings of securities purchased under the SMP stood at €212 billion, while the outright holdings of covered bonds purchased under the covered bond purchase programmes were around €69 billion. The total allotment under the two three-year LTROs was around €1 trillion, leading to a net increase in the Eurosystem's balance sheet of

<sup>1</sup> For an overview and new evidence of the effect of central bank bond purchase programmes on long-term government bond yields, see J Meaning and F Zhu, "The impact of recent central bank asset purchase programmes", *BIS Quarterly Review*, December 2011, pp 73–83, and J Meaning and F Zhu, "The impact of Federal Reserve asset purchase programmes: another twist", *BIS Quarterly Review*, March 2012, pp 23–32. The latter study concludes that the Federal Reserve's bond purchases may have lowered the US 10-year bond yield by more than 150 basis points by the end of 2011.

## Central bank balance sheet size and composition<sup>1</sup>

In trillions of respective currency units



<sup>1</sup>For the Bank of England and the Federal Reserve, breakdown by remaining maturity; for the Eurosystem, breakdown of outstanding repo operations by original maturity. <sup>2</sup>Face value; MBS = mortgage-backed securities. <sup>3</sup>Holdings of the Asset Purchase Facility; proceeds. <sup>4</sup>Japanese government bonds. <sup>5</sup>Commercial paper, corporate bonds, exchange-traded funds, listed real estate investment trust securities and Treasury discount bills held under the Asset Purchase Program (APP). <sup>6</sup>Covered bonds held under the Covered Bond Purchase Programme (CBPP) 1 and the CBPP 2. <sup>7</sup>Securities held under the Securities Markets Programme (SMP).

Sources: Datastream; national data.

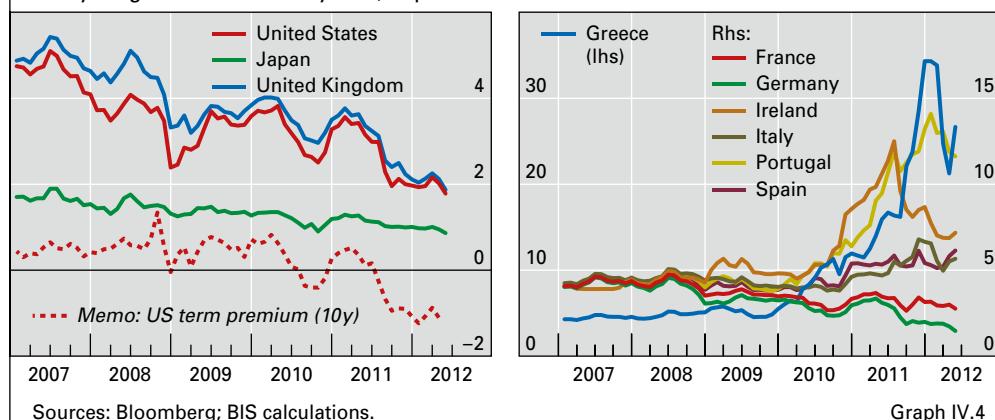
Graph IV.3

roughly €500 billion as the scale of other, shorter-term refinancing operations was reduced at the same time.

The Japanese authorities and the Swiss National Bank (SNB) intervened in foreign exchange markets in response to strong appreciations of their currencies in the context of safe haven flows. Japan's foreign currency reserve holdings increased by \$185 billion in 2011, to a total of \$1,221 billion (Table IV.1). The SNB set a minimum exchange rate for the currency of 1.20 to the euro in September last year. All the same, the increase in Switzerland's foreign exchange reserves in 2011 fell short of that in the previous year (Table IV.1). However, in May 2012, the SNB's foreign

## Long-term interest rates

Ten-year government bond yields, in per cent



## Annual changes in foreign exchange reserves

In billions of US dollars

|                                      | At current exchange rates |       |      |      |       |      | <i>Memo: Amounts outstanding<br/>(December 2011)</i> |
|--------------------------------------|---------------------------|-------|------|------|-------|------|--|
|                                      | 2006                      | 2007  | 2008 | 2009 | 2010  | 2011 |  |
| World                                | 933                       | 1,449 | 639  | 829  | 1,099 | 935  | 10,204   |
| Industrial                           | 91                        | 99    | 61   | 83   | 194   | 269  | 2,037  |
| United States                        | 3                         | 5     | 4    | 1    | 2     | -0   | 52   |
| Euro area                            | 17                        | 19    | -1   | -8   | 13    | 1    | 208  |
| Japan                                | 46                        | 73    | 55   | -7   | 39    | 185  | 1,221  |
| Switzerland                          | 2                         | 7     | 0    | 47   | 126   | 54   | 271  |
| Asia                                 | 396                       | 695   | 410  | 715  | 651   | 424  | 5,112  |
| China                                | 247                       | 462   | 418  | 453  | 448   | 334  | 3,181  |
| Chinese Taipei                       | 13                        | 4     | 21   | 56   | 34    | 4    | 386  |
| Hong Kong SAR                        | 9                         | 19    | 30   | 73   | 13    | 17   | 285  |
| India                                | 39                        | 96    | -20  | 12   | 9     | -5   | 263  |
| Indonesia                            | 8                         | 14    | -5   | 11   | 29    | 14   | 104  |
| Korea                                | 28                        | 23    | -61  | 65   | 22    | 11   | 298  |
| Malaysia                             | 12                        | 19    | -10  | 2    | 9     | 27   | 129  |
| Philippines                          | 4                         | 10    | 3    | 4    | 16    | 12   | 66   |
| Singapore                            | 20                        | 27    | 11   | 12   | 38    | 12   | 235  |
| Thailand                             | 15                        | 20    | 23   | 25   | 32    | -0   | 165  |
| Latin America <sup>1</sup>           | 54                        | 127   | 42   | 25   | 81    | 97   | 642  |
| Argentina                            | 8                         | 14    | 0    | -1   | 4     | -7   | 40   |
| Brazil                               | 32                        | 94    | 13   | 39   | 49    | 63   | 343  |
| Chile                                | 3                         | -3    | 6    | 1    | 2     | 14   | 40   |
| Mexico                               | 2                         | 11    | 8    | 0    | 21    | 23   | 137  |
| Venezuela                            | 5                         | -5    | 9    | -15  | -8    | -3   | 6  |
| CEE <sup>2</sup>                     | 26                        | 42    | 6    | 13   | 14    | 3    | 260  |
| Middle East <sup>3</sup>             | 96                        | 108   | 150  | -29  | 50    | 84   | 661  |
| Russia                               | 120                       | 171   | -56  | -5   | 27    | 8    | 441  |
| <i>Memo:</i>                         |                           |       |      |      |       |      |  |
| <i>Net oil exporters<sup>4</sup></i> | 286                       | 331   | 144  | -62  | 107   | 135  | 1,556  |

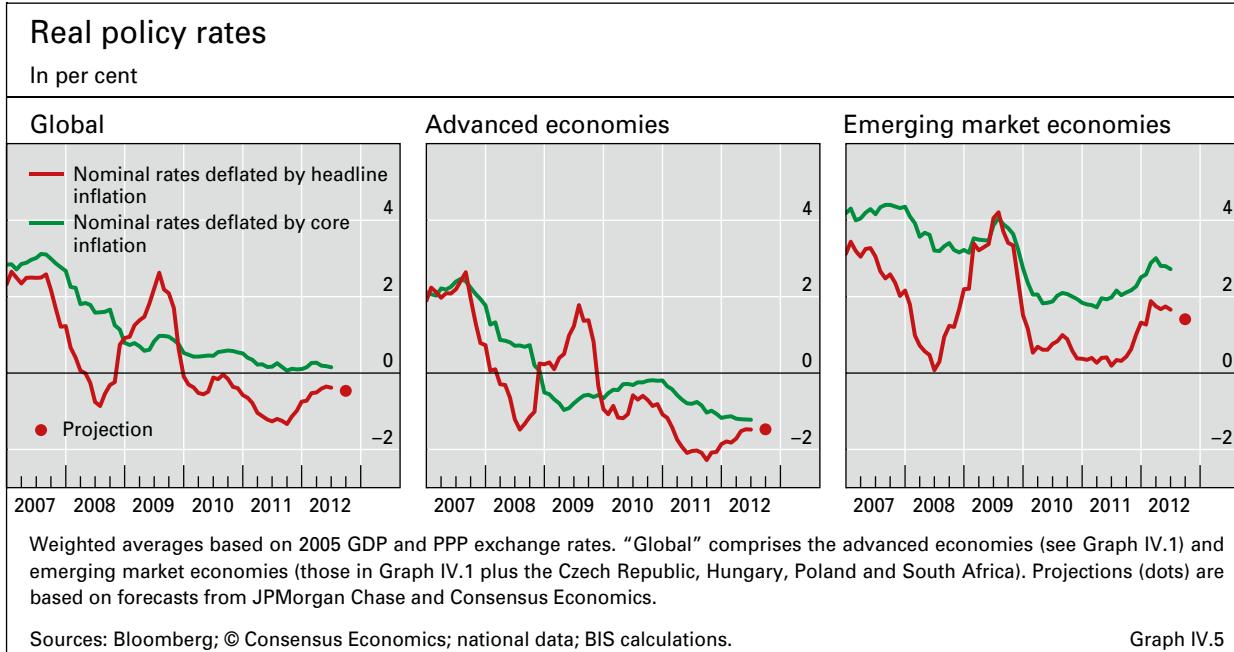
<sup>1</sup> Countries shown plus Colombia and Peru. <sup>2</sup> Central and eastern Europe: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. <sup>3</sup> Kuwait, Libya, Qatar and Saudi Arabia. <sup>4</sup> Algeria, Angola, Kazakhstan, Mexico, Nigeria, Norway, Russia, Venezuela and the Middle East.

Sources: IMF; Datastream; national data.

Table IV.1

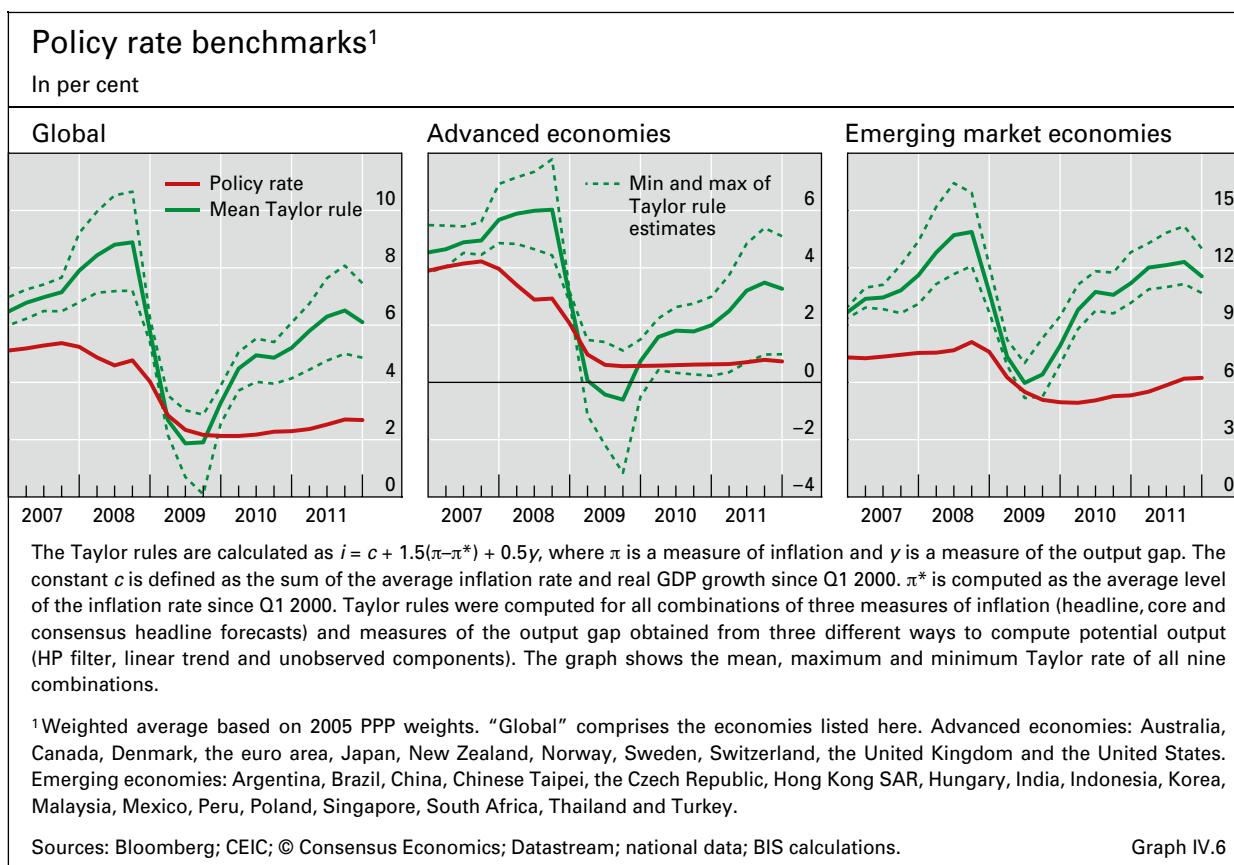
exchange reserve holdings surged by more than 25% over the previous month as pressure on the minimum Swiss franc per euro exchange rate heightened.

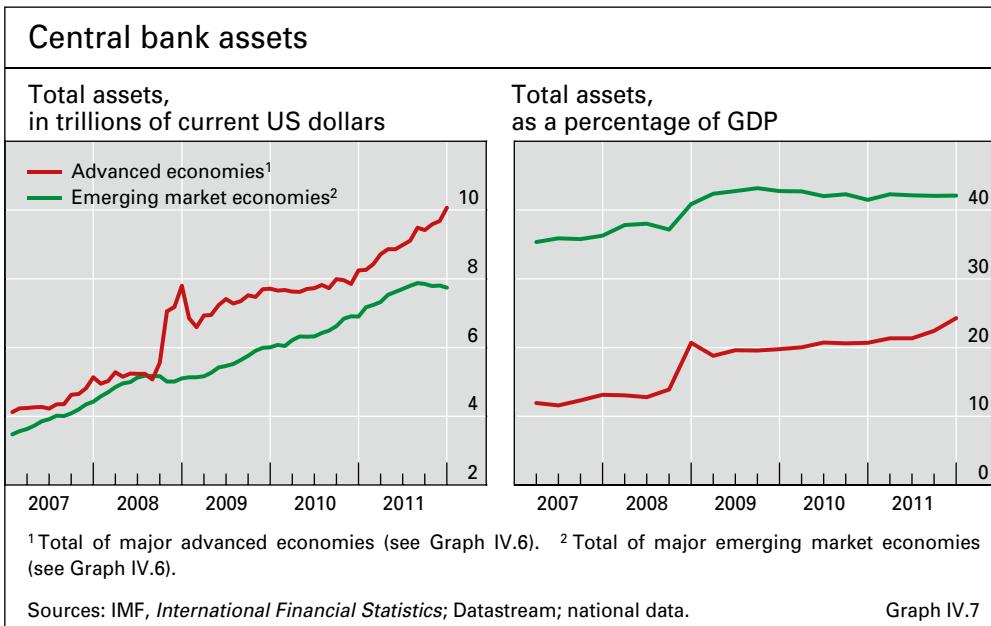
In emerging market economies, specifically in Asia, authorities slowed down the accumulation of foreign currency reserves during 2011 (Table IV.1). This reflected in part diminishing upward pressure on exchange rates in the second half of the year, as rising global risk aversion induced an outflow of portfolio capital (see Graph II.6, left-hand panel). However, the total foreign currency reserve holdings in emerging Asia remained very high, amounting to \$5 trillion, or half of the world's total, in December 2011. At over \$3 trillion, a little under one third of global foreign exchange reserves at that time was held by China.



### Assessment of the monetary policy stance

Real (inflation-adjusted) policy rates indicate a very accommodative global monetary policy stance, irrespective of whether core or headline inflation is used to deflate nominal rates (Graph IV.5). As of early 2012, real policy rates





were around zero globally. They remained firmly negative in the core advanced economies. In emerging market economies, they rose slightly, but still look very low against the background of these economies' trend output growth rate over the past several years.

Interest rates implied by the Taylor rule, which links policy rates in a mechanical way to inflation and the output gap, present a very similar picture (Graph IV.6). True, an assessment based on this benchmark is inevitably complicated by the high degree of uncertainty about the level and growth rate of potential output. Even so, taking into account all combinations of different measures of inflation (headline and core) and alternative output gap estimates (time-varying and constant linear trend), the level of policy rates appeared unusually accommodative by the end of 2011 (Graph IV.6, left-hand panel). This result was driven mainly by the emerging market economies (Graph IV.6, right-hand panel), reflecting the significant role of external factors, ie concerns about exchange rate and capital flow volatility, in these economies' monetary policy conduct. In the advanced economies, policy rates were just below the range of Taylor rule benchmarks, after falling within this range for most of the period since the outbreak of the crisis (Graph IV.6, centre panel).

Real interest rates and Taylor rules are of course unable to fully characterise the stance of monetary policy. Monetary easing might be overstated to the extent that a number of factors relevant in the current policy environment are ignored. These include concerns about destabilising capital inflows, lingering financial headwinds from the crisis and changes in reserve requirements.

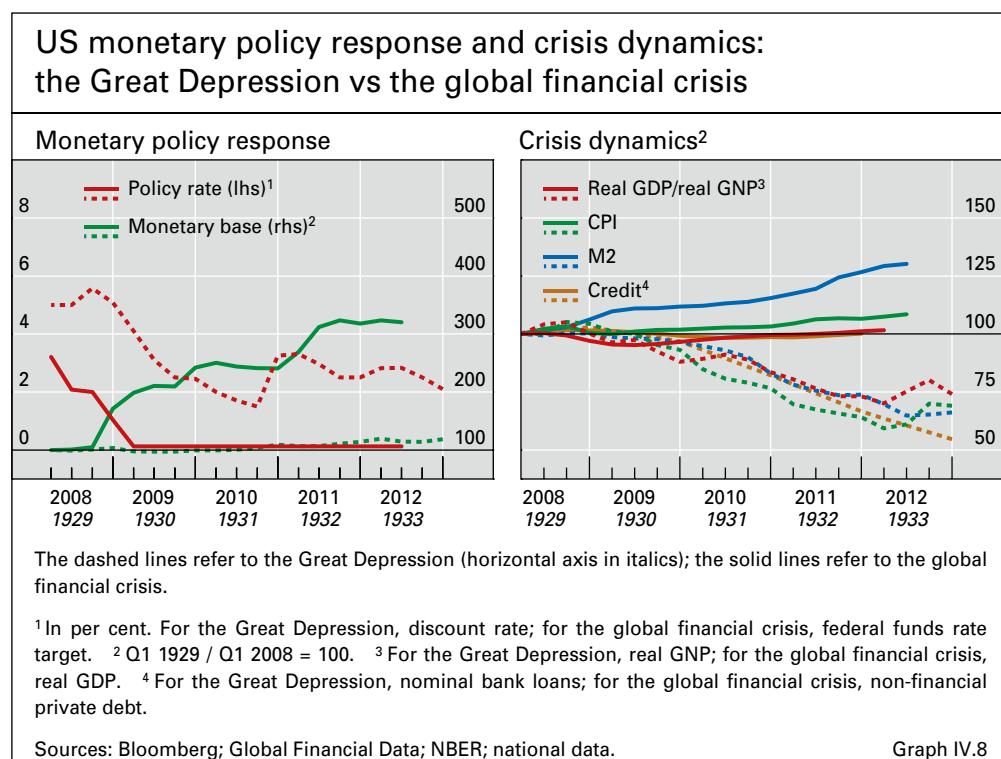
However, the monetary policy stance looks considerably more accommodative if one also takes into account the unprecedented expansion of central bank balance sheets. Total assets held by central banks have more than doubled over the past four years and stood at approximately \$18 trillion at the end of 2011 (Graph IV.7, left-hand panel). In the advanced economies,

central bank assets rose to about 25% of GDP in the wake of balance sheet policy measures adopted in reaction to the global financial crisis (Graph IV.7, right-hand panel). This provided additional monetary accommodation, for instance by contributing to low long-term bond yields.<sup>2</sup> In the major emerging market economies, central bank assets stood at roughly 40% of GDP at the end of 2011, reflecting the large accumulation of foreign exchange reserves over the past decade, in particular in emerging Asia. This arguably mitigated exchange rate appreciation and thereby boosted growth.

### Prolonged monetary accommodation: scope and limitations

Decisive action by central banks during the global financial crisis was probably crucial in preventing a repeat of the experiences of the Great Depression. This can be tentatively inferred from a comparison of crisis dynamics (Graph IV.8, right-hand panel) and monetary policy response (Graph IV.8, left-hand panel) during that period (dashed lines) with those of the recent global financial crisis (solid lines) in the United States.

However, while there is widespread agreement that aggressive monetary easing in the core advanced economies was important to prevent a financial meltdown, the benefits of prolonged easy monetary conditions are more controversial. In particular, their implications for effective balance sheet repair



<sup>2</sup> For an overview of the financial market impact and the macroeconomic effects of balance sheet policies by central banks in the major advanced economies, see M Cecioni, G Ferrero and A Secchi, "Unconventional monetary policy in theory and in practice", *Bank of Italy Occasional Papers*, no 102, September 2011. See the references in footnote 1 for more recent evidence on the effects of central bank bond purchases.

as a precondition for sustained growth, the risks for global financial and price stability, as well as the longer-term consequences for central banks' credibility and operational autonomy, are subject to debate.

#### *Monetary easing and balance sheet repair*

Accommodative monetary policy can facilitate private and public sector balance sheet repair in the short term. It buys time for banks and governments to address solvency problems and thereby helps prevent disorderly deleveraging and defaults. Furthermore, it can lower debt servicing costs, prop up asset prices and support output and employment.

At the same time, however, in the recovery from a financial crisis monetary policy is likely to be less effective in stimulating the economy than otherwise. Overindebted economic agents do not wish to borrow in order to spend, and an impaired financial system is less effective in transmitting the policy stance to the rest of the economy. This means that, in order to have the same short-term effect on aggregate demand, monetary accommodation will naturally be pushed further. But this cannot substitute for direct corrective action to address debt burdens and impaired balance sheets. Ultimately, there is even the risk that prolonged monetary easing delays balance sheet repair and the return to a self-sustaining recovery through a number of channels.

First, prolonged unusually accommodative monetary conditions mask underlying balance sheet problems and reduce incentives to address them head-on. Necessary fiscal consolidation and structural reform to restore fiscal sustainability could be delayed. Indeed, as discussed in more detail in Chapter V, more determined action by sovereigns is needed to restore their risk-free status, which is essential for both macroeconomic and financial stability in the longer term.

Similarly, large-scale asset purchases and unconditional liquidity support together with very low interest rates can undermine the perceived need to deal with banks' impaired assets. Banks are indeed still struggling with the legacy of the global financial crisis and often depend heavily on central bank funding (see Chapter VI). And low interest rates reduce the opportunity cost of carrying non-performing loans and may lead banks to overestimate repayment capacity. All this could perpetuate weak balance sheets and lead to a misallocation of credit.<sup>3</sup> Evidence that deleveraging by US households came through a reduction in new loans rather than writedowns of unsustainable debt (see Chapter III) points to the relevance of such mechanisms at the current juncture. Similarly, the coexistence of depressed market-to-book ratios for banks, which are generally well below one, with loan loss provisions that are low despite weak macroeconomic conditions (see Table VI.1) could indicate evergreening practices.

<sup>3</sup> There is evidence of widespread evergreening practices in Japan during the long period of low nominal interest rates in the 1990s. There is also evidence of evergreening in Italy during the first years of the global financial crisis. See R Caballero, T Hoshi and A Kashyap, "Zombie lending and depressed restructuring in Japan", *American Economic Review*, vol 98, December 2008, pp 1943–77, and U Albertazzi and D Marchetti, "Credit supply, flight to quality and evergreening: an analysis of bank-firm relationships after Lehman", Bank of Italy, *Temi di Discussione (Working Papers)*, no 756, April 2010.

Second, monetary easing may over time undermine banks' profitability. The level of short-term interest rates and the slope of the yield curve are both positively associated with banks' net interest income as a result of their positive effects on deposit margins and on the returns from maturity transformation, respectively.<sup>4</sup> True, there is evidence from a sample of internationally active banks that, in the period 2008–10, monetary easing boosted banks' profitability, supporting the rebuilding of capital bases (see Box IV.A on page 44). The negative effects associated with the reduction in the short-term policy rate were more than offset by the steepening in the slope of the yield curve. However, an environment of protracted low interest rates characterised by both low short-term interest rates and flattened yield curves would ultimately lead to an erosion of banks' interest income. Signs of this happening are already present, as the more recent flattening of the yield curve in the United States and United Kingdom has gone hand in hand with a drop in banks' net interest margin (see Table VI.1).

Low returns on fixed income assets also create difficulties for life insurance companies and pension funds. Serious negative profit margin problems associated with the low interest rate environment contributed to a number of life insurance company failures in Japan in the late 1990s and early 2000s. Today, insurance companies and pension funds have partly insulated themselves from these effects, either by hedging interest rate risk, or by moving towards unit-linked insurance products or defined contribution schemes.<sup>5</sup> These measures, however, eventually shift risks onto households and other financial institutions.

Third, low short- and long-term interest rates may create risks of renewed excessive risk-taking. Countering widespread risk aversion was one important motivation for the exceptional monetary accommodation provided by central banks in response to the global financial crisis. However, low interest rates can over time foster the build-up of financial vulnerabilities by triggering a search for yield in unwelcome segments. There is ample empirical evidence that this channel played an important role in the run-up to the financial crisis.<sup>6</sup> Recent large trading losses by some financial institutions may indicate pockets of excessive risk-taking and require scrutiny.

Fourth, aggressive and protracted monetary accommodation may distort financial markets. Low interest rates and central bank balance sheet policy measures have changed the dynamics of overnight money markets, which may complicate the exit from monetary accommodation (see Box IV.B on page 46). Large-scale asset purchases, intended to lower long-term interest rates and

<sup>4</sup> See U Albertazzi and L Gambacorta, "Bank profitability and the business cycle", *Journal of Financial Stability*, vol 5, December 2009, pp 393–409.

<sup>5</sup> For more details, see Committee on the Global Financial System, "Fixed income strategies of insurance companies and pension funds", *CGFS Papers*, no 44, July 2011.

<sup>6</sup> For a review of empirical studies on the risk-taking channel see, amongst others, A Maddaloni and J-L Peydró (2011), "Bank risk-taking, securitization, supervision, and low interest rates: evidence from the euro-area and the U.S. lending standards", *Review of Financial Studies*, vol 24, June 2011, pp 2121–65, and Y Altunbas, L Gambacorta and D Marqués, "Do bank characteristics influence the effect of monetary policy on bank risk?", *Economic Letters*, 2012 (forthcoming).

## Box IV.A: Monetary policy and bank profitability in 2008–10

This box analyses the link between changes in the interest rate term structure and banks' profitability after Lehman Brothers' default. We use balance sheet information on 107 large international banks headquartered in 14 major advanced economies active in different jurisdictions. For this reason, we construct all macroeconomic indicators as a weighted average across the countries in which each bank operates, using foreign claims data from the BIS consolidated banking statistics.

The table below reports simple cross-section regressions on average values over the period 2008–10 for: (i) the net interest margin (NIM); (ii) the ratio of impaired loans to total assets; and (iii) the return on assets (ROA). A reduction in the level of the short-term interest rate and in the slope of the yield curve (in both segments, between 0 and 2 years, and between 2 and 10 years) has a negative impact on banks' net interest income. However, in 2008–10, for the 14 countries analysed, short-term interest rates declined, on average, by 2.44 percentage points, while the two segments of the yield curve increased by 0.35 percentage points and 1.33 percentage points, respectively. Overall, these changes contributed positively to the NIM (0.69 percentage points). Changes in the structure of the yield curve also reduced the ratio of impaired loans to total assets (0.17 percentage points), containing the deterioration of the quality of the credit portfolio during the downturn. These results also hold after controlling for the expansion of central banks' total assets, business cycle conditions and bank-specific characteristics such as size, liquidity, incidence of market funding and the inclusion of a specific dummy for those banks that benefited from rescue packages.

| Explanatory variables                                | (i)<br>NIM        |     | (ii)<br>Impaired loans /<br>total assets |     | (iii)<br>ROA      |     |
|--|-------------------|-----|--|-----|-------------------|-----|
|  | Coeff             | Sig | Coeff                                    | Sig | Coeff             | Sig |
| Short-term interest rate                             | 0.258<br>(0.107)  | **  | 1.651<br>(0.486)                         | *** | 0.034<br>(0.226)  |     |
| Slope of the yield curve 0–2yrs                      | 0.641<br>(0.206)  | *** | 1.287<br>(0.914)                         |     | 1.321<br>(0.272)  | *** |
| Slope of the yield curve 2–10yrs                     | 0.820<br>(0.190)  | *** | 2.562<br>(0.993)                         | *** | 0.253<br>(0.354)  |     |
| Change in central bank total assets / GDP            | 0.002<br>(0.006)  |     | -0.024<br>(0.033)                        |     | 0.005<br>(0.011)  |     |
| Nominal GDP growth                                   | 0.019<br>(0.039)  |     | -0.787<br>(0.180)                        | *** | 0.151<br>(0.080)  | *   |
| Market funding ratio                                 | -0.021<br>(0.003) | *** | 0.057<br>(0.037)                         |     | -0.023<br>(0.006) | *** |
| Bank size  | -0.01<br>(0.041)  |     | -0.899<br>(0.323)                        | *** | 0.297<br>(0.097)  | *** |
| Bank liquidity ratio                                 | -0.014<br>(0.006) | **  | -0.019<br>(0.029)                        |     | -0.001<br>(0.013) |     |
| Number of observations                               | 107               |     | 107                                      |     | 107               |     |
| R <sup>2</sup>                                       | 0.635             |     | 0.411                                    |     | 0.311             |     |
| Average values of the dependent variables in 2008–10 | 1.57%             |     | 2.40%                                    |     | 0.45%             |     |

All variables are calculated as simple averages over the period 2008–10. We measure bank size as the logarithm of total assets, bank liquidity as the ratio of cash and liquidity to total assets, and market funding as the share of assets funded by non-deposit liabilities. All ratios are expressed in per cent. Coefficients for the dummy variable indicating those banks that benefited from rescue interventions are not reported. Robust standard errors in parenthesis. The symbols \*, \*\* and \*\*\* represent significance levels of 10%, 5% and 1%, respectively. For more information on the database, see M Brei, L Gambacorta and G von Peter, "Rescue packages and bank lending", *BIS Working Papers*, no 357, November 2011.

financial market risk spreads, ultimately also dampen market signals. Long-term yields on core government bonds are a key benchmark for financial intermediation. Their exceptionally low level (Graph IV.4) could therefore lead to financial mispricing more generally and undermine financial markets' function of fostering an effective intertemporal allocation of resources.

With policy rates in the core advanced economies at the effective lower bound for more than three years now and central bank balance sheets continuing to expand, these possible side effects bear close watching. Indeed, as discussed in Chapters III, V and VI, the recovery remains fragile due to large debt overhangs and persistent structural imbalances while measures to ensure fiscal sustainability and repair balance sheets have not been undertaken with the necessary vigour.

#### *Global monetary policy spillovers*

While prolonged monetary easing probably has only limited potency to rekindle sustained growth in the advanced economies, its global spillover effects may be substantial. Persistently large interest rate differentials (Graph IV.1) support capital and credit flows to fast-growing emerging market economies and have put upward pressure on their exchange rates. This makes it more difficult for emerging market central banks to pursue their domestic stabilisation objectives. Interest rates have been raised only hesitantly in response to buoyant domestic macroeconomic and financial conditions out of concerns that this would widen interest rate differentials and further boost capital inflows. As a result, monetary policy in emerging market economies may be systematically too loose, as suggested by the large gap between policy rates and interest rate benchmarks shown in Graph IV.6.

The prevailing loose global monetary conditions have been fuelling credit and asset price booms in some emerging market economies for quite some time now (see Chapter III). This creates risks of rising financial imbalances similar to those seen in advanced economies in the years immediately preceding the crisis. Their unwinding would have significant negative repercussions, also globally as a result of the increased weight of emerging market economies in the world economy and in investment portfolios.

Loose global monetary policy has probably also contributed to the strength of commodity prices since 2009 (Graph IV.9, left-hand panel). Commodity prices are set in global auction markets and are very sensitive to global demand conditions, which are in turn shaped by the global monetary policy stance. The growing role of financial investors in commodity markets may have further raised the sensitivity of prices to monetary conditions.<sup>7</sup>

The effect of higher commodity prices was felt in particular in emerging market economies. Two bouts of rising inflation in this group of countries since 2006 have been associated with increasing commodity prices (Graph IV.9, right-hand panel). Inflation rates have dropped since the second half of last year as commodity prices have declined. As of early 2012, inflation rates in

<sup>7</sup> See BIS, *81st Annual Report*, June 2011, Box IV.B, for a more detailed discussion of the financialisation of commodities and its implications.

most emerging market economies were inside central banks' inflation target ranges and markets expected them to moderate slightly further in the rest of the year (Graph IV.9, right-hand panel, dot). However, risks of potential second-round inflation effects remain, as unit labour costs edged up in the fourth quarter of 2011 (Graph IV.9, right-hand panel, blue line). Given the growing importance of emerging market economies in global supply chains, these developments could also have an impact on inflation in advanced economies. That said, as of early 2012, price and wage increases in this group

### Box IV.B: Developments in overnight money markets

Traditionally, central banks have relied on the unsecured overnight money market to implement monetary policy. However, the balance sheet policies pursued in many jurisdictions have led to substantial changes in market dynamics. To the extent that these new dynamics are not well understood or self-reversing, they may pose challenges for the eventual exit and lead to changes in the operational frameworks.

The expansion of central bank balance sheets has led to a substantial increase in central bank reserves (Graph IV.B, left-hand panel). These excess reserves have driven overnight interbank rates towards their lower bounds, ie the rates at which central banks remunerate deposits (Graph IV.B, right-hand panel). In other words, central banks have abandoned their usual practice of keeping the overnight rate close to a target – often the midpoint of the corridor spanned by the rates at which banks can borrow from and lend to the central bank, respectively. In the United States and the United Kingdom, the overnight rate has even moved below the rate at which reserves are remunerated. In both instances, the overnight market includes non-bank entities that do not have direct access to the central bank deposit facility. Such market segmentation, as well as limits to arbitrage, allows banks (with access) to offer low bids for funds from these entities and consequently drive reported market rates below the rate the central bank offers to banks.<sup>①</sup>

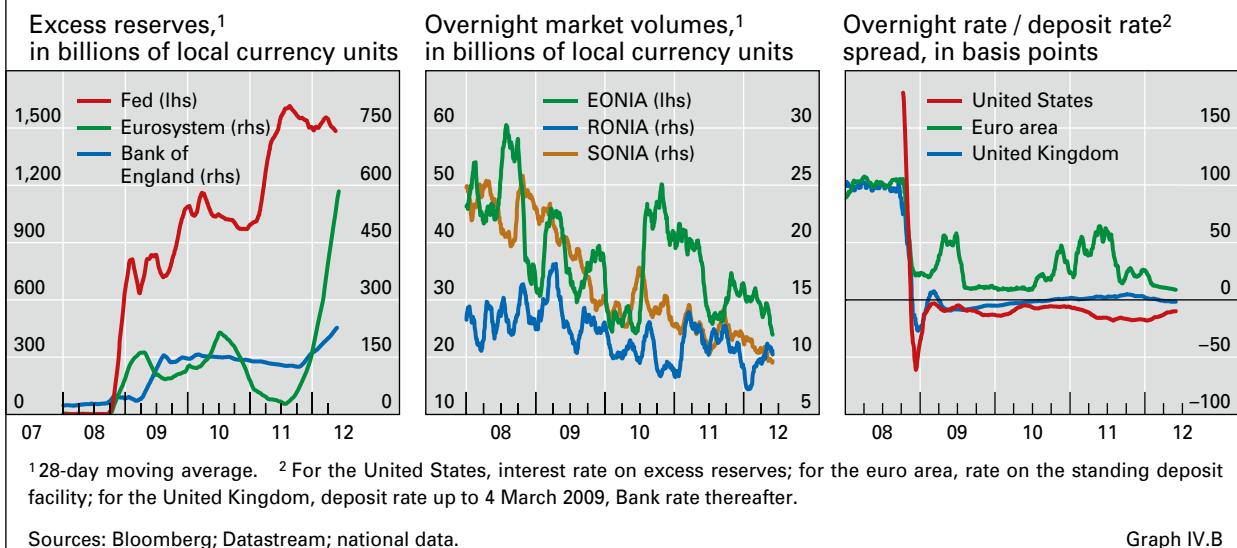
In addition, unsecured market volumes are falling as banks have less need to borrow reserves from one another to offset daily liquidity shocks (Graph IV.B., centre panel). For example, in the United Kingdom the unsecured trading volumes that form the basis for the SONIA fixing have fallen by more than half since 2008.<sup>②</sup> In the euro area, the EONIA trading volumes have fallen similarly.<sup>③</sup> Moreover, counterparty concerns and regulatory changes have increased the attractiveness of secured markets. In contrast to the SONIA, the trading volumes that underlie the secured RONIA fixing in the United Kingdom have, on average, remained around the levels that prevailed in 2008.<sup>④</sup> Similar trends are reportedly seen in other jurisdictions as well.

Furthermore, there is evidence that the dynamics of overnight rates are changing. In the United States, the pass-through from the unsecured overnight rate to secured rates – a crucial link in the transmission of the monetary policy – has weakened during the period of near zero rates.<sup>⑤</sup> In Sweden, the volatility of the overnight rate (tomorrow-next) has been higher than before the crisis since the Riksbank's exit from its balance sheet policies.<sup>⑥</sup>

With a view to controlling the overnight rate in an exit scenario, central banks need to have in place properly tested tools for controlling reserves. Moreover, they may need to reconsider whether the pre-crisis practice of targeting a short-term unsecured market rate is still the most effective.<sup>⑦</sup>

<sup>①</sup> See M Bech and E Klee, "The mechanics of a graceful exit: interest on reserves and segmentation in the federal funds market", *Journal of Monetary Economics*, 58(5), July 2011, pp 415–31. <sup>②</sup> See Bank of England, *Quarterly Bulletin*, 2011 Q2. The SONIA fixing is the weighted average of all unsecured overnight sterling transactions brokered in London by the members of the Wholesale Markets Brokers' Association (WMBA). <sup>③</sup> The EONIA (Euro OverNight Index Average) is computed as a weighted average of all overnight unsecured lending transactions undertaken in the interbank market, initiated within the euro area by contributing banks. <sup>④</sup> The RONIA fixing is the weighted average interest rate of all secured (ie repo) sterling overnight cash transactions conducted via brokers using CREST's delivery-by-value mechanism, a way of borrowing sterling cash against gilt collateral. CREST is a UK central securities depository. <sup>⑤</sup> See M Bech, E Klee and V Stebunovs, "Arbitrage, liquidity and exit: the repo and federal funds markets before, during, and emerging from the financial crisis", Federal Reserve Board *Finance and Economics Discussion Series*, 2012–21. <sup>⑥</sup> See P Sellin and P Sommar, "The Riksbank's operational framework for the implementation of monetary policy – a review", *Sveriges Riksbank Economic Review*, 2012:2. <sup>⑦</sup> See eg the welcome address by Jürgen Stark at the ECB Workshop on "The post-crisis design of the operational framework for the implementation of monetary policy", Frankfurt, 10 October 2011.

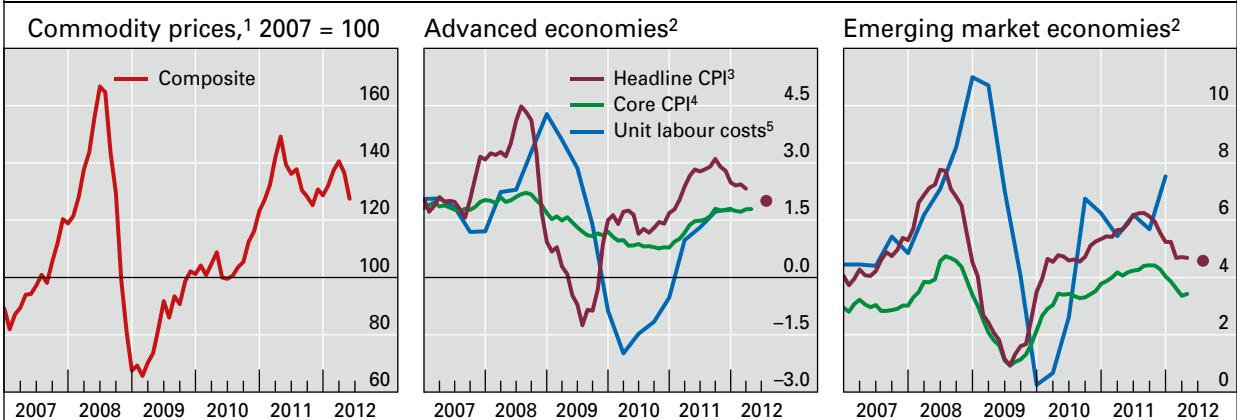
## Changing money market dynamics



of countries were moderate and headline inflation was expected to decline further in the course of the year (Graph IV.9, centre panel).

The growing relevance of monetary policy spillovers suggests that central banks need to take better account of the global implications of their actions. In a highly globalised world, a more global monetary policy perspective is also called for to ensure lasting price and financial stability.<sup>8</sup>

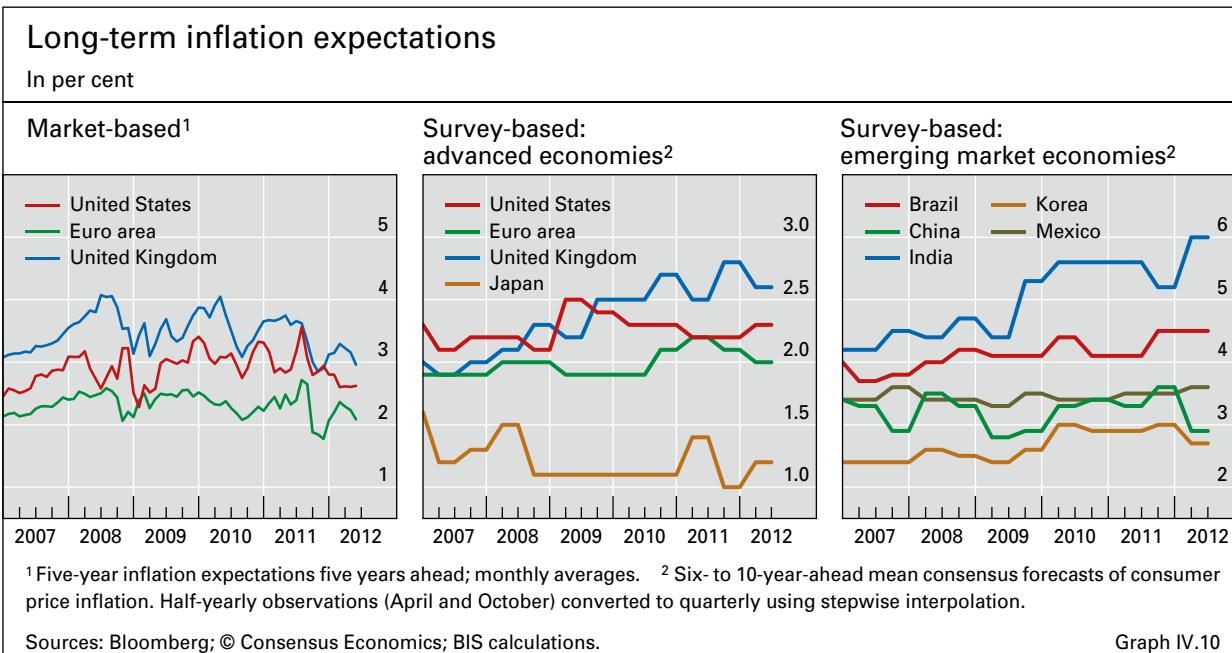
## Commodity and consumer prices and unit labour costs



Sources: OECD, *Economic Outlook*; © Consensus Economics; Datastream; national data; BIS calculations.

Graph IV.9

<sup>8</sup> See C Borio, "Central banking post-crisis: what compass for uncharted waters?", *BIS Working Papers*, no 353, September 2011.



### Longer-term risks for central banks

Long-term inflation expectations currently do not signal perceptions of rising risks to price stability in the major advanced and emerging market economies. Both market- and survey-based indicators of long-term inflation expectations (Graph IV.10) have in general remained stable and close to central banks' inflation goals.

The stability of long-term inflation expectations indicates that central banks' credibility remains high. One could interpret this as suggesting that central banks still have some leeway to provide further monetary stimulus. However, the credibility of central banks should not be taken for granted. In the core advanced economies, if the economy remains weak and underlying solvency and structural problems remain unresolved, central banks may come under growing pressure to do more. A vicious circle can develop, with a widening gap between what central banks are expected to deliver and what they can actually deliver. This would make the eventual exit from monetary accommodation harder and may ultimately threaten central banks' credibility. Likewise, in emerging market economies, continued reliance on export-led growth strategies may raise doubts about central banks' determination to pursue price stability and exit from large-scale foreign exchange interventions. Such doubts could over time gradually unanchor inflation expectations globally.

This concern is reinforced by growing political economy risks. Central banks' balance sheet policies have blurred the line between monetary and fiscal policy. Their effects can be properly assessed only as part of the consolidated public sector balance sheet. And most of these policies could be replicated by the government. The very meaning of instrument independence therefore becomes unclear when central banks engage in large-scale balance sheet policy measures. As a result, protracted reliance on such measures

raises concerns about possible restrictions on central banks' operational autonomy, especially as public debt is on an unsustainable path in many countries (see Chapter V).

The growing financial risks in the bloated balance sheets of central banks may furthermore undermine their financial independence. While financial losses do not *per se* hamper central banks' operational capabilities, they may undermine operational autonomy if the central bank is no longer able to pursue its policy objectives without recourse to financial resources from the government.<sup>9</sup>

Against the background of these growing longer-term risks for central banks, the current stability of long-term inflation expectations is no reason for complacency. If central banks' credibility were to be eroded and inflation expectations were to pick up, it would be very difficult and costly to restore price stability, as the experience of the 1970s has shown.

## Summing up

The global monetary policy stance is unusually accommodative. Policy rates are well below traditional benchmark measures. At the same time, central bank balance sheets have reached an unprecedented size and continue to expand.

Against the background of weak growth and high unemployment in many advanced economies, sustained monetary easing is natural and compelling. However, there is a growing risk of overburdening monetary policy. By itself, easy monetary policy cannot solve underlying solvency or deeper structural problems. It can buy time, but may actually make it easier to waste that time, thus possibly delaying the return to a self-sustaining recovery. Central banks need to recognise and communicate the limits of monetary policy, making clear that it cannot substitute for those policy measures that can address the root causes of financial fragility and economic weakness.

The combination of weak growth and exceptionally low interest rates in the core advanced economies, and efforts to manage the spillovers in emerging market economies, has helped to spread monetary accommodation globally. The resulting risks of a build-up of financial imbalances and increasing inflationary pressures in emerging market economies might have significant negative repercussions on the global economy. This points to the need for central banks to take better account of the global spillovers from their domestic monetary policies to ensure lasting financial and price stability.

Finally, central banks need to beware of longer-term risks to their credibility and operational independence. Failing to appreciate the limits of monetary policy raises the risk of a widening gap between what central banks are expected to deliver and what they can actually deliver. This would complicate the eventual exit from monetary accommodation and may ultimately threaten central banks' credibility and operational autonomy. This concern is reinforced by political economy risks arising from the combination of balance sheet policies that have blurred the line between monetary and fiscal policies, on the one hand, and the risk of unsustainable fiscal positions, on the other.

<sup>9</sup> See P Stella, "Minimising monetary policy", *BIS Working Papers*, no 330, November 2010.

## V. Restoring fiscal sustainability

Fiscal positions in many advanced economies were already on an unsustainable path before the financial crisis. The crisis led to a significant further deterioration in fiscal sustainability by increasing fiscal deficits and debt. As a result, financial markets and credit rating agencies took a more critical view of sovereign credit risk. Government debt and deficits that had been tolerated before the crisis were no longer considered sustainable.

These developments have led to higher sovereign credit default swap (CDS) spreads and sovereign credit rating downgrades, most notably in the cases of Greece, Ireland, Italy, Portugal and Spain. But downgrades have also occurred for sovereigns whose risk-free status is rarely challenged, such as the United States and Japan, and whose borrowing costs have actually declined as a result of safe haven flows.

This has generated concerns about sovereigns losing their risk-free status or, more specifically, about their liabilities becoming subject to non-negligible credit risk. To be sure, even from this narrow perspective, full risk-free status is an ideal goal rather than a realistic objective. Indeed, the worst possible outcome is treating an asset as risk-free when, in fact, it is not. Arguably, this was the case for many sovereigns ahead of the recent crisis, and is still the case for some of them. Here, we use the term “risk-free” to describe assets associated with a sufficiently high probability of creditors being repaid to allow credit risk not to be explicitly taken into account by financial market participants in investment decisions. The existence of such assets contributes to the smooth and efficient functioning of the financial system.

A weakening of sovereign creditworthiness adversely affects financial stability, the conduct and credibility of fiscal and monetary policy, the functioning of financial markets and private sector borrowing costs. In the current environment – in which economic growth is anaemic, financial markets are still fragile and central banks are overextended – sovereigns’ increased riskiness is particularly worrisome. They must therefore return to sustainable fiscal positions.

The next section examines the deterioration in the creditworthiness of sovereigns and its main causes. The subsequent sections discuss the consequences of that deterioration and draw policy implications.

### Why and to what extent have sovereigns lost their risk-free status?

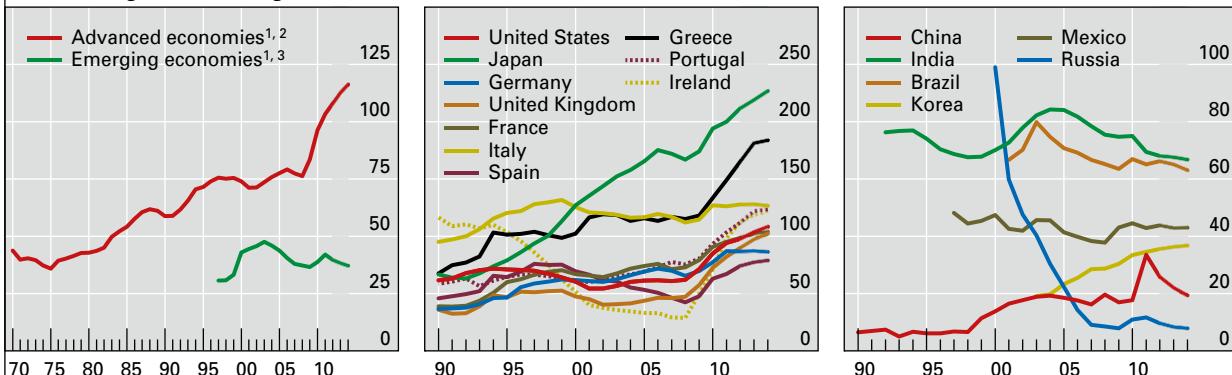
#### *Developments in public finances*

Concerns about the sustainability of fiscal positions in advanced economies were present long before the start of the recent financial crisis. Governments’ explicit debt levels (debt-to-GDP ratios) in advanced economies had risen steadily between the mid-1970s and the mid-1990s. Despite levelling off during the following

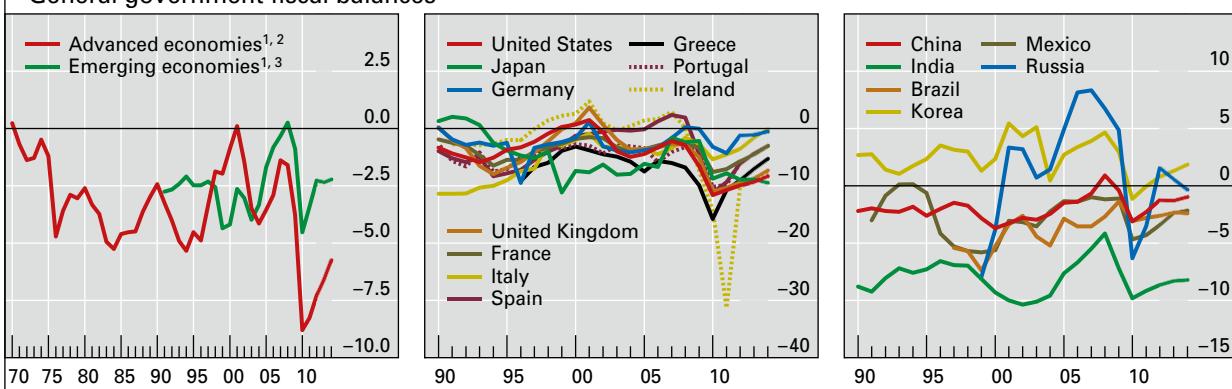
## General government fiscal indicators

As a percentage of GDP

### General government gross debt



### General government fiscal balances



The shaded areas represent forecasts.

<sup>1</sup>Weighted average of the economies listed, based on 2005 GDP and PPP exchange rates and available data. <sup>2</sup>Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States. <sup>3</sup>Argentina, Brazil, Chile, China, Chinese Taipei, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Singapore, South Africa, Thailand, Turkey and Venezuela.

Sources: European Commission AMECO database; IMF, *World Economic Outlook*, April 2012; OECD, *Economic Outlook*, November 2011.  
Graph V.1

decade thanks to a mixture of robust global economic growth and fiscal consolidation efforts in Europe and the United States, they remained quite high. They then went up sharply in the wake of the global financial crisis (Graph V.1).

But explicit government debt tells only part of the story. The fiscal picture becomes even gloomier once one accounts for projected increases in public spending on pensions and health care due to ageing populations.<sup>1</sup> In the developed world, those two categories of government spending are projected to rise by an average of 7.9 percentage points of GDP between 2010 and 2050.<sup>2</sup>

<sup>1</sup> See S Cecchetti, M Mohanty and F Zampolli, "The future of public debt: prospects and implications", *BIS Working Papers*, no 300, March 2010, and IMF, *Global Financial Stability Report*, April 2012, Chapter 4.

<sup>2</sup> Weighted average based on 2005 GDP and PPP exchange rates for the advanced economies listed in footnote 2 of Graph V.1 where estimates are available in IMF Fiscal Affairs Department, *The challenge of public pension reform in advanced and emerging economies*, December 2011, and IMF Fiscal Affairs Department, *Macro-fiscal implications of health care reform in advanced and emerging economies*, December 2010.

Furthermore, credit and asset price booms before the crisis made the fiscal positions of some advanced economies look better than they actually were. The governments of some countries, most notably Ireland and Spain, were lulled into a false sense of security by the rise in tax revenues that turned out to be driven exclusively by unsustainable financial booms.<sup>3</sup> The associated temporary increases in tax receipts from the financial and real estate sectors gave a one-off boost to governments' fiscal balances relative to what normal cyclical economic expansions could be expected to produce, leading policymakers to overestimate structural balances (see box).<sup>4</sup> This in turn encouraged more relaxed fiscal policies, which proved dangerous once the financial booms turned to bust.

On the surface, the fiscal situation in emerging market economies (EMEs) looks much better than that in the advanced economies. Fiscal deficits and government debt as a share of GDP have generally been much lower in these economies (Graph V.1), and their public debt-to-GDP ratios have been declining on average since 2010.

Nevertheless, the underlying fiscal position in EMEs may not be as uniformly healthy as it appears. As Graph V.1 shows, there is significant dispersion among their fiscal positions. The government debt-bearing capacity of EMEs is generally lower than that of advanced economies owing to a variety of factors, including a history of previous defaults and lower tax-raising capacity. Just like their advanced economy peers, many emerging market governments are facing large increases in public spending on pensions and health care (an average of 7.0 percentage points of GDP between 2010 and 2050) due to ageing populations.<sup>5</sup> And the fiscal accounts of a number of EMEs are being falsely enhanced by potentially unsustainable credit and asset price booms (see Chapter III).

One measure of fiscal sustainability, the fiscal gap, is the change in cyclically adjusted primary fiscal balances needed to bring the government debt-to-GDP ratio back to a sustainable level over a given horizon.<sup>6</sup> While views differ as to the optimal level of the government debt-to-GDP ratio, as an admittedly rough guide, the existing empirical evidence suggests that ratios above 85% hurt growth.<sup>7</sup> If correct, and given recent experience, this would suggest that ratios would have to be well below 85% to allow some room for countercyclical fiscal policy and a rise in public debt during a recession.

Allowing such headroom, and as an indicative exercise, one can take a benchmark long-term ratio of, say, 50% to be reached by 2050. Using this

<sup>3</sup> See J Suárez, "The Spanish crisis: background and policy challenges", *CEPR Discussion Papers*, no 7909, July 2010.

<sup>4</sup> See also BIS, *81st Annual Report*, June 2011, Chapter II.

<sup>5</sup> Weighted average based on 2005 GDP and PPP exchange rates for the emerging economies listed in footnote 3 of Graph V.1 where estimates are available in IMF Fiscal Affairs Department (2011), *op cit*, and IMF Fiscal Affairs Department (2010), *op cit*.

<sup>6</sup> This is an imperfect proxy measure, since fiscal sustainability also depends on factors not captured by fiscal gaps.

<sup>7</sup> See S Cecchetti, M Mohanty and F Zampolli, "The real effects of debt", *BIS Working Papers*, no 352, September 2011.

## The financial cycle, potential output and cyclically adjusted fiscal balances

The calibration of macroeconomic policies relies on estimates of potential or sustainable output, which allow policymakers to distinguish between cyclical fluctuations and longer-term trends. The difference between actual and potential output is generally termed the “output gap”. Potential output, however, is not directly observable. This box explains how information about the financial cycle can be used to derive such estimates and applies them to the measurement of structural budget balances.

The most common approach for estimating potential output and the corresponding output gap is to extract the long-term trend from actual output using a purely statistical procedure (eg the Hodrick-Prescott (HP) filter). This approach is simple, but does not rely on additional information about economic relationships. Other approaches are more model-based, and differ significantly in terms of the economic information they include. The most common type of information concerns the relationship between economic slack and inflation (the Phillips curve), the basic idea being that inflation varies with the size of the output gap. Some approaches go even further and also include information about the economy's production function.

Existing approaches do not embed information about the financial cycle. There are, however, good reasons to believe that financial market conditions can have a profound effect on output. This is so especially during periods in which credit and asset prices move beyond sustainable ranges, generating financial imbalances. These developments can, for instance, go hand in hand with patterns of investment and consumption that, over time, lead to serious misallocations in output and the capital stock. Such unsustainable booms, while appearing benign in the short term, can undermine sustainable output over the longer term. As they proceed, output moves increasingly beyond sustainable levels.

We address this issue by extending the most widely used statistical approach for estimating potential output (the HP filter) to incorporate information about the financial cycle. To facilitate the exposition, we only consider information from credit aggregates.<sup>①</sup> Specifically, we use the percentage change in inflation-adjusted private sector credit relative to its sample average as a general proxy for financial conditions. We gradually increase the weight on this variable as the credit-to-GDP ratio moves beyond normal historical ranges, thereby signalling unsustainable developments or the build-up of financial imbalances.

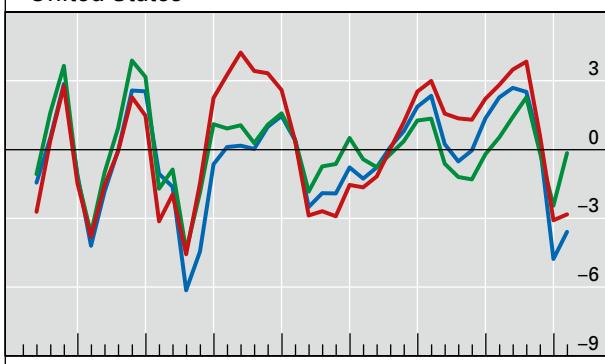
For illustrative purposes, Graph V.A.1 compares the credit-based output gaps for the United States and Spain with those obtained by applying the standard HP filter and those reported by the OECD based on the production function approach. Graph V.A.1 indicates that credit-based estimates of potential output are comparatively much lower during the unsustainable credit booms that preceded the recent financial crises in both countries. By contrast, the different approaches yield very similar results during periods in which credit moved within narrower ranges, thereby playing a less prominent role. This is, for example, the case during the 1970s in the United States – a period of tighter financial market regulation.

To assess the economic significance of the differences between the output gap estimates, we use them to cyclically adjust the government budget balances. Constructing such structural budget balances requires estimates of the elasticity of different tax and government expenditure categories with respect to

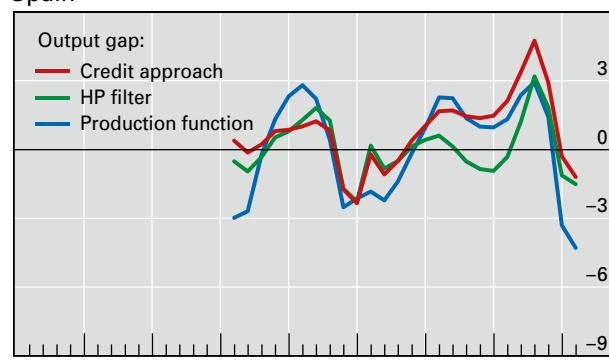
## Different output gap estimates

In percentage points

United States



Spain



Sources: OECD, *Economic Outlook*, November 2011; national data; BIS calculations.

Graph V.A.1

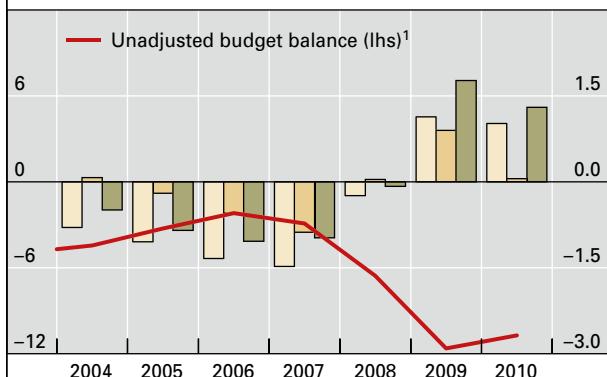
the output gap. For this we use OECD estimates.<sup>②</sup> It should be stressed that we do not correct for the additional effects that asset price booms may have on government revenues. Thus, differences between the cyclically adjusted budget balances reflect solely those in output gap estimates.

Graph V.A.2 shows the unadjusted budget balances for the United States and Spain along with the cyclical corrections implied by the different output gap estimates. In this context, a difference of more than half a percentage point is generally considered to be economically significant. The graph reveals that the difference between the credit-based estimates and the rest is generally of such a magnitude. Moreover, the credit-based cyclically adjusted balances are lowest during unsustainable credit booms, consistent with the view that such booms falsely enhance the fiscal accounts, as subsequent developments have confirmed.

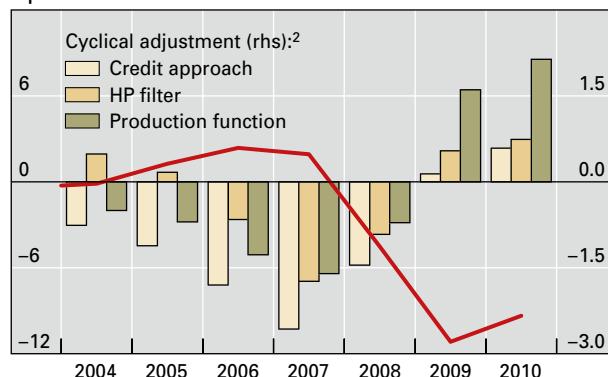
<sup>②</sup> A more elaborate analysis would also include information about asset prices, especially property prices (see Chapter III and M Drehmann, C Borio and K Tsatsaronis, "Characterising the financial cycle: don't lose sight of the medium term!", *BIS Working Papers*, forthcoming). For technical information about the derivation of the estimates, see C Borio, P Disyatat and M Juselius, "Rethinking potential output: embedding information about the financial cycle", *BIS Working Papers*, forthcoming. <sup>③</sup> See N Girouard and C André, "Measuring cyclically adjusted budget balances for OECD countries", *OECD Economics Department Working Papers*, no 434, 2005.

## Budget balances and cyclical adjustments

United States



Spain



<sup>1</sup> As a percentage of GDP. <sup>2</sup> Cyclical correction to the unadjusted budget balance implied by the different output gap estimates; in percentage points.

Sources: OECD, *Economic Outlook*, November 2011; BIS calculations.

Graph V.A.2

figure as a rough guide would indicate that, accounting for projected increases in public spending on pensions and health care, most advanced economies would need to improve their cyclically adjusted primary balances immediately by 3% of GDP or more, compared with their projected levels for 2012,<sup>8</sup> according to OECD estimates (Table V.1).<sup>9</sup> In 2012, this measure of the fiscal gap is particularly large – above 8% of GDP – for Ireland, Japan, the United Kingdom and the United States. Fiscal gaps for Canada, France and the Netherlands are not much lower, ranging between 5.4% and 6.3% of GDP. The current fiscal gaps for Greece, Italy and Portugal are smaller, ranging from 2.6% to 3.3% of GDP, mainly due to larger cyclically adjusted primary

<sup>8</sup> Based on projections made in 2011.

<sup>9</sup> See OECD, "Fiscal consolidation: how much is needed to reduce debt to a prudent level?", *OECD Economics Department Policy Notes*, no 11, April 2012, and R Merola and D Sutherland, "Fiscal consolidation: Part 3. Long-run projections and fiscal gap calculations", *OECD Economics Department Working Papers*, no 934, January 2012, including for details of the assumptions underlying the projections.

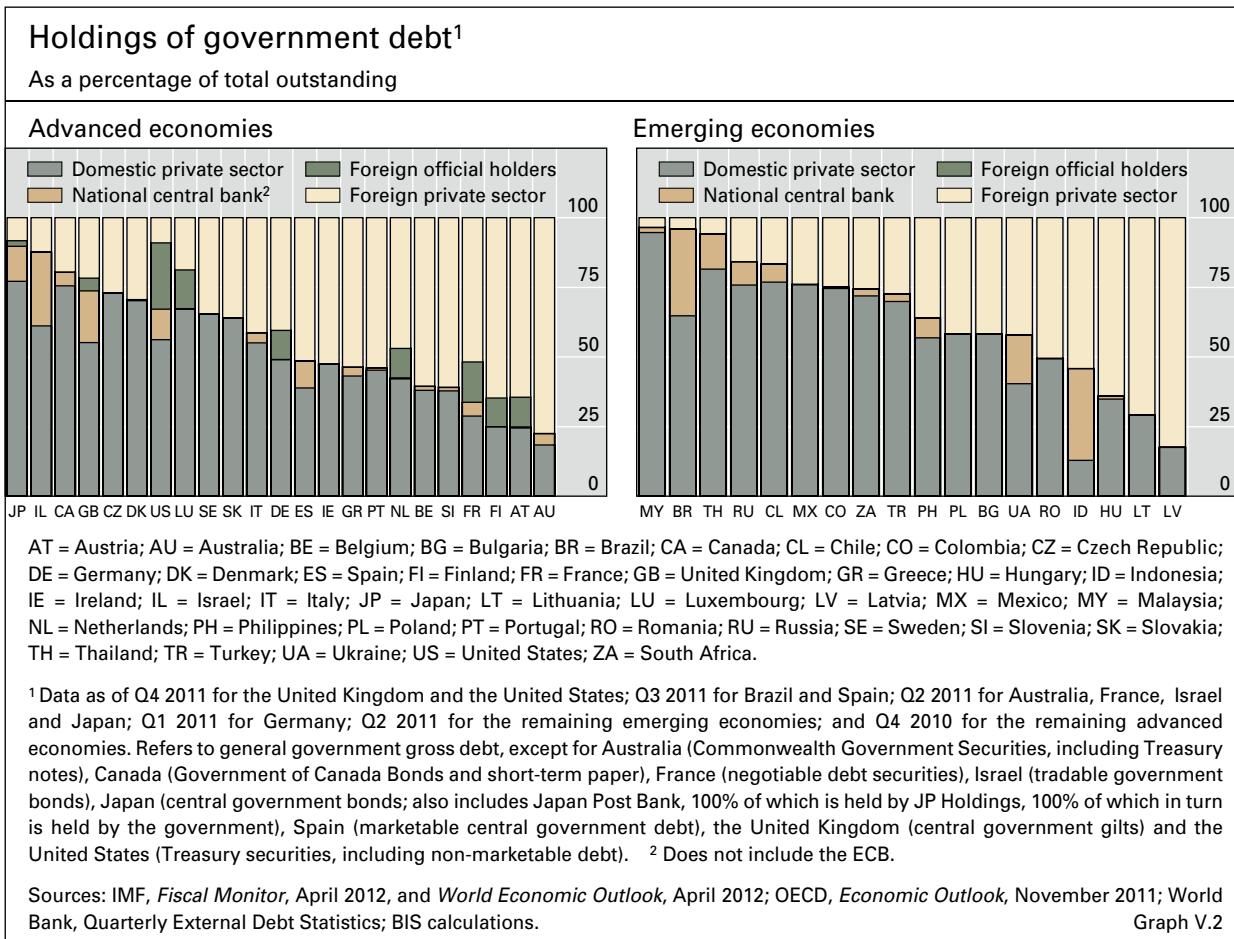
surpluses as a share of GDP projected for 2012 as a result of their recent fiscal consolidation efforts. Sweden is the only country in the sample that does not need to make an adjustment according to this measure. The large fiscal gaps for many advanced economies show that they will need to make sizeable adjustments to their government budgets in order to restore fiscal sustainability.

The vulnerability of fiscal positions depends not only on fiscal and macroeconomic long-term trends, but also on the distribution of government bond holdings (Graph V.2). Other things being equal, a higher share of domestic bond holdings, as in Brazil and Japan, can temporarily support higher

| Development of fiscal gaps |                          |      |   |                |      |                            |
|----------------------------|--------------------------|------|---|----------------|------|----------------------------|
|                            | Fiscal gaps <sup>1</sup> |      | Decomposition of changes in fiscal gaps, 2007–12 <sup>2</sup> |                |      | Change in interest on debt |
|                            | 2007 <sup>3</sup>        | 2012 | Change in underlying primary balance                          | Change in debt |      |                            |
| Japan                      | 7.4                      | 12.2 | 2.6   | 1.7            | 0.4  |                            |
| New Zealand                | 3.2                      | 9.6  | 5.5   | 0.8            | 0.1  |                            |
| United States              | 3.8                      | 9.4  | 5.0   | 1.2            | -0.5 |                            |
| Luxembourg                 | 9.3                      | 9.3  | 0.0   | 0.0            | 0.0  |                            |
| Ireland                    | 3.1                      | 8.6  | 2.3   | 2.3            | 1.0  |                            |
| United Kingdom             | 6.5                      | 8.5  | 1.9   | 1.2            | -1.1 |                            |
| Netherlands                | 5.4                      | 6.3  | 1.0   | 0.3            | -0.4 |                            |
| Belgium                    | 4.6                      | 6.0  | 1.5   | 0.3            | -0.4 |                            |
| Finland                    | 3.8                      | 5.7  | 1.4   | 0.4            | 0.1  |                            |
| Canada                     | 3.5                      | 5.5  | 2.5   | 0.4            | -0.9 |                            |
| France                     | 4.8                      | 5.4  | 0.3   | 0.9            | -0.5 |                            |
| Slovakia                   | 4.9                      | 5.2  | -0.8  | 0.7            | 0.4  |                            |
| Germany                    | 4.1                      | 4.8  | 1.2   | -0.1           | -0.4 |                            |
| Poland                     | 1.9                      | 4.7  | 1.7   | 0.6            | 0.5  |                            |
| Austria                    | 3.5                      | 4.6  | 0.9   | 0.5            | -0.3 |                            |
| Czech Republic             | 5.0                      | 4.6  | -1.2  | 0.7            | 0.1  |                            |
| Korea                      | 4.3                      | 4.3  | 0.0   | 0.0            | 0.0  |                            |
| Spain                      | 3.1                      | 4.2  | 0.7   | 0.7            | -0.3 |                            |
| Hungary                    | 6.6                      | 3.5  | -3.1  | 0.1            | -0.1 |                            |
| Greece                     | 7.8                      | 3.3  | -6.3  | 1.4            | 0.4  |                            |
| Australia                  | 2.4                      | 3.2  | 0.5   | 0.5            | -0.2 |                            |
| Portugal                   | 4.2                      | 3.0  | -1.9  | 0.5            | 0.2  |                            |
| Italy                      | 3.7                      | 2.6  | -1.0  | 0.1            | -0.3 |                            |
| Switzerland                | 2.2                      | 2.2  | 0.0   | 0.0            | 0.0  |                            |
| Denmark                    | 1.7                      | 2.0  | 0.1   | 0.1            | 0.1  |                            |
| Sweden                     | 0.0                      | 0.0  | 0.0   | 0.0            | 0.0  |                            |

<sup>1</sup> Immediate rise in the underlying primary balance as a percentage of GDP needed to bring gross financial liabilities to 50% of GDP in 2050; includes health care and long-term care costs and projected increases in pension spending. <sup>2</sup> The contribution of changes is evaluated as the difference from the fiscal gaps in a baseline simulation where spending on pensions, health care and long-term care is assumed to remain constant as a share of GDP. A negative contribution implies that the underlying fiscal position improved or the interest rate paid on government debt fell between 2007 and that projected for 2012. <sup>3</sup> The implied fiscal gap considers the impact of the prevailing underlying fiscal position, debt levels and interest rates in 2007 on the 2012 fiscal gap.

Source: OECD, "Fiscal consolidation: how much is needed to reduce debt to a prudent level?", *OECD Economics Department Policy Notes*, no 11, April 2012.



debt-to-GDP ratios: there is a lower probability of a serious impact from foreign capital flight, and interest payments are a smaller drag on domestic income. In addition, a higher proportion of foreign official investors for a given share of foreign government debt holdings, as in the United States, may point to more stable government borrowing costs since foreign official holders are less likely to react to short-run macroeconomic news or sudden spikes in global risk aversion.

Net international investment positions can also influence fiscal sustainability. The countries most affected by the euro area sovereign debt crisis have large negative net international investment positions relative to GDP. At the end of 2011, the country with the most negative such position was Portugal, at -108% of GDP, followed by Ireland (-95%), Spain (-86%) and Greece (-73%). By contrast, the large positive net international investment position of Japan (51%) helps to lessen the vulnerability of its fiscal position, even though its government debt-to-GDP ratio stood at 212% in 2011.

#### *The impact of the financial crisis on fiscal positions*

The financial crisis caused significant deterioration in the state of public finances in advanced economies. Virtually all governments in the developed world became much more indebted than they had been in 2007 (Graph V.1). And even though their public debt levels did not go up as much, EMEs were not spared either.

We can assess the marginal impact of the financial crisis and its aftermath on the sustainability of public finances by examining how fiscal gaps evolved. In several large advanced economies (eg Japan, the United Kingdom and the United States), fiscal gaps rose substantially due to swelling of fiscal deficits and debt triggered by the crisis (Table V.1). Ireland and Spain also saw their fiscal gaps widen between 2007 and 2012, despite their recent fiscal consolidation efforts. In both instances, the increases were driven in roughly equal measure by rises in government debt and in cyclically adjusted primary fiscal deficits.

Several factors drove the large fiscal deficits that governments ran in response to the crisis. The non-discretionary portions of government budgets shrank as tax revenues fell and automatic spending rose. Many governments implemented substantial fiscal stimulus packages to combat the slowdown in macroeconomic activity. In the immediate aftermath of the crisis, many sovereigns also provided support to financial institutions headquartered in their jurisdictions in the form of asset purchase programmes, direct equity injections and debt guarantees. The financial support programmes were often sizeable, with upfront costs reaching up to 55% of GDP.<sup>10</sup> And, as discussed above, in countries that had experienced credit and asset price booms prior to the crisis, tax revenues shrank much more than they would have as a result of a cyclical decline in macroeconomic activity.

#### *The impact of deteriorating sovereign health on the financial system*

The crisis has triggered an adverse feedback loop between bank risk and sovereign risk. Financial system weakness has hurt public finances while the deterioration in sovereigns' perceived creditworthiness has damaged the health of financial institutions.

The decline in sovereigns' perceived creditworthiness has affected the financial sector through several channels.<sup>11</sup> It has depressed the market value of banks' holdings of government debt and reduced the availability of high-quality collateral. This has adversely affected banks' funding conditions (as discussed in the next section and Chapter VI). Furthermore, the decline in the perceived ability of the sovereign to provide a backstop to the financial system has led to increases in the borrowing costs of financial institutions. This link has been most obvious in Greece, Italy, Portugal and Spain, where the lessening of perceived official support for banks over the past year has led to a fall in their all-in ratings.<sup>12</sup> Finally, as sovereigns have lost their perceived risk-free status, government debt has become a closer substitute for bank debt in investors' portfolios, raising the risk of crowding it out. Even though this effect applies to all private borrowers, it affects banks more given their sizeable funding needs.

<sup>10</sup> 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.

<sup>11</sup> See Committee on the Global Financial System, "The impact of sovereign credit risk on bank funding conditions", *CGFS Publications*, no 43, July 2011, for further discussion.

<sup>12</sup> See N Tarashev, "Different causes for recent bank downgrades", *BIS Quarterly Review*, December 2011, pp 8–9.

Market prices clearly reflect the heightened risk of such a negative feedback loop. Correlations between bank and sovereign CDS spreads have risen considerably since the start of 2010. This is true not only for bank/sovereign CDS correlations within the same country, but also for many cross-country bank/sovereign pairs. For example, the correlation coefficient between daily changes in French bank and sovereign CDS spreads rose from 0.38 in 2008–09 to 0.79 in 2010–11. Over the same period, bank/sovereign CDS spread correlation coefficients also increased in Germany (0.33 to 0.66), Italy (0.53 to 0.78), Spain (0.38 to 0.71) and the United Kingdom (0.34 to 0.71).

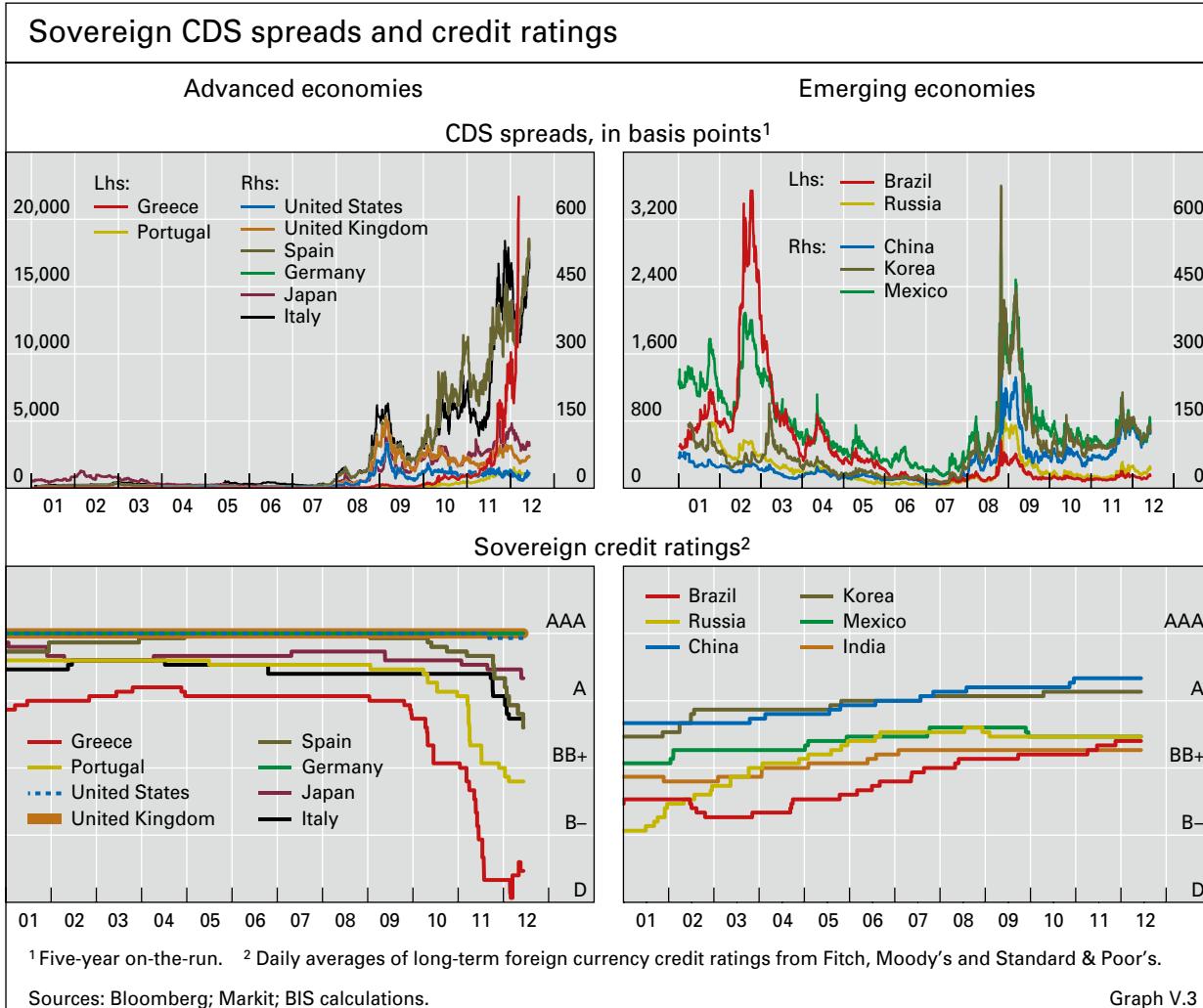
#### *Reactions to the deteriorating fiscal health of sovereigns*

The long-term borrowing costs of many, but not all, governments in advanced economies have risen considerably over the past couple of years. Concern about sovereigns' creditworthiness has been particularly strong in some euro area countries. Ten-year government bond yields in Greece, Ireland and Portugal increased strongly during 2010. Greek and Portuguese yields surged in 2011 and ended the year at 35.0% and 13.4%, respectively. After being virtually shut out of markets, each of the three governments concerned asked for official assistance. The long-term borrowing costs of Italy and Spain, whose joint government debt in 2011 amounted to around EUR 2.7 trillion, rose to 5.9% and 6.6%, respectively, by end-May 2012. However, 10-year German, Japanese and US government bond yields fell to 1.2%, 0.8% and 1.6%, respectively, by end-May 2012 as a result of a flight to safety.

As reflected in the prices of credit derivatives, the increase in sovereign credit risk was even more widespread. The sovereign CDS spreads of many advanced economies reached unprecedented levels towards the end of 2011 and, despite declining somewhat in early 2012, remain very high (Graph V.3, top left-hand panel). Even debt markets that benefited from a flight to safety and a decline in borrowing costs saw their sovereign CDS spreads rise.

The erosion of advanced economies' perceived creditworthiness also resulted in widespread credit rating downgrades (Graph V.3, bottom left-hand panel). Even the United States, the issuer of the world's most widely held international reserve currency, saw Standard & Poor's cut its sovereign credit rating in August 2011, as the Congressional Joint Committee on Deficit Reduction failed to reach agreement on a firm medium-term debt reduction strategy. As with market prices, the downgrades may have reflected not only the crisis-induced deterioration in public finances, but also a reappraisal of sovereign risk, with what had been regarded as sustainable before the crisis being judged as more risky.

Markets and credit rating agencies have been more positive about emerging economies. The sovereign CDS spreads of major EMEs were relatively stable over the past couple of years and, despite rising in the second half of 2011, remained well below their 2008–09 peaks (Graph V.3, top right-hand panel). Furthermore, emerging economies' credit ratings have trended upwards over the past decade, leading to some convergence with those of advanced economies (Graph V.3, bottom right-hand panel). Nevertheless, the picture is not uniform. The credit ratings of some smaller emerging market

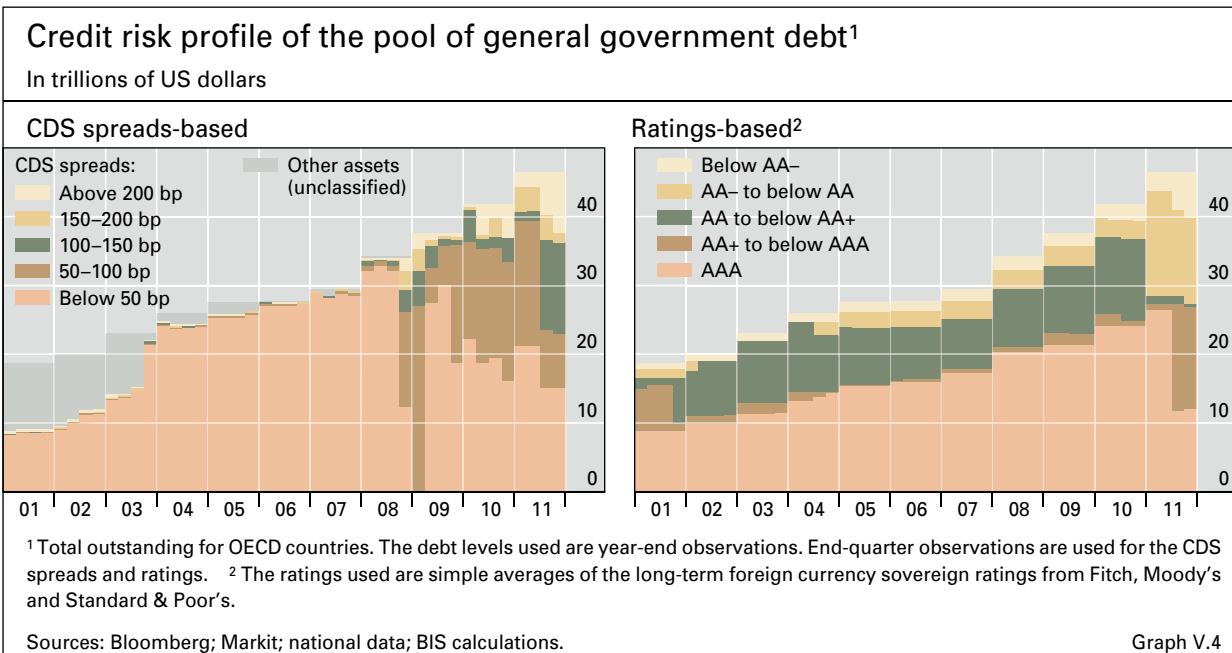


economies were downgraded over the past few years. For others, credit ratings and borrowing costs remained virtually unchanged despite rapid economic growth. Finally, for many countries in emerging Asia, credit ratings are currently lower than prior to the 1997 Asian financial crisis.

### Implications of sovereigns' loss of risk-free status

The deterioration in sovereign creditworthiness has significant undesirable effects. It undermines financial stability and the credibility of macroeconomic policies, and it increases private sector borrowing costs.

Sovereigns' loss of risk-free status undermines financial stability. Governments whose debt is risky cannot provide a reliable backstop for the financial system – the ultimate anchor of stability. Moreover, risk-averse private agents and financial intermediaries are deprived of a valuable and stabilising wealth preservation option at times of stress, including in the form of collateral. Indeed, the credit risk profile of the global pool of government bonds has deteriorated significantly, as indicated by both CDS spreads (Graph V.4, left-hand panel) and credit ratings (right-hand panel). As a result, the global pool of "safe" government bonds has shrunk just as demand has risen due to a flight



to safety, leading to a major shortage of safe assets in the global financial system.

The increased riskiness of sovereign debt weakens macroeconomic stability also through its effect on fiscal and monetary policy. It reduces the scope for implementing stabilising countercyclical fiscal policies. And it can undermine the credibility of monetary policy by raising concerns about fiscal dominance and monetisation of government debt.<sup>13</sup> This could unanchor inflation expectations and destabilise the macroeconomy.

Finally, the deterioration in the perceived creditworthiness of a sovereign raises the funding costs of virtually all private borrowers in its jurisdiction. The interest rates on government bonds set an effective floor on the borrowing costs of the majority of such borrowers.<sup>14</sup> They are also highly correlated with those costs (Graph V.5), especially during crises.<sup>15</sup>

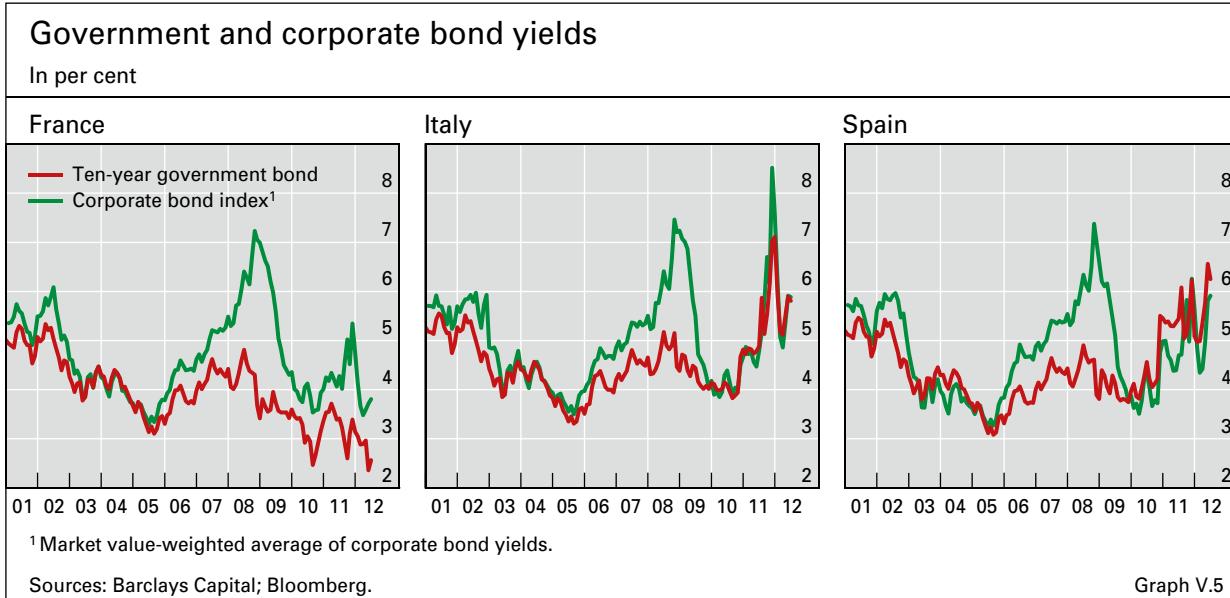
### How can sovereigns become risk-free again?

Governments in many advanced economies will have to significantly improve their fiscal balances to put their finances on a sustainable path and restore confidence in their fiscal positions. This is a prerequisite for a return to sustainable growth. It will require implementing effective fiscal consolidation and breaking the adverse feedback loop between bank and sovereign risk.

<sup>13</sup> See also BIS, "Threat of fiscal dominance?", *BIS Papers*, no 65, May 2012.

<sup>14</sup> The few exceptions typically include large multinational corporations whose revenues and operations are diversified internationally.

<sup>15</sup> See G Corsetti, K Kuester, A Meier and J Mueller, "Sovereign risk, fiscal policy, and macroeconomic stability", *IMF Working Papers*, no 12/33, January 2012.



Fiscal consolidation has started in a number of advanced economies (see Chapter II), but more needs to be done. According to OECD estimates, cyclically adjusted primary fiscal deficits as a percentage of GDP in advanced economies fell to an average of 4.1% in 2011, and are expected to decrease further to 3.1% in 2012 and 2.1% in 2013. The ratio was smaller on average in emerging economies in 2011 and is expected to decline only slightly in the next two years.<sup>16</sup> Nevertheless, many of the countries that implemented deficit reduction measures were not able to meet their headline deficit-to-GDP targets. This reflected a combination of weaker than expected growth and larger than expected deficits.

Financial markets can both help and hinder the return to fiscal sustainability. On the one hand, market discipline can provide incentives for fiscal consolidation. On the other, financial markets can remain complacent about fiscal problems for too long and react too late. Policymakers should therefore not wait for market signals to emerge in order to engage in fiscal consolidation.

Governments should implement pension and health care reforms now. Doing so would reduce the long-term contingent liabilities of the government and bolster confidence in the long-term sustainability of public finances.

In many advanced economies, large adjustments in government budgets and deep reform of the public sector are needed to restore fiscal sustainability. The specific timing and intensity of these measures will inevitably depend on country-specific conditions. But delaying fiscal consolidation could weaken confidence, leading to higher borrowing costs. For some countries, confidence in the sustainability of public finances has eroded so much that immediate fiscal consolidation is the only viable policy option. In those cases, it is

<sup>16</sup> See IMF, *Fiscal Monitor*, April 2012.

necessary to provide a boost to confidence, which is crucial for reviving economic growth.

Policy recommendations differ as to the best timing of fiscal consolidation. These differences partly reflect the uncertain size of fiscal multipliers, which may depend on the state of the economy and the constraints on monetary policy. Recent work suggests that fiscal multipliers may be larger when output gaps are negative and monetary policy is constrained by the zero lower bound, as is currently the case in major advanced economies.<sup>17</sup> That said, fiscal multipliers in a balance sheet recession may be lower than in normal recessions. In particular, in a balance sheet recession, overly indebted agents – these days, households typically – are likely to allocate a higher fraction of each additional unit of income to reducing their debt rather than increasing discretionary spending.

This also suggests that fiscal consolidation should factor in the potential use of the available fiscal space to support balance sheet repair of the financial and non-financial sectors where necessary. In countries where private sector balance sheet repair is an issue, fiscal space should be made available to address it, without prejudice to overall fiscal consolidation and debt reduction (see Chapters III and VI).

It is important for policymakers to manage the expectations of economic agents and financial markets by encouraging them to look beyond the very short term. This means communicating clearly about the likely impact of planned fiscal consolidation measures at various horizons. Research suggests that the adverse impact of fiscal tightening on economic activity is temporary.<sup>18</sup>

Increasing the flexibility of the economy can dampen any short-run adverse effects on output and quicken the return to longer-term sustainable growth. Structural policies, including product and labour market reform, are especially important. They can facilitate the reallocation of resources, support competitiveness and boost productivity growth.

Longer-term, policymakers need to take measures to break the feedback loop between financial sector and sovereign risk. One key step is encouraging banks to build capital and liquidity buffers – a priority of the regulatory reforms under way (see Chapter VI) – which would reduce the probability that governments would have to bail them out again. Another is for governments to be especially prudent in good times, building appropriate fiscal buffers, to be able to provide support for the financial system if needed without denting their creditworthiness (see the previous section). Finally, the risk weights for government debt held by banks should be based on a realistic assessment of sovereign credit risk, as encouraged by the internal ratings-based (IRB)

<sup>17</sup> See A Baum, M Poplawski-Ribeiro and A Weber, "Fiscal multipliers and the state of the economy", *IMF Working Papers*, forthcoming; J DeLong and L Summers, "Fiscal policy in a depressed economy", March 2012, mimeo; and R Barrell, D Holland and I Hurst, "Fiscal consolidation: Part 2. Fiscal multipliers and fiscal consolidations", *OECD Economics Department Working Papers*, no 933, February 2012.

<sup>18</sup> See K Clinton, M Kumhof, D Laxton and S Mursula, "Budget consolidation: short-term pain and long-term gain", *IMF Working Papers*, no 10/163, July 2010; C Freedman, M Kumhof, D Laxton, D Muir and S Mursula, "Global effects of fiscal stimulus during the crisis", *Journal of Monetary Economics*, vol 57, no 5, 2010; and IMF, *World Economic Outlook*, October 2010, Chapter 3.

approach of the Basel standards. This would discourage banks from concentrating their portfolios excessively in sovereign bonds. In contrast to the spirit of the approach, many banks and supervisors have assigned zero risk weights to domestic government bonds, increasing the incentive to hold such assets.<sup>19</sup>

Countries less affected by the financial crisis, including many emerging market economies, could take the opportunity to put their public finances on a path that is sustainable in the long term. This would better prepare them to deal with increases in public spending on pensions and health care due to ageing populations and provide more room for countercyclical fiscal policy in the future.

### Summing up

Sovereigns have been losing their risk-free status at an alarming rate. Fiscal positions were already unsustainable in many advanced economies before the financial crisis, which in turn led to significant further weakening. The deterioration of public finances has undermined financial stability, lowered the credibility of fiscal and monetary policy, impaired the functioning of financial markets, and increased private sector borrowing costs. Restoring sustainable fiscal positions will require implementing effective fiscal consolidation, promoting long-term growth, and breaking the adverse feedback loop between bank and sovereign risk.

<sup>19</sup> For example, an EU directive stipulates such a zero risk weight on member countries' government bonds denominated and funded in the domestic currency of the country. See also H Hannoun, "Sovereign risk in bank regulation and supervision: where do we stand?", speech delivered at the Financial Stability Institute High-Level Meeting, Abu Dhabi, United Arab Emirates, 26 October 2011.

## 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.

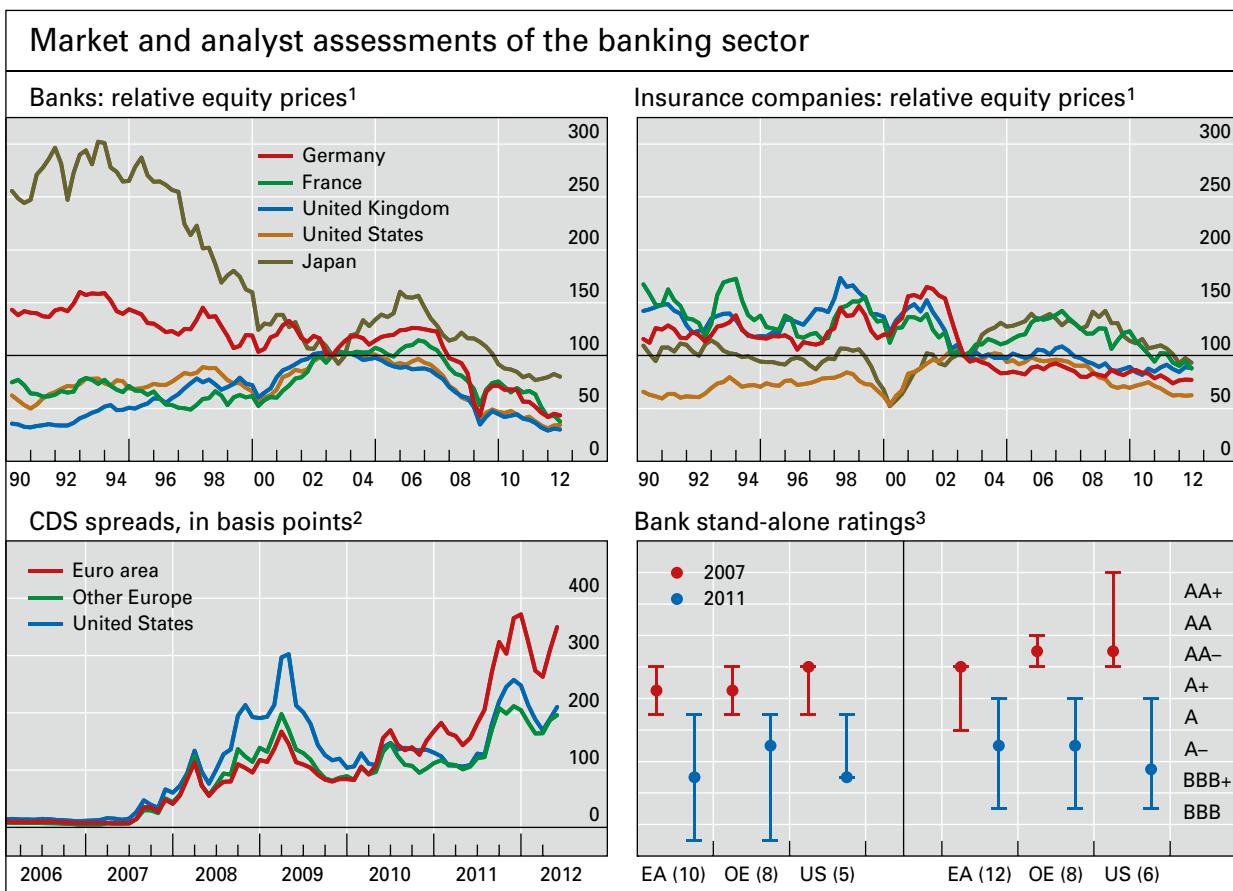
## Market assessments of the banking sector

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



<sup>1</sup> Ratio to broad equity index; quarterly averages, 2003 average = 100. <sup>2</sup> Asset-weighted averages. The sample comprises 25 euro area, 12 other European and 15 US banks. <sup>3</sup> 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.<sup>1</sup> 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

<sup>1</sup> 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.

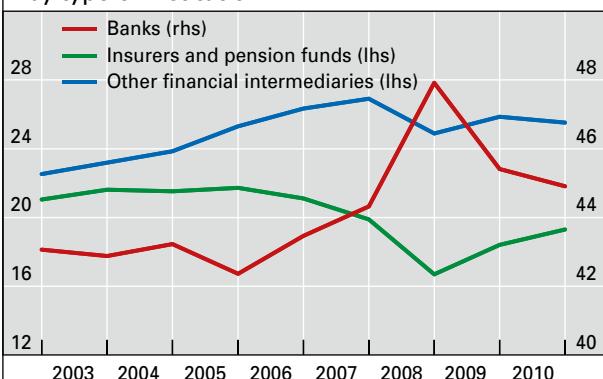
Shadow banking activity can amplify financial cycles since it tends to grow during booms and contract during busts. Such was the role of this activity in the global financial crisis as well as in the crises in Sweden and Japan in the 1990s. At present, intermediation by shadow banks in China is reportedly 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.<sup>①</sup> 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

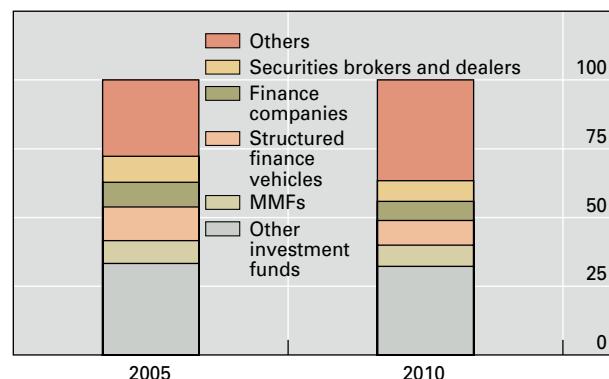
### The shadow banking system: size and composition<sup>1</sup>

In per cent

Share of financial system assets,  
by type of institution<sup>2</sup>



Assets of non-bank financial intermediaries<sup>3</sup>



<sup>1</sup> The sample comprises institutions in Australia, Canada, France, Germany, Italy, Japan, Korea, the Netherlands, Spain, the United Kingdom and the United States. <sup>2</sup> Figures do not add up to 100% because other categories are not shown. <sup>3</sup> 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.<sup>②</sup> 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.

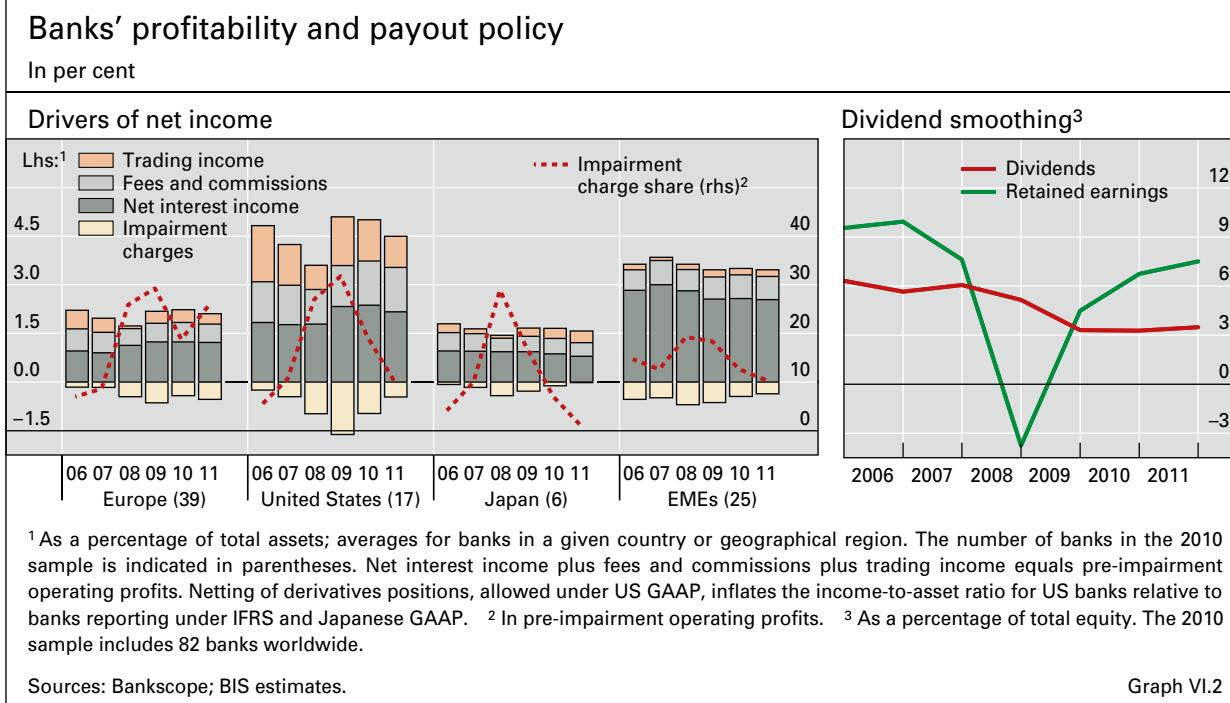
The risk of runs on MMFs by uninsured investors reflects the underlying mismatch between the liquidity of fund assets, which are generally short-term but have varying degrees of liquidity, and fund liabilities, which are highly liquid as most funds promise redemption on demand. In an attempt to address 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.

<sup>①</sup> "Other financial intermediaries" are those not classified as banks, insurers, pension funds or public financial institutions in flow of funds statistics. <sup>②</sup> 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).



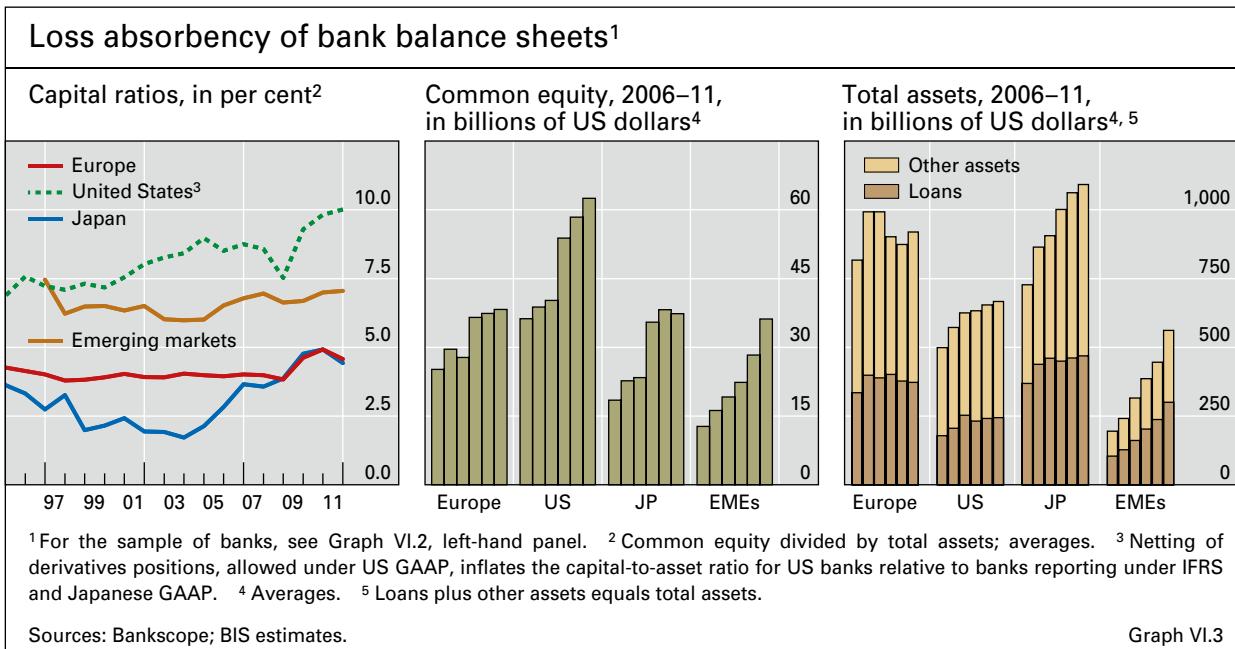
### Efforts to strengthen balance sheets

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.



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.

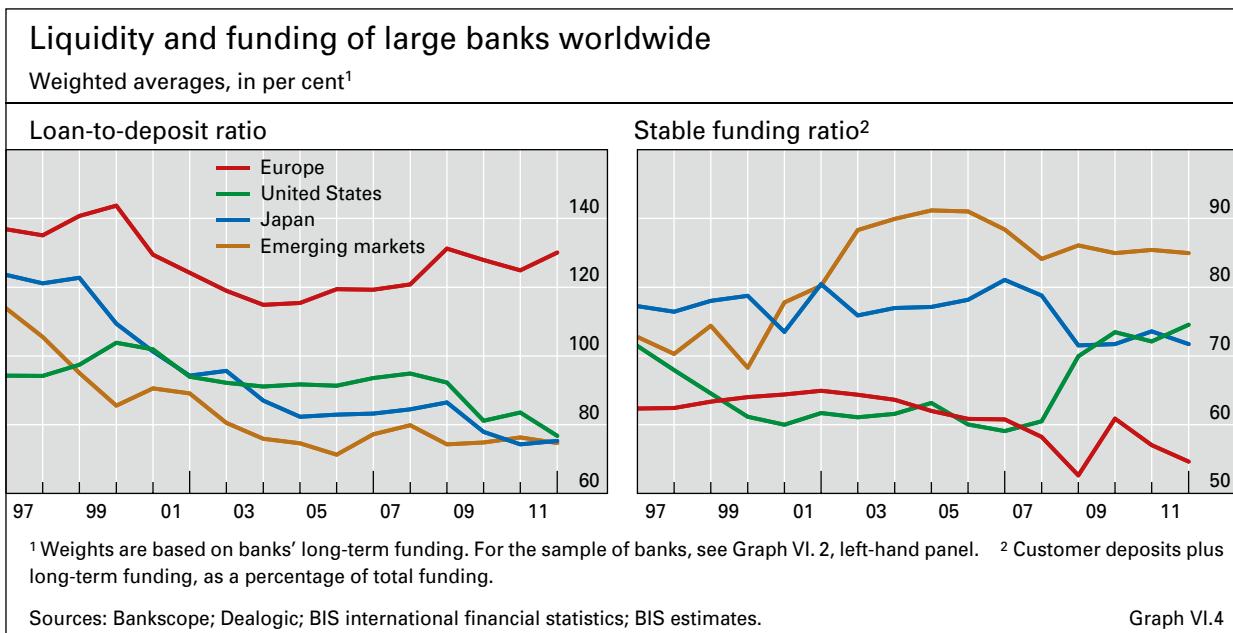
Going forward, regulators will encourage large banks to use a wider range of instruments, such as convertible bonds, in managing their capital base. These include bail-in bonds, which protect depositors and taxpayers by absorbing losses if a bank fails, and contingent convertible instruments (cocos), 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.

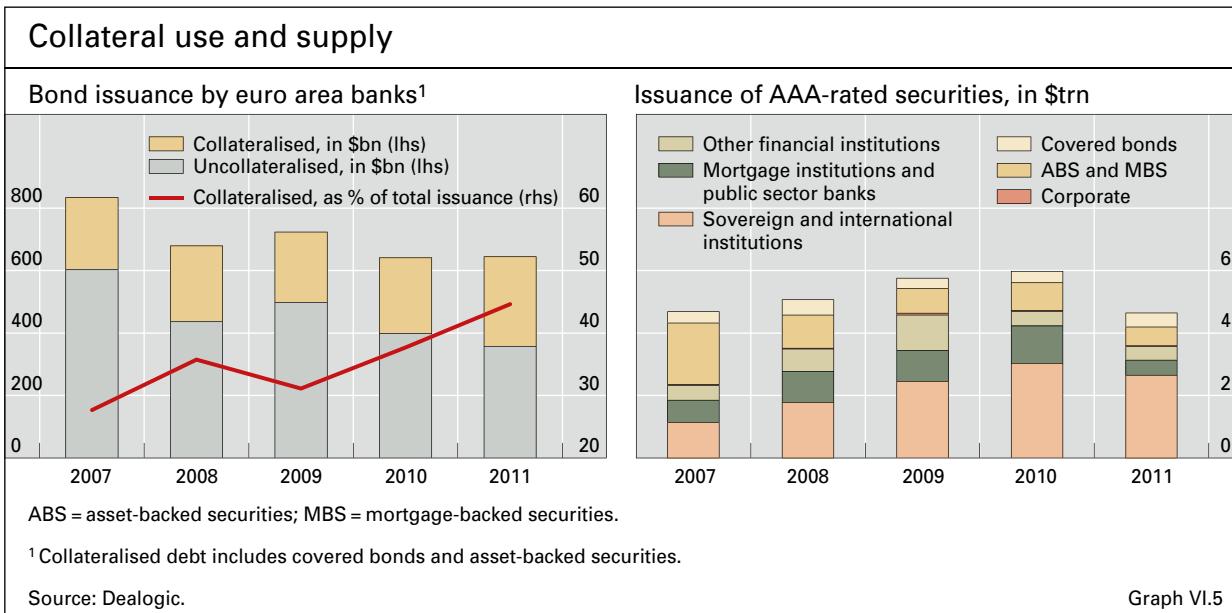
### Liquidity positions

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.<sup>2</sup> 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.



<sup>2</sup> Basel Committee on Banking Supervision, *Results of the Basel III monitoring exercise as of June 2011*, April 2012.



### Asset encumbrance

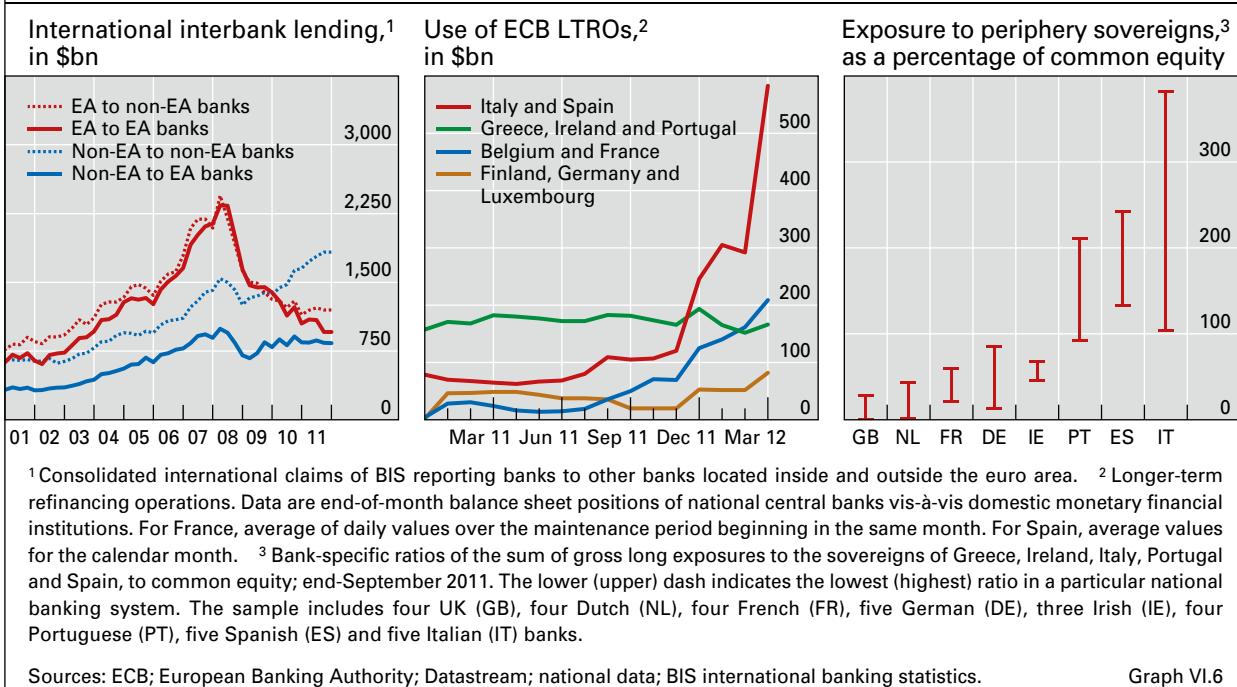
A crisis of confidence in funding markets has led banks to pledge an increasing proportion of their assets as collateral for new debt issues. European banks in particular have thereby offered more protection to creditors unnerved by these banks' legacy assets and exposures to troubled sovereigns (Graph 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



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.<sup>3</sup>

### 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).

<sup>3</sup> 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).<sup>4</sup>

<sup>4</sup> 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.

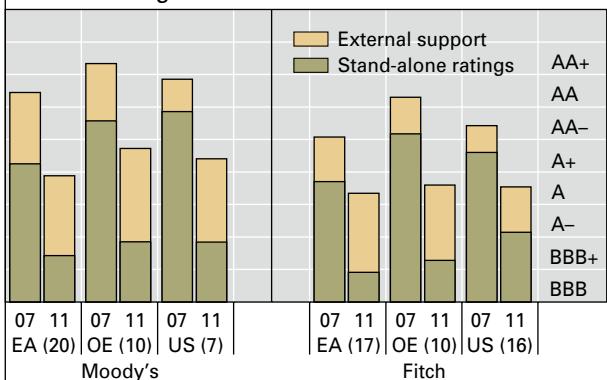
#### *Official support*

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.

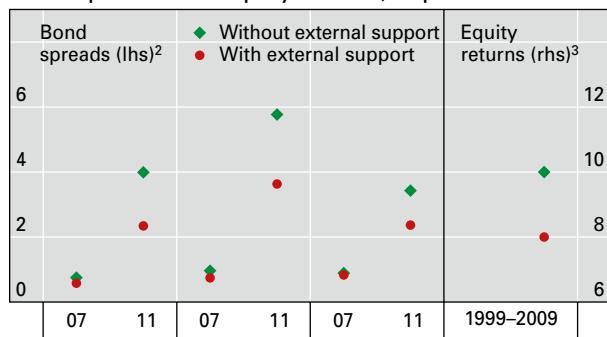
Rating agencies assess the extent to which official support enhances banks' creditworthiness, which in turn lowers banks' funding costs. Investors in bank bonds are not directly exposed to borrowers' inherent riskiness, which is reflected in stand-alone ratings (Graph VI.1, bottom right-hand panel),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

## Impact of official support on credit and equity markets

### Credit ratings<sup>1</sup>



### Bond spreads and equity returns, in per cent



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

<sup>1</sup> 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. <sup>2</sup> 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. <sup>3</sup> 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.<sup>5</sup> 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.

<sup>5</sup> 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.<sup>①</sup> 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.<sup>②</sup> 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.

<sup>①</sup> See Basel Committee on Banking Supervision, *Basel III: A global regulatory framework for more resilient banks and banking systems*, Basel, June 2011. <sup>②</sup> 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

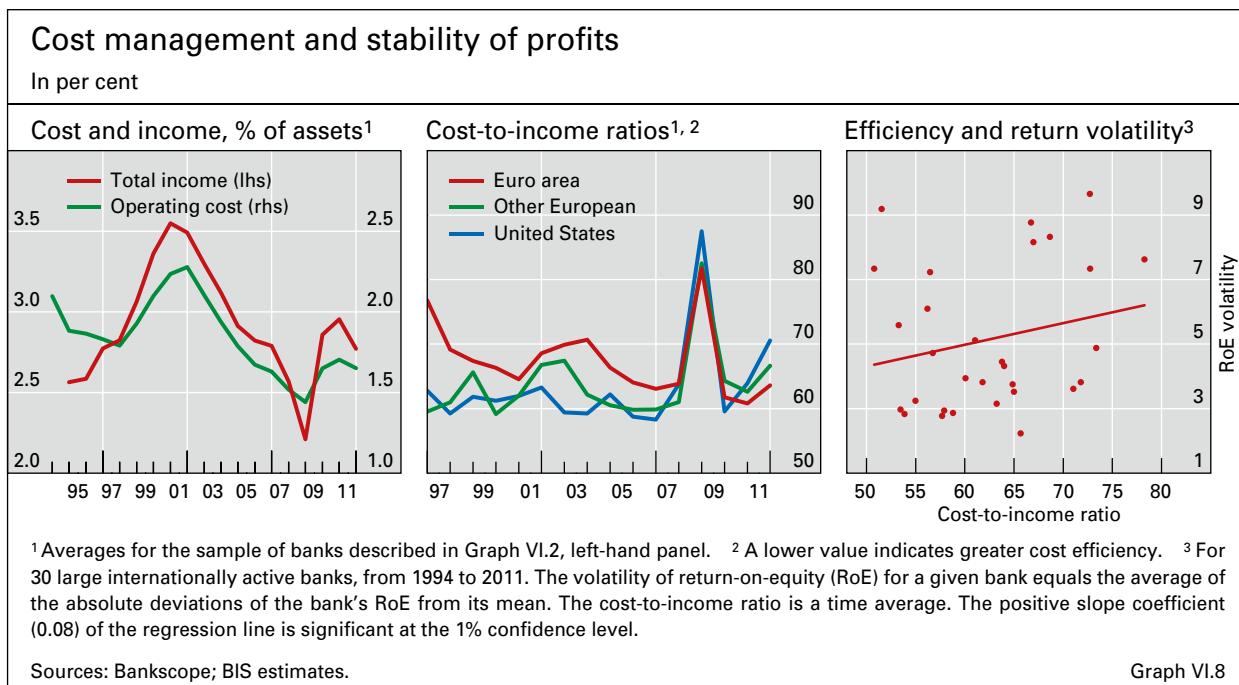
|                         | Basel III |                                  |                        |                             |                    | Basel II |
|-------------------------|-----------|----------------------------------|------------------------|-----------------------------|--------------------|----------|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

<sup>1</sup> Buffer that restricts distributions if the capital ratio falls below 7%. <sup>2</sup> 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. <sup>3</sup> 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. <sup>4</sup> 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.<sup>6</sup> 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).



<sup>6</sup> 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.<sup>7</sup> 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.<sup>8</sup>

### *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 <sup>1</sup> |                 |      |       |                     |      |      |                      |      |      |                              |      |      |
|---|-----------------|------|-------|---------------------|------|------|----------------------|------|------|------------------------------|------|------|
|   | Pre-tax profits |      |       | Net interest margin |      |      | Loan loss provisions |      |      | Operating costs <sup>2</sup> |      |      |
|   | 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 |

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

Source: Bankscope.

Table VI.1

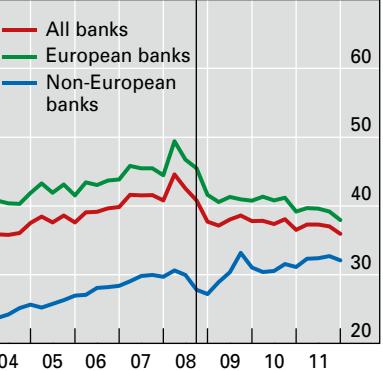
<sup>7</sup> See C Borio, B Vale and G von Peter, "Resolving the financial crisis: are we heeding the lessons from the Nordics?", *BIS Working Papers*, no 311, June 2010.

<sup>8</sup> 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.

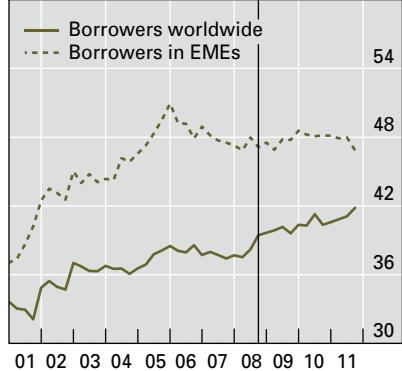
## International banking before and after the crisis

In per cent

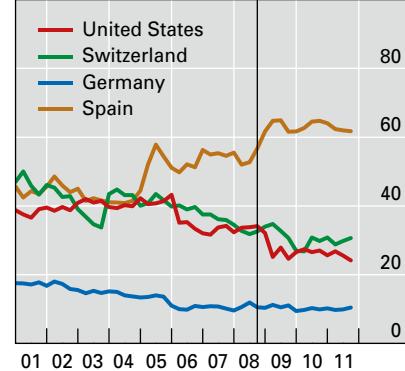
Ratio of foreign to total assets<sup>1</sup>



Ratio of local to foreign assets<sup>2</sup>



Local share, by banking system<sup>3</sup>



The vertical lines indicate end-Q3 2008.

<sup>1</sup> 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. <sup>2</sup> BIS reporting banks' local claims in local currencies as a percentage of total foreign claims. <sup>3</sup> 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.<sup>①</sup>

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.<sup>②</sup> 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*,

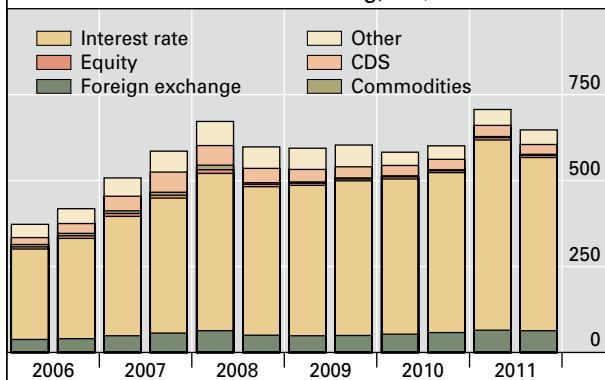
published in April 2012, aim to provide these standards. They offer guidelines for ensuring that CCPs are strongly capitalised, maintain explicit support agreements with their members and conform to strict international standards for risk management.

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.

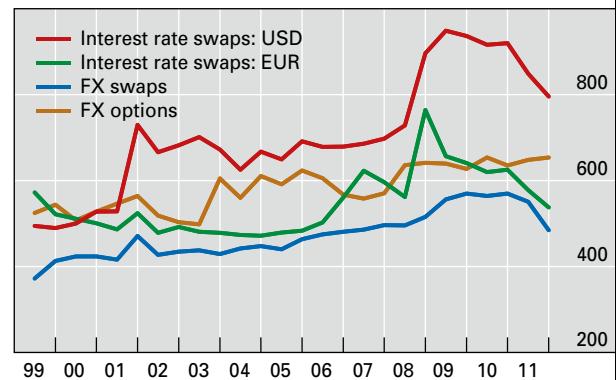
<sup>①</sup> For more information, see CPSS-IOSCO, *Principles for financial market infrastructures*, April 2012. <sup>②</sup> Up to end-2011, progress was uneven across markets. Roughly half of conventional swaps and overnight index swap (OIS) contracts were centrally cleared, but only about one in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

## Global OTC derivatives

Notional amounts outstanding, in \$trn<sup>1</sup>



Herfindahl indices of selected OTC markets<sup>2</sup>



<sup>1</sup> By data type and market risk category. <sup>2</sup> 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.

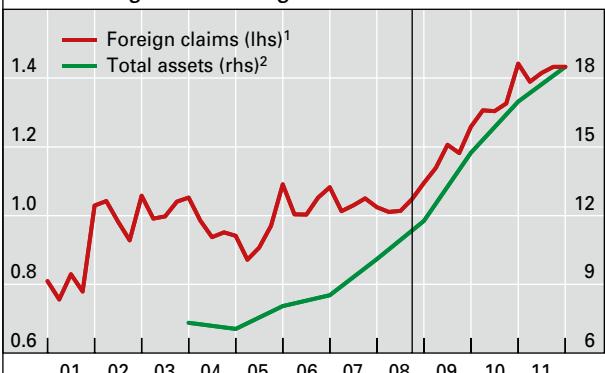
Sources: Central banks of the G10 countries, Australia and Spain; BIS international banking statistics.

Graph VI.C

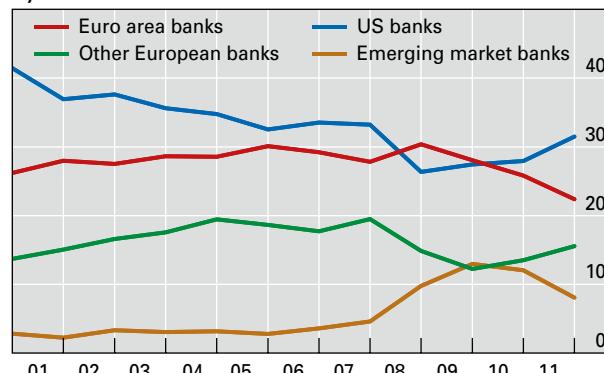
These differences in the degree to which banks have pulled back from foreign markets since the onset of the crisis reflect in part differences across funding models (Graph VI.9). Persistent differences between these models left some banks more vulnerable than others to the disruptions in global funding 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<sup>3</sup>



<sup>1</sup>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. <sup>2</sup>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. <sup>3</sup>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.







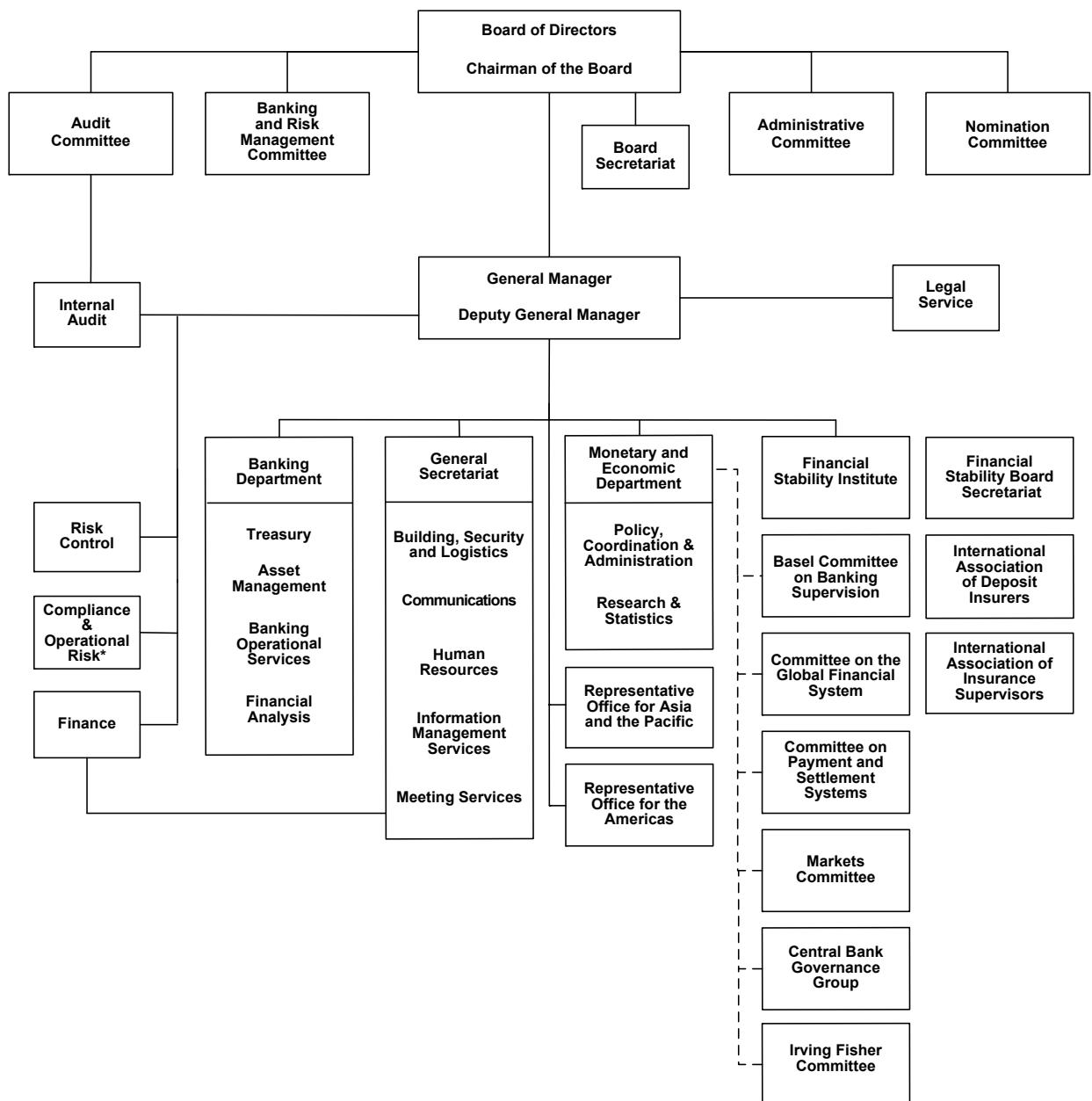
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## Organisation of the BIS as at 31 March 2012



\* The Compliance and Operational Risk Unit has direct access to the Audit Committee on compliance matters.

## The BIS: mission, activities, governance and financial results

The mission of the Bank for International Settlements (BIS) is to serve central banks in their pursuit of monetary and financial stability, to foster international cooperation in those areas and to act as a bank for central banks.

In the light of the Bank's mission, this chapter reviews the activities of the BIS, and of the groups it hosts, for the financial year 2011/12; describes the institutional framework that supports their work; and presents the year's financial results.

In broad outline, the BIS pursues its mission by:

- promoting discussion and facilitating collaboration among central banks;
- supporting dialogue with other authorities that are responsible for promoting financial stability;
- conducting research on policy issues confronting central banks and financial supervisory authorities;
- acting as a prime counterparty for central banks in their financial transactions; and
- serving as an agent or trustee in connection with international financial operations.

The BIS promotes international cooperation on monetary and financial policy through its meetings programmes for officials from central banks and financial sector supervisory authorities and through the Basel Process – hosting international committees and standard-setting bodies and facilitating their interaction in an efficient and cost-effective way.

In particular, the BIS hosts the Financial Stability Board (FSB). The BIS supports the FSB's objectives, which are to coordinate at the international level the work of national financial authorities and international standard-setting bodies in order to develop and promote the implementation of effective regulatory, supervisory and other financial sector policies and, in collaboration with the international financial institutions, to address vulnerabilities affecting financial systems in the interest of global financial stability.

The BIS research and statistics function addresses the needs of monetary and supervisory authorities for data and policy insight.

The BIS banking function provides prime counterparty, agent and trustee services appropriate to the BIS mission.

### The meetings programmes and the Basel Process

The BIS promotes international financial and monetary cooperation in two major ways:

- through hosting bimonthly and other meetings of central bank officials; and
- through the Basel Process, which facilitates cooperation among the committees and standard-setting bodies hosted by the BIS in Basel.

### *Bimonthly meetings and other regular consultations*

At bimonthly meetings, normally held in Basel, Governors and other senior officials of BIS member central banks discuss current developments and the outlook for the world economy and financial markets. They also exchange views and experiences on issues of special and topical interest to central banks. In addition to the bimonthly meetings, the Bank regularly hosts gatherings that variously include public and private sector representatives and the academic community.

The two principal bimonthly meetings are the Global Economy Meeting and the All Governors' Meeting.

#### *Global Economy Meeting*

The Global Economy Meeting (GEM) comprises the Governors from 30 BIS member central banks in major advanced and emerging market economies that account for about four fifths of global GDP. Governors from another 19 central banks attend the GEM as observers.<sup>1</sup> The GEM has two main roles: (i) monitoring and assessing developments, risks and opportunities in the world economy and the global financial system; and (ii) providing guidance to three Basel-based central bank committees – the Committee on the Global Financial System, the Committee on Payment and Settlement Systems and the Markets Committee. The GEM also receives reports from the chairs of those committees and decides on publication.

As the Global Economy Meeting is quite large, it is supported by an informal group called the Economic Consultative Committee (ECC). Limited to 18 participants, the ECC includes all BIS Board member Governors, the central bank Governors from India and Brazil, and the BIS General Manager. The ECC assembles proposals for consideration by the GEM. In addition, the ECC Chairman initiates recommendations to the GEM on the appointment of chairs of the three central bank committees mentioned above and on the composition and organisation of those committees.

Mervyn King, Governor of the Bank of England, was elected by the BIS Board as Chairman of both the GEM and the ECC with effect from 1 November 2011. He replaced Jean-Claude Trichet, who retired from his post as President of the ECB with effect from the same date.

#### *All Governors' Meeting*

The All Governors' Meeting comprises the Governors of the BIS's 60 member central banks and is chaired by the BIS Chairman. It convenes during the bimonthly meetings to discuss selected topics of general interest to its members. In 2011/12, the topics discussed were:

<sup>1</sup> The members of the GEM are the central bank Governors of Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Korea, Malaysia, Mexico, the Netherlands, Poland, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, the United Kingdom and the United States and also the President of the European Central Bank and the President of the Federal Reserve Bank of New York. The Governors attending as observers are from Algeria, Austria, Chile, Colombia, the Czech Republic, Denmark, Finland, Greece, Hungary, Ireland, Israel, Luxembourg, New Zealand, Norway, Peru, the Philippines, Portugal, Romania and the United Arab Emirates.

- increased investment in commodity-related financial products and how this affects commodity markets;
- current issues in global liquidity;
- indebtedness, risks and growth;
- the economic effects of central bank bond purchase programmes;
- the policy relevance of central bank finances; and
- internet-based economic indicators: implications for central banks.

The membership of two other groups – the Central Bank Governance Group, which also meets during the bimonthly meetings, and the Irving Fisher Committee on Central Bank Statistics – goes beyond that of the GEM, and hence, by agreement with the GEM and the BIS Board, the All Governors' Meeting is responsible for overseeing the work of those two groups.

#### *Other regular consultations*

During the bimonthly meetings, Governors of central banks in (i) major emerging markets and (ii) small open economies gather to discuss themes of special relevance to their economies.

The Bank hosts regular meetings of the Group of Central Bank Governors and Heads of Supervision (GHOS), which oversees the work of the Basel Committee on Banking Supervision. The GHOS met twice during the year to consider the Basel Committee's proposed measures for global systemically important banks (G-SIBs) and for assessing implementation of the Basel regulatory framework. At its June meeting, the GHOS agreed on a set of G-SIB proposals, including a methodology for assessing systemic importance, the additional capital G-SIBs will be required to maintain and the arrangements by which the requirements will be phased in. At its January meeting, the GHOS endorsed the Basel Committee's strategy for identifying differences in member countries' approaches that could raise prudential or level playing field concerns. The strategy is to monitor each member country's adoption of the globally agreed rules and review members' compliance with the international minimum standards.

The Bank regularly arranges informal discussions among public and private sector representatives that focus on their shared interests in promoting a sound and well functioning international financial system. In addition, for senior central bank officials, the Bank organises various meetings to which other financial authorities, the private financial sector and the academic community are invited to contribute. These meetings include:

- the meetings of the working parties on domestic monetary policy, held in Basel but also hosted at a regional level by a number of central banks in Asia, central and eastern Europe, and Latin America;
- the meeting of Deputy Governors of emerging market economies; and
- the high-level meetings organised by the Financial Stability Institute in various regions of the world for Governors and Deputy Governors and heads of supervisory authorities.

Other meetings this year included two that are organised for senior central bankers on a less frequent basis:

- a special BIS meeting for Caribbean and Latin American central bank

- Governors held in Basel on the occasion of the BIS Annual General Meeting in June 2011; and
- a May 2011 BIS meeting of Governors and senior officials from Africa and other regions to discuss the monetary and financial stability issues facing Africa in the wake of the global financial crisis.

### *The Basel Process*

The Basel Process refers to the facilitative role of the BIS in hosting and supporting the work of the international secretariats engaged in standard setting and the pursuit of financial stability. A key example of the Basel Process is the support the BIS provides to the Financial Stability Board, which coordinates the work of national financial authorities and international standard-setting bodies and whose work programme has been endorsed by the G20 heads of state and government. Another aspect of the Basel Process is the mandate given by the BIS to its own Financial Stability Institute (FSI) to assist financial sector supervisory authorities worldwide in strengthening oversight of their financial systems.

### *Features of the Basel Process*

The Basel Process is based on four key features: (i) the synergies of co-location; (ii) flexibility and openness in the exchange of information; (iii) support from the economic research expertise and banking experience of the BIS; and (iv) the dissemination of work.

*Synergies.* The BIS hosts the secretariats of nine groups, including the FSB, that contribute to the pursuit of financial stability. These groups have their own governance arrangements and reporting lines.

Various groupings of central banks and supervisory authorities set the agendas of the following six:

- the Basel Committee on Banking Supervision (BCBS): develops global regulatory standards for banks and addresses supervision at the level of individual institutions and as it relates to macroprudential supervision;
- the Committee on the Global Financial System (CGFS): monitors and analyses the broad issues relating to financial markets and systems;
- the Committee on Payment and Settlement Systems (CPSS): analyses and sets standards for payment, clearing and settlement infrastructures;
- the Markets Committee: examines the functioning of financial markets;
- the Central Bank Governance Group: examines issues related to the design and operation of central banks; and
- the Irving Fisher Committee on Central Bank Statistics (IFC): addresses statistical issues of concern to central banks, including those relating to economic, monetary and financial stability.

The remaining three groups hosted at the BIS are:

- the FSB;
- the International Association of Deposit Insurers (IADI); and
- the International Association of Insurance Supervisors (IAIS).

The physical proximity of these nine groups at the BIS creates synergies that, regardless of the variation in governance arrangements, produce a broad and fruitful exchange of ideas. In addition, by limiting costs through economies of scale, the Basel Process represents a prudent use of public funds.

*Flexibility.* The limited size of these groups leads to flexibility and openness in the exchange of information, thereby enhancing the coordination of their work on financial stability issues and avoiding overlaps and gaps in their work programmes. At the same time, their output is much larger than their limited size would suggest, as they are able to leverage the expertise of the international community of central bankers, financial regulators and supervisors, and other international and national public authorities.

*Supportive BIS expertise and experience.* The work of the Basel-based committees is informed by the BIS's economic research as well as its banking experience. The latter is derived from the BIS Banking Department's working relationships with market participants and its implementation of regulatory standards and financial controls for the conduct of its banking operations.

*Dissemination.* The FSI facilitates the dissemination of the standard-setting bodies' work to official organisations.

## Activities of BIS-hosted groups in 2011/12

The following pages review the year's principal activities of the nine groups hosted at the BIS.

### *Financial Stability Board*

The Financial Stability Board (FSB) coordinates the work of national financial authorities and international standard-setting bodies and develops policies to enhance global financial stability. It closely monitors whether these policies are implemented fully and consistently.

More specifically, under its mandate from the G20, the FSB:

- assesses vulnerabilities affecting the global financial system and identifies and reviews the regulatory, supervisory and related actions needed to address them, including the outcomes of those actions;
- promotes coordination and information exchange among authorities responsible for financial stability;
- monitors and advises on market developments and their implications for regulatory policy;
- monitors and advises on best practice in meeting regulatory standards;
- undertakes joint strategic reviews of the international standard-setting bodies to ensure that their policy development work is timely, coordinated and focused on priorities and that it addresses gaps;
- supports the establishment of supervisory colleges and sets guidelines for them;

- supports contingency planning for cross-border crisis management, particularly with respect to systemically important firms; and
- collaborates with the IMF to conduct early warning exercises.

The membership of the FSB consists of senior officials from finance ministries, central banks and financial regulators and supervisors of 24 countries and territories<sup>2</sup> as well as from the ECB and the European Commission. It also includes representatives of international financial institutions and of international standard-setting and central bank bodies.<sup>3</sup>

The FSB was chaired by Mario Draghi, Governor of the Bank of Italy, until November 2011, when he became President of the ECB. He was succeeded as Chair of the FSB by Mark Carney, Governor of the Bank of Canada. The FSB also named a Vice-Chair, Philipp Hildebrand, Chairman of the Swiss National Bank.<sup>4</sup>

The FSB operates through Plenary meetings of its membership; the Plenary names the Chair of the FSB and appoints a Steering Committee. The FSB also has three standing committees:

- a Standing Committee on Assessment of Vulnerabilities, chaired by Jaime Caruana, General Manager of the BIS;
- a Standing Committee on Supervisory and Regulatory Cooperation, chaired by Adair Turner, Chairman of the UK Financial Services Authority; and
- a Standing Committee on Standards Implementation, chaired by Tiff Macklem, Senior Deputy Governor of the Bank of Canada.

The Plenary has also established various working groups, which currently cover a number of technical areas. The work of the FSB is supported by a Secretariat, located at the BIS, comprising a staff of 24.

Plenary meetings were held in April, July and October 2011 and in January 2012. As detailed below, the FSB was active in a wide range of areas during the year, and several policy initiatives approved at the Plenary meetings were endorsed in November at the Cannes Summit of the G20 Leaders.

#### *Early warning exercises*

As part of its regular activities, the FSB conducted two early warning exercises in April and September in collaboration with the IMF. The IMF's International Monetary and Financial Committee and the G20 finance ministers and central bank Governors received a confidential presentation of results and recommended actions; the FSB focused on vulnerabilities and regulatory challenges in the financial sector, and the IMF covered macroeconomic and macro-financial vulnerabilities.

<sup>2</sup> The country members of the G20 plus Hong Kong SAR, the Netherlands, Singapore, Spain and Switzerland.

<sup>3</sup> The international financial institutions are the BIS, IMF, OECD and World Bank. The international standard-setting and central bank bodies are the BCBS, CGFS, CPSS, International Accounting Standards Board (IASB), IAIS and International Organization of Securities Commissions (IOSCO).

<sup>4</sup> Mr Hildebrand resigned as Vice-Chair in January 2012 following his resignation from the Swiss National Bank. A new Vice-Chair has not been appointed.

### *Reducing the moral hazard posed by systemically important financial institutions (SIFIs)*

At their 2010 Seoul Summit, the G20 Leaders endorsed the FSB's framework to address the systemic and moral hazard risks associated with SIFIs. During 2011, critical policy measures were developed to implement this framework, and timelines and processes were established to put them into effect.

These key measures include:

- a new international standard to guide consistent reform of national resolution regimes so that any failing financial institution can be resolved without disruptions to the financial system and without exposing the taxpayer to the risk of loss (the standard was announced by the FSB on 4 November and published as *Key attributes of effective resolution regimes for financial institutions*);
- a mandatory resolvability assessment and a recovery and resolution plan for each global SIFI (G-SIFI, an institution that is clearly systemic in a global context) as well as a cross-border cooperation agreement between relevant authorities for each G-SIFI;
- requirements, developed through the BCBS, for global systemically important banks (G-SIBs) to hold additional common equity capital above the Basel III minimum standards; and
- more intensive and effective supervision, including through stronger mandates, resources and powers, and higher supervisory expectations for firms' risk management and data aggregation capabilities.

The international standard set out in *Key attributes of effective resolution regimes* addresses deficiencies in existing tools and national legal frameworks that hinder the resolution of failing systemic firms – including G-SIFIs, which require cross-border resolution. Implementation will require legislative changes in many jurisdictions.

On 4 November, in its *Policy measures to address systemically important financial institutions*, the FSB published the names of an initial group of 29 G-SIFIs to which the resolution planning requirements will apply beginning in 2012. The group of G-SIFIs will be updated annually and published each November.

### *Improving the OTC and commodity derivatives markets*

The G20 has made commitments to improve the functioning, transparency and oversight of the over-the-counter (OTC) derivatives market by end-2012 by means of increased standardisation, central clearing, organised platform trading, and reporting of all trades to trade repositories. The FSB has established two groups to monitor and advance these reforms: the OTC Derivatives Working Group (ODWG) and the OTC Derivatives Coordination Group (ODCG). The ODWG issued reports in April and October 2011 on the progress of implementation. The FSB has continued to press member jurisdictions to meet the end-2012 deadline and to ensure the consistency of implementation across jurisdictions. The FSB established the ODCG in November 2011 to improve the coordination and consistency of the various international reform workstreams; it is composed of the chairs of the BCBS, CGFS, CPSS, FSB and IOSCO.

### *Strengthening the oversight and regulation of shadow banking*

The “shadow banking system” – credit intermediation involving entities and activities outside the regulated banking system – can be a source of systemic risk both directly and through its interconnectedness with the regular banking system. Shadow banking can also create opportunities for arbitrage that might undermine stricter bank regulation and lead to a build-up of additional leverage and risks in the financial system as a whole.

In 2011, the FSB conducted the first in a projected series of regular comprehensive monitoring exercises to assess risks from the shadow banking system. In addition, work was set in train to develop, as needed, regulatory policy recommendations by end-2012 for five key aspects of shadow banking oversight:

- banks' interactions with shadow banking entities (including consolidated supervision, risk-based capital for bank exposures and implicit support);
- money market funds and their susceptibility to runs and other systemic risks;
- the regulation of other shadow banking entities;
- securitisation, including retention requirements and transparency; and
- securities lending and repurchase agreements (possibly including measures on margins and haircuts).

### *Monitoring exchange-traded funds*

In April 2011, the FSB published a note on the potential risks to financial stability arising from the recent rapid growth and innovation in the market for exchange-traded funds (ETFs). The note encouraged the financial industry to adapt its risk management practices, disclosure and transparency to the pace of innovation in the ETF market. The FSB will continue to closely monitor developments in the ETF market and will consider policy actions as necessary.

### *Developing macroprudential frameworks and tools*

Responding to a request at the November 2010 G20 Summit, the FSB, IMF and BIS published a joint progress report in October 2011 on macroprudential policy frameworks and tools. The main message of the report was that effective macroprudential frameworks require institutional arrangements that can: (i) ensure an open and frank dialogue among policymakers on policy choices that have an impact on systemic risk; (ii) resolve conflicts between policy objectives and instruments; and (iii) mobilise the right tools to limit systemic risk.

### *Addressing data gaps*

The data gaps initiative is part of the 20 recommendations set out by the IMF and FSB in their November 2009 report, *The financial crisis and information gaps*. In 2010, the FSB set up a group to develop ways to monitor financial linkages among G-SIFIs and the concentration of exposures in the financial system.

In an October consultation paper, *Understanding financial linkages: a common data template for global systemically important banks*, the FSB

proposed a new data template for G-SIBs that would substantially strengthen the information on linkages among them by detailing their exposures and funding dependencies by counterparty as well as by market, sector and instrument. The new template would be introduced in stages.

Substantive progress has been made in addressing the legal and policy issues associated with sharing commercially sensitive data. The project's initial implementation phase will share data among supervisors only.

*Advancing transparency through the legal entity identifier*

At their November 2011 Cannes Summit, the G20 Leaders asked the FSB to recommend a global legal entity identifier (LEI) system for uniquely identifying parties to financial transactions. The FSB is working towards a recommendation in time for the G20 Leaders summit in June 2012.

*Strengthening accounting standards*

The G20 and FSB support the development of a single set of high-quality global accounting standards. To that end, the FSB continues to encourage the IASB and the United States' Financial Accounting Standards Board to complete their convergence project and is monitoring their progress in implementing specific G20 and FSB accounting recommendations. The two accounting boards made progress in 2011, but work remains ongoing in other areas of convergence.

*Monitoring implementation and strengthening adherence to international standards*

To enhance its monitoring of agreed G20 and FSB financial reforms, the FSB in collaboration with the relevant standard-setting bodies established a Coordination Framework for Implementation Monitoring (CFIM), which was announced in October and endorsed at the Cannes Summit.

The CFIM agenda is derived from the FSB Plenary, which determines areas in which implementation of reforms is particularly important for global financial stability. The CFIM ensures that these areas are subjected to more-intensive monitoring and detailed reporting. Current priority areas are the Basel II, Basel 2.5 and Basel III frameworks; OTC derivatives market reforms; compensation practices; policy measures for G-SIFIs; resolution frameworks; and shadow banking.

The FSB's most intensive monitoring mechanism is the peer review programme, undertaken through its Standing Committee on Standards Implementation, to evaluate member jurisdictions' adoption of international financial standards and FSB policies. The FSB previously completed country peer reviews of Australia, Italy, Mexico and Spain, and in early 2012 it concluded them for Canada and Switzerland.

The FSB completed a thematic peer review of deposit insurance systems. The FSB also conducted a follow-up review of compensation practices, after which the G20 Leaders asked the FSB for: (i) ongoing monitoring and public reporting on compensation practices; and (ii) a bilateral complaint handling process among national authorities to address firms' concerns regarding competitive fairness.

In March 2010, the FSB began evaluating and encouraging jurisdictions' adherence to standards for international supervisory and regulatory cooperation and information exchange. In November 2011, the FSB published the list of all jurisdictions evaluated, including those identified as non-cooperative.

#### *Mortgage underwriting principles*

In October, following up on the recommendations of a peer review the previous March, the FSB issued a consultation paper setting out principles for sound mortgage underwriting. The final version was scheduled to be published in April 2012.

#### *Advancing consumer finance protection*

An October 2011 FSB report, written in collaboration with the OECD and other international organisations, covers policy initiatives, new institutional arrangements and the work of regulators and supervisors in various areas of consumer finance protection. The report identifies gaps where additional international work could help advance consumer protection and financial stability.

#### *Financial stability issues in emerging market and developing economies*

In response to a request by the G20, an FSB task force prepared a report on financial stability issues of particular interest to emerging market and developing economies. Working with staff members of the IMF and World Bank and senior policymakers from some of the economies that are not members of the FSB, the task force set out key issues, which included guidance in the application of international standards; cross-border supervisory cooperation; regulating and supervising small-scale non-bank lending and deposit-taking institutions; managing foreign exchange risks; and developing domestic capital markets. Endorsed by the G20 Leaders at the Cannes Summit, the report recommends ways in which national authorities can address these issues and supportive steps that the international community can take. The FSB will monitor progress in implementing the recommendations.

#### *Regional consultative groups*

To facilitate its interaction with a wider group of countries, the FSB established six regional consultative groups that bring together FSB members with 64 other jurisdictions in the Americas, Asia, the Commonwealth of Independent States, Europe, the Middle East and North Africa, and sub-Saharan Africa. The regional groups discuss vulnerabilities affecting regional and global financial systems and the financial stability initiatives of the FSB and of the various jurisdictions. The first meetings of these groups took place in late 2011 and early 2012.

#### *FSB capacity, resources and governance*

The FSB has made improvements to its transparency, public accountability and internal processes by expanding the information on its website, including

the composition of the Plenary and the Steering and Standing Committees; by increasing its use of public consultation; and by improving the geographical and institutional balance in the membership of the Steering Committee. Addressing a request from the G20 Cannes Summit, the FSB will deliver proposals at the June 2012 Los Cabos Summit to further strengthen the FSB's capacity, resources and governance while maintaining strong links with the BIS.

FSB: [www.financialstabilityboard.org](http://www.financialstabilityboard.org)

### *Basel Committee on Banking Supervision*

The Basel Committee on Banking Supervision (BCBS) seeks to enhance supervisory cooperation and improve the quality of banking supervision worldwide. It supports supervisors by providing a forum for exchanging information on national supervisory arrangements, improving the effectiveness of techniques for supervising international banks and setting minimum supervisory standards.

The Committee, which generally meets four times a year, consists of senior representatives of bank supervisory authorities and central banks responsible for banking supervision or financial stability issues in the Committee's member countries. The Group of Governors and Heads of Supervision (GHOS) is the Basel Committee's governing body and consists of central bank Governors and non-central bank heads of supervision from member countries.

The leadership of the GHOS and the Committee changed during 2011. In November, Mervyn King, Governor of the Bank of England, succeeded Jean-Claude Trichet as the Chairman of the GHOS; and in July, Stefan Ingves, Governor of Sveriges Riksbank, succeeded Nout Wellink as Chairman of the Committee.

### *Basel regulatory framework and supervisory issues*

The Basel III framework, published by the Committee in December 2010, comprehensively reforms the regulation, supervision and risk management of the banking sector. The measures strengthen microprudential (bank-level) regulation, which will help make individual banking institutions more resilient to periods of stress; and they strengthen oversight of macroprudential (system-wide) risks, which can build up across the banking sector and become amplified by each phase of the business cycle. These two approaches to supervision are complementary, as greater resilience at the bank level reduces the risk of system-wide shocks. Since its publication of Basel III, the Committee has focused on implementation of the framework and the further development of regulatory standards and guidance.

### *Global systemically important banks*

Addressing the dangers posed by global systemically important banks is part of the broader effort by the G20 Leaders to respond to the financial crisis. The Basel Committee's work on G-SIBs, together with related efforts by the FSB and others, is meant to reduce the "too big to fail" problem associated with

systemically important financial institutions (SIFIs). In November, after a careful review of public comments, the Committee published final rules that set out its regulatory framework for G-SIBs. The framework addresses the methodology for assessing global systemic importance; the magnitude of additional loss absorbency that G-SIBs should have; and the arrangements by which the additional loss absorbency will be phased in. The motivation for the rules was the recognition that cross-border negative externalities created by G-SIBs needed measures beyond those contained in the Basel III framework. The rules will enhance the going-concern loss absorbency of G-SIBs and reduce the probability of their failure.

The assessment methodology for G-SIBs comprises five broad categories: size, interconnectedness, lack of readily available substitutes or financial institution infrastructure, global (cross-jurisdictional) activity and complexity.

Under the requirement for additional loss absorbency, G-SIBs must hold common equity in excess of the minimum amount required under Basel III. Depending on the assessment of a G-SIB's systemic importance, it must hold additional Common Equity Tier 1 capital (CET1) in the range of 1 to 2.5% of its risk-weighted assets (in shorthand, 1 to 2.5% CET1). To discourage G-SIBs from becoming even more systemically important, the rules specify the imposition of a capital surcharge of up to 3.5% CET1 should the assessment of their systemic importance grow materially beyond current levels.

The requirements for higher loss absorbency will be introduced between 1 January 2016 and end-2018, becoming fully effective on 1 January 2019, a schedule that matches the timeline for introduction of the Basel III capital conservation and countercyclical buffers.

In October, the joint FSB-BCBS Macroeconomic Assessment Group (MAG) issued the report *Assessment of the macroeconomic impact of higher loss absorbency for global systemically important banks*. It concluded that a stronger capital standard for G-SIBs had a decidedly favourable cost-benefit trade-off. The standard is likely to have at most a modest, temporary negative impact on aggregate output during the transition period, whereas it confers a much larger permanent net benefit by reducing the risk of financial crises, which can have long-lasting effects on the economy. The MAG estimated that the Basel III and G-SIB proposals together contribute a permanent annual benefit of up to 2.5% of GDP – many times the cost of the temporarily slower annual growth resulting from the reforms.

### *Liquidity*

The central principle of the Basel III liquidity coverage ratio (LCR) is that banks must have a stock of high-quality liquid assets available to meet their liquidity needs in times of stress. In January, the GHOS reaffirmed its commitment to introduce the LCR as a minimum standard in 2015. It also clarified the LCR rules to emphasise that liquid assets accumulated in normal times are indeed intended for use in times of stress, and the Committee will develop additional guidance on the circumstances that would justify the use of those assets.

The GHOS endorsed the Committee's approach to addressing specific concerns regarding the assets qualified to meet the LCR and its investigation

of some issues in the calibration of net cash outflows. The Committee will also further examine the interaction of central banks with banks during periods of stress to ensure that the workings of the LCR do not interfere with central bank objectives. Any modifications to address the issues will not materially change the framework's underlying approach. The GHOS directed the Committee to publish its final package by the end of 2012.

Upon the completion of its LCR review, the Committee will turn its attention to the net stable funding ratio (NSFR). Due to be introduced in 2018 as a minimum standard, the NSFR is intended to limit banks' overreliance on short-term wholesale funding and to promote a sustainable maturity structure for assets and liabilities.

#### *Derivatives*

During the year, the Committee addressed bank exposures to central counterparties (CCPs) and to counterparty credit risk in bilateral trades.

*CCP exposures.* On 2 November, the Committee proposed capital requirements for banks' exposures to CCPs. The objective is to promote greater use of CCPs for derivatives trades while ensuring that banks are appropriately capitalised against the exposures they face. In considering public comments on the draft, the Committee will also consider the broader set of reforms being proposed by other standard setters to ensure that the collective impact provides incentives for banks to use CCPs in preference to bilateral trades.

*Bilateral counterparty credit risk.* Basel II addressed the risk of counterparty default and credit migration risk but not mark-to-market losses due to the credit valuation adjustment (CVA). During the financial crisis, however, roughly two thirds of losses attributed to counterparty credit risk were due to CVA and only about one third were due to actual defaults. Therefore, in June the Committee finalised the Basel III capital treatment for counterparty credit risk in bilateral trades. The revised treatment slightly modifies the CVA, which is the risk of loss caused by changes in the credit quality of a counterparty (also referred to as the market value of counterparty credit risk).

The Committee estimates that, with the addition of the CVA risk capital charge, the capital requirements for counterparty credit risk under Basel III will approximately double the level required under Basel II (when counterparty credit risk was capitalised for default risk only).

#### *Own credit risk*

The Committee issued a consultative document in December on the application of own credit risk adjustments to derivatives. The Basel III rules seek to ensure that deterioration in a bank's own creditworthiness does not at the same time lead to an increase in its common equity as a result of a reduction in the value of the bank's liabilities. The consultative paper proposed that debit valuation adjustments (DVAs) for over-the-counter derivatives transactions and securities financing should be fully deducted in the calculation of CET1.

### *Basel III FAQ*

After the December 2010 release of Basel III, the Committee issued a set of frequently asked questions (FAQ) and responses to them. To promote consistent global implementation of Basel III, the Committee will periodically update the FAQ and include any necessary technical elaboration and interpretative guidance in the answers.

### *Monitoring implementation and international consistency*

Through its Standards Implementation Group, the Committee has set up review systems for the implementation of capital standards for international consistency and will regularly publish the results. A peer review system will monitor the timetable for members' implementation of the Basel regulatory capital framework, which includes Basel II, Basel 2.5 (related substantially to trading book exposures) and Basel III. The consistency review will monitor whether members' legislation and regulations are consistent with international minimum standards. Likewise, the Committee will examine the measurement of risk-weighted assets in both the banking book and the trading book to ensure that the outcomes of the new rules are consistent in practice across banks and jurisdictions.

The Committee's October 2011 *Progress report on Basel III implementation* was updated in April 2012, and regular updates will continue. The status reports reflect the Committee's intention that member countries fully and consistently implement Basel II, Basel 2.5 and Basel III within the agreed timelines.

### *Core principles*

In December, the Committee issued for consultation a revision of its 2006 *Core principles for effective banking supervision* and the associated assessment methodology. The revisions address many of the significant risk management weaknesses and other vulnerabilities highlighted by the global financial crisis. They also take account of several key trends and developments in the past few years of market turmoil: the heightened prominence of systemically important banks and the greater demand they place on supervisory resources; the need for a system-wide perspective to address systemic risk; and the increasing attention to measures for crisis management, recovery and resolution that will reduce both the probability and consequences of a bank failure.

The proposed revision merges the core principles and the assessment methodology into a single document. The new document sets the principles in a more logical structure that highlights the difference between what is expected of supervisors and what supervisors expect of banks. The Committee expects to publish the final version in 2012.

### *Trading book review*

The Basel Committee is conducting a fundamental review of the regulatory capital treatment for trading exposures. Such exposures consist of positions in financial instruments and commodities held either for trading or to hedge

other trading activities. Through the Committee's market risk framework, positions in the trading book are subject to capital charges against interest rate risk, foreign exchange risk, equity position risk and commodities risk. The Committee expects to conduct a public consultation on its proposals to revise the market risk framework in 2012.

#### *Disclosure*

*Definition of capital.* During the financial crisis, deficiencies in the disclosure of banks' capital positions worsened uncertainties by hampering market participants and supervisors in their assessments and cross-jurisdictional comparisons of capital positions. In a consultative paper issued on 19 December, the Basel Committee proposed disclosure rules to improve the transparency and comparability of a bank's capital base and thereby enhance market discipline.

*Remuneration.* Ensuring that remuneration is effectively aligned with risk and performance is an essential element of preventing excessive risk-taking. In practice, making employee compensation account for the risks that employees take on behalf of their organisation has proved to be challenging. Additional Pillar 3 requirements on remuneration were issued on 1 July to promote market discipline by allowing market participants to assess the quality of a bank's compensation practices. These requirements should contribute to greater consistency of disclosures on remuneration. They update the material in the supplemental Pillar 2 guidance issued by the Committee in July 2009 and take account of the 2009 FSB statement of compensation principles and related implementation standards.

In other action on remuneration, the Committee in May 2011 published *Range of methodologies for risk and performance alignment of remuneration*, which focuses on practical and technical issues regarding bonus pools and compensation schemes. It clarifies the design of risk-adjusted remuneration and highlights issues that may limit the effectiveness of the risk adjustment methodologies. Through examples of bank practices and supervisory experience to date, the report also offers an anecdotal picture of current remuneration practices in the industry.

#### *Operational risk*

The regulatory capital adequacy framework envisages that the operational risk discipline will continue to mature over time and converge towards a narrower band of practices for the effective measurement and management of risk. Towards that end, the Committee in June released two papers. The first, *Principles for the sound management of operational risk*, covers three overarching themes: governance, risk management and disclosure. It highlights the evolution of industry practice and supervisory experience in those areas since the release of an earlier version in 2003.

The second paper, *Operational risk – supervisory guidelines for the advanced measurement approaches*, sets out supervisory guidelines relating to governance, data and modelling.

### *Trade finance*

After evaluating the impact of Basel II and Basel III on trade finance involving low-income countries, the Committee in October adopted two technical changes to the Basel regulatory capital adequacy framework. The modifications are intended to facilitate trade with low-income countries by improving their access to trade finance and by lowering the cost of trade finance instruments. The Committee conducted its evaluation in consultation with the World Bank, World Trade Organization and International Chamber of Commerce.

### *Audit*

In December, the Committee issued revised supervisory guidance for assessing the effectiveness of the internal audit function in banks. This work forms part of the Committee's ongoing effort to encourage sound practices within banks. The document updates the 2001 *Internal audit in banks and the supervisor's relationship with auditors*, especially in the light of the global financial crisis.

### *Resolution*

The Committee published a report in July on the status of changes to national policies needed to establish effective regimes for the cross-border resolution of SIFIs. The Committee had issued 10 recommendations on the topic in March 2010, and in November 2010 the FSB called for an assessment of progress. The report found that progress is lacking in many jurisdictions, and it stressed the need to accelerate reforms.

### *High-cost credit protection*

Supervisors have become concerned about some recent credit protection transactions and the potential for regulatory capital arbitrage. In December, the Committee issued a statement intended to alert banks that supervisors will be closely scrutinising credit risk transfers. It set out the Committee's expectation that supervisors will be reviewing those transfers in two contexts: the Basel securitisation framework rules, and the broader framework of the Pillar 2 supervisory review process and assessment of capital adequacy.

Basel Committee: [www.bis.org/bcbs](http://www.bis.org/bcbs)

### *Committee on the Global Financial System*

The Committee on the Global Financial System (CGFS) monitors financial market developments and analyses their implications for financial stability. The CGFS is chaired by William C Dudley, President of the Federal Reserve Bank of New York, who succeeded Mark Carney, Governor of the Bank of Canada, on 1 January 2012. Committee members consist of the Deputy Governors and other senior officials from the central banks of 23 advanced and emerging market economies and the Economic Adviser of the BIS.

During the year, assessments of the recent sovereign debt problems in the euro area shaped much of the Committee's discussions, which included

the analysis of policy initiatives that could stop contagion among sovereigns and break the link between sovereign risk and bank funding problems. Committee members also examined the global implications of bank deleveraging in the advanced economies, including the risk of spillovers to emerging market economies. The economic and financial implications of the earthquake disaster in Japan and potential disruptions from the realisation of other risks were additional important topics.

To deepen its understanding of current policy issues and investigate possible policy responses by central banks, the Committee commissioned a number of in-depth analyses carried out by working groups of central bank experts. The topics included:

- sovereign credit risk and bank funding conditions;
- the effects of regulatory and accounting changes on the fixed income strategies of institutional investors; and
- the macro-financial implications of alternative configurations for access to CCPs in over-the-counter derivatives markets.

The Committee also contributed to ongoing discussions in other policy forums. For example, for the G20 it helped to shape the evolving debate on global liquidity with a report that developed a central bank view on relevant concepts and policy responses. In addition, the CGFS further pursued its plans to close gaps in statistical data with an agreement on major enhancements to the BIS international banking statistics, for which it serves as the governing body. These enhancements will help close the remaining gaps in the data currently reported as well as improve the usefulness of the statistics in several key areas:

- monitoring the credit exposures of national banking systems;
- tracking developments in the supply of bank credit and banks' funding patterns; and
- measuring bank funding risk.

CGFS: [www.bis.org/cgfs](http://www.bis.org/cgfs)

### *Committee on Payment and Settlement Systems*

The Committee on Payment and Settlement Systems (CPSS) contributes to the strengthening of financial market infrastructures by promoting safe and efficient payment, clearing and settlement arrangements. Comprising senior officials from 25 central banks, the CPSS is a recognised international standard setter in this area. The Committee has been chaired by Paul Tucker, the Bank of England's Deputy Governor, Financial Stability, since March 2012; the previous chairman was William C Dudley, President of the Federal Reserve Bank of New York.

#### *New standards*

The CPSS and the International Organization of Securities Commissions (IOSCO) scheduled for April 2012 the joint release of the final version of Principles for financial market infrastructures, which had been issued for public comment in March 2011. The document sets out new

international standards to govern systemically important financial market infrastructures (FМИs) – payment systems, central securities depositories, securities settlement systems, CCPs and trade repositories. The 24 principles reflect the lessons learned from the recent financial crisis as well as the experience gained from applying existing standards during the past decade.

The principles replace the three previous sets of CPSS and CPSS-IOSCO standards, namely the *Core principles for systemically important payment systems* (2001); the *Recommendations for securities settlement systems* (2001); and the *Recommendations for central counterparties* (2004). The CPSS and IOSCO believe that a single set of principles will provide greater consistency in the oversight and regulation of FМИs worldwide.

Compared with the existing standards, the new principles introduce a more demanding regime for FМИs. Perhaps the four most crucial areas where this is the case are the financial resources and risk management procedures that an FМИ uses to cope with the default of a participant; the mitigation of operational risk; the links and other interdependencies among FМИs through which operational and financial risks can spread; and the need for participation criteria that are risk-based and permit fair and open access. Moreover, the new principles address issues that are not covered by the existing standards, including segregation and portability, tiered participation and general business risk.

The report also contains a set of five responsibilities for the central banks and other authorities that oversee or regulate the FМИs implementing the principles. These duties include effective cooperation between authorities where more than one has responsibility.

The CPSS and IOSCO have also scheduled two other documents to be released for consultation. One is a framework for public disclosures by an FМИ that will give participants and others an accurate understanding of the risks and costs of using it. The other document is an assessment methodology that can be used to judge an FМИ's observance of the principles and a relevant authority's observance of responsibilities.

#### *Over-the-counter (OTC) derivatives data reporting and aggregation*

In January 2012, the CPSS and IOSCO jointly released the final version of *OTC derivatives data reporting and aggregation requirements*, which had been issued for public comment in August 2011. The report discusses data necessary for monitoring the impact of OTC derivatives markets on financial stability. It specifies minimum requirements for reporting transaction data to trade repositories, including the acceptable types of data formats, and discusses access to data by authorities, reporting entities and the public. The report also addresses tools such as legal entity identifiers (LEIs), which are needed to aggregate data in a meaningful way. Finally, it discusses the collection of certain additional data, such as master agreement details, to help fill data gaps that hinder the assessment of systemic risk.

### *Guidance on foreign exchange settlement risk*

The Committee is working with the Basel Committee on Banking Supervision to provide new guidance to supervisors on how banks should manage the risks relating to settling foreign exchange transactions.

### *Other activities*

In September 2011, the Committee published *Payment, clearing and settlement systems in the CPSS countries*, the first of two volumes of a reference work describing FMIIs in member countries. In January 2012, the Committee published the annual statistical update *Statistics on payment, clearing and settlement systems in the CPSS countries*.

CPSS: [www.bis.org/cpss](http://www.bis.org/cpss)

### *Markets Committee*

The Markets Committee, chaired by Hiroshi Nakaso, Assistant Governor of the Bank of Japan, is a forum for senior central bank officials to jointly monitor developments in financial markets and assess their implications for central banks' liquidity management operations. Currently, 21 central banks are represented on the Committee.

Mounting concerns over sovereign debt and a weakening global economic outlook shaped the Committee's discussions during the year. The Committee closely monitored developments in euro area sovereign debt markets and examined their impact on the ability of banks to obtain market funding. A recurring topic was central bank actions to provide liquidity – both in euros and in US dollars – and to broaden the availability of eligible collateral. The deterioration in investor confidence in the third quarter of 2011 drew the Committee's attention to the heightened volatility in the foreign exchange market and the related policy responses. And as major central banks rolled out another round of quantitative and credit easing, the Committee examined its effects on financial markets and the challenges of communicating policy commitment in an unconventional policy environment.

In addition to its regular meetings, the Committee convened the third meeting of the Working Party on Markets in Latin America in July 2011. Hosted this time by the Bank of Mexico, the meeting brought together senior officials in the market operations area of major central banks in Latin America and their counterparts from outside the region. The agenda covered three broad topics: (i) recent market developments; (ii) trends in capital flows, their impact on markets and perspectives on policy responses; and (iii) technical and policy issues related to the various uses of debt securities in central bank operations.

The Committee undertook two projects during the year. One was a fact-finding study on high-frequency trading to better understand how it has influenced the structure and functioning of the foreign exchange market in recent years. The results were presented to Governors and released as a Markets Committee publication in September 2011. Its second project was part of the preparation of the 2013 BIS Triennial Central Bank Survey of Foreign

Exchange and Derivatives Market Activity. The Committee established a technical experts group to: (i) develop a number of refinements to the survey's counterparty and execution method categories; and (ii) improve the global coverage of major emerging market currencies, which are increasingly traded offshore.

Markets Committee: [www.bis.org/markets](http://www.bis.org/markets)

### *Central Bank Governance*

The Central Bank Governance Group, comprising representatives from nine central banks and chaired by Stanley Fischer, Governor of the Bank of Israel, serves as a venue for the exchange of views on the design and operation of central banks as public policy institutions. In addition, it prioritises the work on this topic that is carried out through the BIS and the more than 50 central banks that make up the Central Bank Governance Network. During the past year, the Governance Group addressed the evolving circumstances of central banks in several ways. It completed a report on the implications of their new financial stability responsibilities, it initiated a round of discussions on the challenges arising from changing mandates and circumstances more broadly, and it conducted work on the financial strength that central banks need in order to be effective in the post-crisis world.

### *Irving Fisher Committee on Central Bank Statistics*

The Irving Fisher Committee on Central Bank Statistics (IFC) is a forum for central bank economists and statisticians to address statistical topics related to monetary and financial stability. During the year, the IFC:

- conducted a workshop on data issues and related policy implications in the real estate sector, in cooperation with the Central Bank of Chile, in April 2011 in Santiago;
- co-sponsored a seminar with the Central Bank of Ireland on bridging data gaps, in August 2011 in Dublin;
- organised more than 10 sessions at the 58th World Congress of the International Statistical Institute, in August 2011 in Dublin; and
- surveyed the IFC membership in summer 2011 regarding existing and new data collections by central banks as well as actions taken to improve data collection and dissemination.

In its report to the BIS All Governors' Meeting in November 2011, the Committee conveyed two key messages:

- there is an urgent need to improve data-sharing between organisations at the national and international level and to overcome confidentiality constraints and obstacles to the exchange of data; and
- central banks, individually and collectively, are useful as a catalyst for change in a wide range of economic and financial statistics.

Muhammad Ibrahim, Deputy Governor of the Central Bank of Malaysia, became the Chairman of the IFC in November 2011. During the year, the

Committee expanded its membership to 76 central banks and international and regional organisations.

IFC: [www.bis.org/ifc](http://www.bis.org/ifc)

### *International Association of Deposit Insurers*

The International Association of Deposit Insurers (IADI) provides a forum for deposit insurers, central banks and international organisations to enhance the effectiveness of deposit insurance and bank resolution systems and cooperate on related financial stability issues. Currently, 83 organisations, including 64 deposit insurers, are members of IADI or are affiliated with it as participants. IADI provides guidance on the establishment or enhancement of effective deposit insurance systems as well as on training, outreach, educational programmes and research.

#### *Core principles*

IADI representatives participated in an FSB peer review of the deposit insurance systems of FSB members to assess their alignment with the IADI-BCBS *Core principles for effective deposit insurance systems*, which is a document on the FSB list of key standards for sound financial systems. The IADI representatives provided valuable input from the practitioners' perspective. The IMF and World Bank intend to assess compliance with the core principles in their joint Financial Sector Assessment Program (FSAP) and in their joint Reports on the Observance of Standards and Codes (ROSC). In consultation with the BCBS and other international bodies in this context, IADI will produce a set of papers to update the core principles and develop new guidance as needed to achieve compliance and advance best practices for deposit insurance systems.

#### *Initiatives for enhancing deposit insurance systems worldwide*

In collaboration with the IMF, the World Bank and the European Forum of Deposit Insurers (EFDI), IADI presented workshops in Albania and Nigeria during 2011 to train IADI and EFDI members to assess compliance with the core principles.

IADI and the FSI continue to collaborate on the creation of in-person and online training programmes and seminars for deposit insurers, financial sector supervisors, finance ministries and central banks worldwide. This year, IADI held seven in-person programmes, including "Core principles assessment methodology for deposit insurance", a seminar conducted with the FSI at the BIS. IADI and the FSI also completed a tutorial on the core principles, and a tutorial being developed will cover bank resolutions from a deposit insurer's perspective. For ease of access to these online training programmes, each IADI member receives a subscription to FSI's online resource, FSI Connect.

IADI conducts research through its Research and Guidance Committee and jointly with the IMF. IADI work in process covers deposit insurance fund sufficiency, Islamic deposit insurance, the payout process, early detection and timely intervention, and the handling of systemic crises. In addition, IADI has recently completed research papers on deposit insurance mandates and on claims and recoveries.

In 2010, IADI created a Financial Inclusion and Innovation Subcommittee (FIIS) within its Research and Guidance Committee to provide a vehicle for IADI to engage with the G20 and other standard-setting bodies and international entities on issues related to financial inclusion and deposit insurance. The FIIS is currently studying ways that issues related to financial inclusion may interact with IADI's mandate, and it is documenting IADI members' financial inclusion practices.

#### *Meetings, seminars and conferences*

IADI's October 2011 Annual General Meeting and Conference and an Executive Council Meeting were hosted in Warsaw by the Bank Guarantee Fund of Poland. More than 200 participants from over 50 countries attended the conference, which focused on the issue of strengthening financial stability frameworks. Executive Council meetings and Standing Committee meetings were also hosted by the BIS, in June 2011 in Basel; and by the Savings Deposit Insurance Fund of Turkey, in February 2012 in Istanbul.

In addition, IADI's eight regional committees and 12 partner organisations sponsored regional events throughout the year relating to deposit insurance as a safety net during financial crises. Topics included compliance with, and assessment of, the core principles; public awareness training; integrated deposit insurance systems; Islamic deposit insurance; resolution of problem banks; and purchase-and-assumption arrangements.

IADI: [www.iadi.org](http://www.iadi.org)

#### *International Association of Insurance Supervisors*

The International Association of Insurance Supervisors (IAIS) is the international standard-setting body for prudential supervision of the insurance industry. The mission of the IAIS is to promote effective and globally consistent regulation and supervision of the insurance industry in order to develop and maintain fair, safe and stable insurance markets for the benefit of policyholders; and to contribute to global financial stability.

#### *Financial stability*

The IAIS is actively assessing the regulatory reforms recommended by the FSB, including the development of indicators for assessing the systemic importance of insurers and devising potential related policy measures. The IAIS made a proposal to the FSB on an assessment methodology for systemically important insurers, and public consultations have been scheduled. In addition, the IAIS now monitors the insurance sector's macroeconomic and financial market environment. It is developing a framework for macroprudential surveillance of the insurance sector that differentiates the scope for potential supervisory action from the powers of central banks. The framework may include macroeconomic stress testing in the insurance sector.

On 15 November 2011, the IAIS published a paper, *Insurance and financial stability*, showing that insurance underwriting risks are in most cases not correlated with the business cycle or with financial market

risks. The paper also explains that the magnitude of insurance liabilities is, in very broad terms, not affected by financial market losses. For example, although the financial crisis affected insurers, those engaged in traditional insurance activities were not a concern in terms of systemic risk. The main concern relates to those insurers engaged in significant non-traditional and non-insurance activities that in a crisis could generate systemic effects.

#### *Insurance core principles*

At its general meeting on 1 October 2011, the IAIS adopted revisions to its *Insurance core principles, standards, guidance and assessment methodology*. The revised insurance core principles (ICPs) incorporate lessons of the financial crisis, address FSB recommendations and reflect the evolution of supervisory and industry practices. The revised document organises the supervisory material into a hierarchy, with ICPs at the top, standards for implementation of the ICPs at the next level, and guidance at the third level.

#### *Accounting*

The IAIS has a strong interest in ensuring high-quality financial reporting that offers a meaningful and economically sound portrayal of insurers' financial health. It closely monitors the international financial reporting developments that will most influence the overall accounting model for regulated insurance enterprises. The IAIS regularly meets with the IASB to provide input on the development of rules relating to insurance contracts and other standards of importance to insurers.

#### *Supervisory Forum*

In June 2011, the IAIS established the Supervisory Forum to provide a platform for insurance supervisors to exchange information on supervisory practices. The participants, who focus on large insurers and insurance groups, discuss existing and emerging trends and risks; share ideas and experience on supervisory methodologies; and evaluate the potential impact of macroeconomic stress scenarios on large or complex insurers and insurance groups. The Supervisory Forum also collaborates with other IAIS committees and provides practical input to IAIS projects.

#### *Internationally active insurance groups*

The IAIS continues to develop the Common Framework for the Supervision of Internationally Active Insurance Groups (ComFrame). ComFrame should lead to more consistency regarding each jurisdiction's supervision of internationally active insurance groups (IAIG). On 1 July 2011, the IAIS circulated its ComFrame concept paper, inviting comments from IAIS members and observers about the proposed direction. The IAIS will issue a draft ComFrame document for comment in mid-2012. The IAIS plans to conclude its development of ComFrame in 2013, after which it will undertake an impact assessment and a calibration phase.

### *Reinsurance and IAIS market reports*

In December 2011, the IAIS published the last issue of the *Global reinsurance market report*. The report discussed stress testing in insurance and reinsurance supervision and identified emerging trends, common practices and next steps.

Global reinsurers – firms that, for a fee or premium, agree to indemnify an insurer against losses on one or more insurance contracts – are important for the efficient functioning of sound insurance markets. Reinsurers bolster the ultimate security of insurers, thereby protecting customers and contributing to overall financial stability.

In 2012, the IAIS will introduce the *Global insurance market report*, which will cover key developments in both reinsurance and global insurance. The unified analysis underscores the fact that insurance and reinsurance are two sides of the same coin.

### *Multilateral Memorandum of Understanding*

The IAIS Multilateral Memorandum of Understanding (MMoU), which became operational in June 2009, is a framework for cooperation and exchange of information that aims to improve the effectiveness of cross-border supervision of insurance companies. It is also expected to contribute to the global efforts to enhance the regulation of systemically important financial institutions. This year, participation in the MMoU grew to 22 signatories, and another 22 applications were being validated.

### *Standards observance*

The IAIS Standards Observance Subcommittee, created in October 2010, is in the process of conducting assessments and coordinating peer reviews on the implementation of the revised ICPs; it is beginning with the ICPs on Mandate and Supervisory Powers and on Group-wide Supervision.

More broadly, the IAIS organises regional seminars and workshops to assist insurance supervisors in implementing IAIS principles, standards and guidance in collaboration with the FSI, national insurance supervisory authorities and other bodies.

IAIS: [www.iaisweb.org](http://www.iaisweb.org)

### *Financial Stability Institute*

The mandate of the Financial Stability Institute (FSI) is to assist financial sector supervisory authorities worldwide in strengthening oversight of their financial systems. Over the past year, as national authorities began implementing rules recently developed by the global standard setters for supervision of the banking and insurance sectors, the FSI intensified its work in assisting them with the implementation of the new regulatory standards.

### *Meetings, seminars and conferences*

The first main area of FSI outreach is the well established series of high-level meetings, seminars and conferences targeted at banking and insurance sector supervisors and central bank financial stability experts. In 2011, the FSI

organised 51 such events at venues around the world, many of which were held in partnership with regional groups of supervisors. The high-level meetings for Governors and Deputy Governors of central banks and heads of supervisory authorities took place in Africa, Asia, central and eastern Europe, Latin America and the Middle East. The meetings focused on financial stability, macroprudential tools and policies, regulatory priorities and other key supervisory issues. As in 2010, the seminars programme focused on financial regulatory reform. Many of the seminars used the extensive case study developed by the FSI that implements a range of supervisory concepts highlighted in Basel III. Approximately 2,000 representatives of central banks and banking and insurance supervisory authorities participated in FSI events during 2011.

#### *FSI Connect*

The second main area of FSI outreach is FSI Connect, an online information resource and learning tool for financial sector supervisors at all levels of experience and expertise. It now includes more than 220 tutorials covering a wide range of topics. More than 9,000 users from approximately 230 subscribing central banks and supervisory authorities have access to FSI Connect. In 2011, the FSI expanded to more than 30 the number of tutorials it offers on insurance sector supervision. It also initiated an extensive two-year project to update all tutorials that were affected by Basel III.

### Research and statistics

Through its research function, the BIS addresses economic and financial issues important to central banks and financial supervisory authorities. Most of the resulting research and analysis is published through the Bank's principal outlets – the *Annual Report*, the *BIS Quarterly Review*, *BIS Papers*, *BIS Working Papers* and the Bank's website ([www.bis.org](http://www.bis.org)) – as well as in external professional publications. In addition, the research function collects, analyses and disseminates statistical information for central banks and the general public on key elements of the international financial system. The research function also supports the BIS mission by developing background material for meetings of senior central bankers, and it provides secretariat and analytical services to the various groups hosted by the BIS in Basel.

#### *Research focus*

In line with the Bank's mission, the focus of BIS research is on monetary and financial stability. As in previous years, a principal theme of the work was the policy implications of the morphing global financial crisis.

One strand of work explored the nexus between the international monetary and financial system and the performance of the global economy. At issue were the concept, measurement and policy implications of global liquidity and its relationship with imbalances in the current account. Making extensive use of the BIS's unique international financial statistics, the research

included detailed studies on international banking and on segments of the foreign exchange market.

A second element of work examined the link between the macroeconomy and public and private balance sheets. The investigation included in-depth analysis of the financial cycle and its relationship with the business cycle, and it explored the interplay between the financial health of the sovereign and that of the banking sector.

A third component focused on prudential and structural policies designed to make the financial system more resilient. The analysis examined strengths and weaknesses of macroprudential policy instruments such as countercyclical capital buffers and macro stress tests, and it considered key aspects of the financial infrastructure, including the architecture of central counterparties.

The fourth component studied the evolution of monetary policy in the wake of the global financial crisis. It analysed the effectiveness and limitations of balance sheet policies at central banks, such as large-scale asset purchases and the accumulation of foreign exchange reserves, and it assessed changes in the transmission mechanism of policy.

The BIS research function annually organises a number of conferences and workshops in which participation bridges the worlds of policy, research and business. The leading event is the BIS Annual Conference. In June 2011, the 10th BIS Annual Conference addressed the implications of fiscal policy for macroeconomic, monetary and financial stability. In February 2012, the BIS and the ECB jointly organised a workshop on global liquidity in the international monetary and financial system.

### *International statistical initiatives*

The BIS has been collecting and disseminating data on cross-border claims and liabilities of internationally active banks for several decades. This year, it focused on a multistage process of improving these data according to the recommendations of a CGFS task force. In the first stage of the process, central banks will enhance the reporting of residency-based cross-border data by providing more currency detail, decomposing counterparty data by nationality of the reporting bank, and introducing positions on residents in domestic currency. The BIS expects the new data to be initially reported as of the second quarter of 2012. In the second stage, central banks will report a more detailed sectoral breakdown in both the locational and consolidated banking statistics. The latter will also be extended to include the liability positions of banks, including capital. The target for the second stage of data is as of the fourth quarter of 2013.

In June 2011, the BIS began publishing its international banking statistics via its Webstats online search and retrieval facility. Users can now interactively search for data and download them in various formats, including SDMX. The BIS co-sponsors the SDMX (Statistical Data and Metadata Exchange) programme, which produces and maintains technical standards and content-oriented guidelines for the exchange of statistical information. Webstats: <http://stats.bis.org>; SDMX: [www.sdmx.org](http://www.sdmx.org)

Through its public website, the BIS continued to improve the dissemination of residential and commercial property price indices that it collects in its Data Bank from national sources. The Data Bank contains key economic indicators reported by almost all BIS shareholding central banks, additional detailed macroeconomic series from major advanced and emerging economies, and data collected by various BIS-hosted groups. More thought is being given to using the Data Bank for calculating long series of important economic variables.

The BIS is represented in a number of other international committees focused on statistics, including the Inter-Agency Group on Economic and Financial Statistics (IAG).<sup>5</sup> During the year, these committees addressed the information gaps revealed by the financial crisis, with much of the effort concentrated on the recommendations to the G20 made by the FSB and the IMF. Also, the Working Group on Securities Databases, which consists of the BIS, ECB and IMF, developed the third part of the *Handbook on securities statistics*, covering the issuance and holdings of equity securities.

A long-term BIS project to improve the compilation of international and domestic statistics on debt securities is nearing completion. The project envisages three changes: (i) define an “international issue” as a debt security issued outside the market in which the borrower resides; (ii) align published breakdowns with the recommendations in the *Handbook on securities statistics*; and (iii) make greater use of statistics reported by central banks to compile data on domestic and total debt securities. The BIS intends to disseminate improved data on securities issues on its website and to facilitate the release of additional data from national sources as they become available.

### Other central bank initiatives to which the BIS lends support

The BIS contributes to the activities of regional central banks. During the past year, it supported the events sponsored by the following organisations:

- CEMLA (Center for Latin American Monetary Studies) – banking, macroprudential policy, monetary policy, payment and settlement systems;
- the South East Asian Central Banks (SEACEN) Research and Training Centre – central bank communications, financial stability and supervision, monetary policy, payment and settlement systems;
- the Macroeconomic and Financial Management Institute of Eastern and Southern Africa – payment and settlement systems, portfolio management, risk management.

BIS experts also contributed to events organised by the Bank of France’s International Banking and Finance Institute, the Bank of England’s Centre for Central Banking Studies and the Bank of Japan.

<sup>5</sup> In addition to the BIS, the IAG comprises the ECB, Eurostat, IMF, OECD, United Nations and World Bank.

## Financial services of the Bank

The BIS offers a wide range of financial services designed specifically to assist central banks and other official monetary authorities in the management of their foreign reserves. Some 140 such institutions, as well as a number of international organisations, make active use of these services.

Safety and liquidity are the key features of the BIS's credit intermediation services, which are supported by a rigorous internal risk management framework. Independent control units reporting directly to the BIS Deputy General Manager monitor and control the related risks. A compliance and operational risk unit monitors operational risk, while a risk control unit controls the Bank's financial risks, ie credit, liquidity and market risks. The risk control unit is also responsible for coordinating activities in order to provide an integrated approach to risk management.

BIS financial services are provided from two linked trading rooms: one in Basel, at the Bank's head office; and one in Hong Kong SAR, at its Asian Office.

### *Scope of services*

In response to the diverse and constantly evolving needs of central banks, the BIS offers an extensive array of investment possibilities in terms of currency denomination, maturity and liquidity. The Bank offers tradable instruments in maturities ranging from one week to five years – Fixed-Rate Investments at the BIS (FIXBIS) and Medium-Term Instruments (MTIs); structured products with embedded optionality; and traditional money market placements, such as sight/notice accounts and fixed-term deposits. In addition, the Bank provides short-term liquidity facilities and extends credit to central banks, usually on a collateralised basis. The Bank also acts as trustee and collateral agent.

The Bank transacts foreign exchange and gold on behalf of its customers, providing access to a large liquidity base in the context of, for example, regular rebalancing of reserve portfolios or major changes in reserve currency allocation. The foreign exchange services of the Bank encompass spot transactions in major currencies and Special Drawing Rights (SDR) as well as swaps, outright forwards, options and dual currency deposits (DCDs). In addition, the Bank provides gold services such as sight accounts, fixed-term deposits, earmarked accounts, upgrading and refining, and location exchanges.

The BIS provides asset management services in sovereign securities and high-grade credit fixed income instruments. These may take the form of a dedicated portfolio mandate negotiated between the BIS and a customer; or the services may be supplied through an open-end fund structure – the BIS Investment Pool (BISIP) – that allows customers to invest in a common pool of assets. Both investment structures are offered as either single currency or multicurrency mandates in the world's major reserve currencies: the US dollar, euro, sterling and yen. For multicurrency mandates, the investor can choose from portfolios that are either hedged back into the base currency or left unhedged.

Dedicated mandates are designed according to each customer's preferences with regard to investment guidelines and benchmarks. In contrast, BISIPs are similar to mutual funds or unit funds but specifically cater to the

investment criteria typical of central banks and international institutions. Separately, EMEAP (Executives' Meeting of East Asia-Pacific Central Banks) has mandated the BIS to administer the two Asian Bond Funds, ABF1 and ABF2, under the BISIP umbrella: ABF1 is managed by the BIS and ABF2 by a group of external fund managers.

The BIS, in cooperation with a group of advising central banks, has established a BISIP in US inflation-protected government securities. The management of this pool of assets is conducted by a group of external investment firms, while the administration is performed by the BIS.

The BIS Banking Department also hosts global and regional meetings, seminars and workshops on reserve management issues. These meetings facilitate the exchange of knowledge and experience among reserve managers and promote the development of investment and risk management capabilities in central banks and international organisations.

### *Financial operations in 2011/12*

In 2011/12, financial markets were largely driven by the evolution of the euro area sovereign debt crisis, tighter funding conditions in credit markets and periods of high volatility. Against this background, the Bank's balance sheet total fluctuated between SDR 280 billion and SDR 230 billion. For the year, it decreased by SDR 5.4 billion, following a marginal increase of SDR 2.2 billion in the previous year. As a result, the balance sheet total at 31 March 2012 was SDR 255.7 billion.

#### *Liabilities*

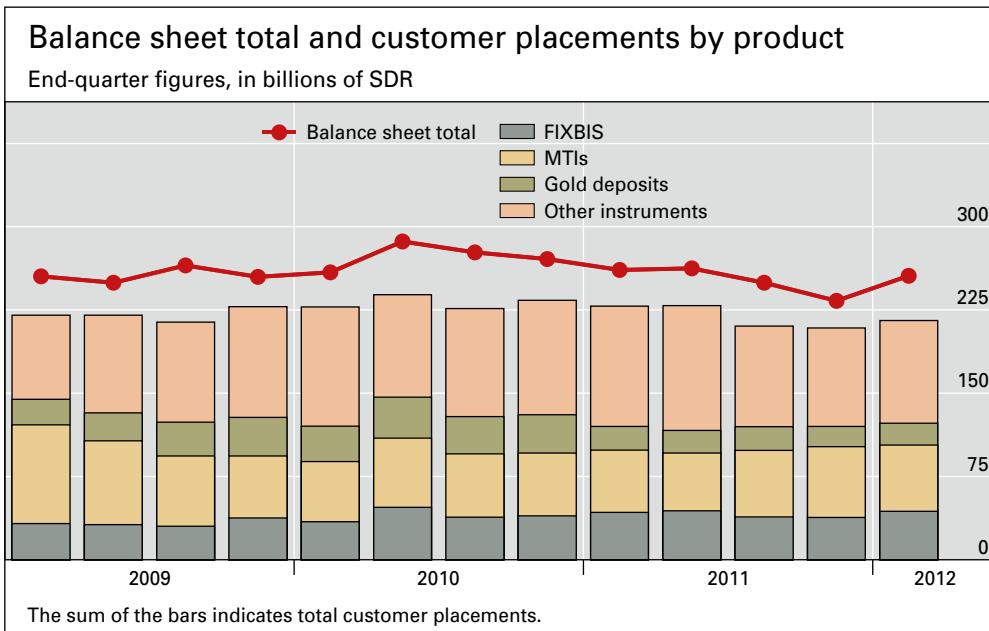
Customer placements constitute the largest share of total liabilities (see graph). On 31 March 2012, customer placements (excluding repurchase agreements) amounted to SDR 215.4 billion, compared with SDR 228.4 billion at the end of 2010/11. This net decrease resulted from the contraction of both customer currency and gold placements.

About 91% of customer placements are denominated in currencies, with the remainder in gold. Currency deposits decreased from SDR 207.1 billion a year ago to SDR 195.8 billion at end-March 2012. That balance represents some 2.7% of the world's total foreign exchange reserves – which totalled nearly SDR 6.6 trillion at end-March 2012, up from SDR 6.4 trillion at end-March 2011.<sup>6</sup> The share of currency placements denominated in US dollars was 70%, while euro- and sterling-denominated funds accounted for 14% and 7% respectively.

The net decrease in customer currency placements resulted mainly from a contraction of 26% in fixed-term deposits, which was partially offset by an increase of 41% in sight and notice deposit accounts and of 6% in MTIs.

Gold deposits amounted to SDR 19.6 billion at end-March 2012, a decrease of SDR 1.6 billion for the financial year.

<sup>6</sup> Funds placed by institutions for which foreign exchange reserves data are not available are excluded from the calculation.



## Assets

As in the previous financial year, most of the assets held by the BIS consist of government and quasi-government securities plus investments (including reverse repurchase agreements) with highly rated commercial banks of international standing. In addition, the Bank owned 116 tonnes of fine gold at 31 March 2012. The Bank's credit exposure is managed in a conservative manner, with almost all of it rated no lower than A– at 31 March 2012 (see note 3, "Credit risk", in the "Risk management" section of the financial statements).

The Bank's holdings of currency assets totalled SDR 200.2 billion on 31 March 2012, down from SDR 209.3 billion at the end of the previous financial year (see note 5, "Currency assets", in "Notes to the financial statements").

The Bank uses various derivative instruments to manage its assets and liabilities efficiently (see note 7, "Derivative financial instruments", in "Notes to the financial statements").

## Representative Offices

The BIS has a Representative Office for Asia and the Pacific (the Asian Office), located in the Hong Kong Special Administrative Region of the People's Republic of China; and a Representative Office for the Americas (the Americas Office), located in Mexico City. The Representative Offices promote cooperation within each region by organising meetings, conducting policy research and fostering the exchange of information and data. The Asian Office also provides banking services to the region's monetary authorities.

### *The Asian Office*

With strong support from the BIS shareholding central banks in the Asia-Pacific region, economists in the Asian Office continued to pursue a policy-

oriented research agenda. The Office likewise maintained its programme of helping to organise high-level regional meetings and, through its Regional Treasury, continued to offer specialised banking services.

#### *The Asian Consultative Council*

The Asian Consultative Council (ACC), comprising the Governors of the 12 BIS shareholding central banks in the region,<sup>7</sup> guides the activities of the Asian Office. ACC chair Masaaki Shirakawa, Governor of the Bank of Japan, presided over the Council's meetings and reported to the BIS Board on the Office's activities. At its June 2011 semiannual meeting in Basel, the ACC supported the continuation of the four regular Governor-level meetings organised by the BIS in the region. At its meeting in February in Hong Kong, the ACC endorsed a topic to serve as the new research focus of the monetary group for the next two years: "Globalisation and inflation dynamics in Asia and the Pacific".

#### *Research*

Economists in the Asian Office, along with those in Basel, produced research on two themes – chosen in 2010 – that are highly relevant to ACC central banks: on the monetary side, the role of central bank balance sheets in monetary policy and exchange rate issues; and on the financial side, property prices. A workshop hosted by the Monetary Authority of Singapore in September helped sharpen the focus of the research on property prices. A research conference hosted by the Bank of Thailand in Chiang Mai in December marked the completion of the focus on central bank balance sheets.

The economists continued to engage in collaborative research with most BIS shareholding central banks in the region as well as with regional organisations of central banks. The work has fed into numerous central bank meetings and has yielded several articles in refereed journals and major BIS publications.

#### *The Special Governors' Meeting and other high-level meetings*

The Asian Office helped organise 10 high-level BIS policy meetings in the region during the period. Each meeting was held jointly with a central bank in the region or with a regional body of central banks, such as the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP) or the South East Asian Central Banks (SEACEN) Research and Training Centre.

The annual Special Governors' Meeting gathers the Governors of the major central banks in the region together with other Governors from around the world to address issues of common concern. This year's meeting was organised jointly with the Hong Kong Monetary Authority and held in Hong Kong in February. For the second time, the event included a meeting with the chief executive officers of large financial institutions active in the region to discuss the challenges and threats faced by financial systems in Asia and the Pacific.

<sup>7</sup> Those of Australia, China, Hong Kong SAR, India, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore and Thailand.

Other high-level events were a meeting in June of the Working Party on Monetary Policy in Asia, co-hosted by the Hong Kong Monetary Authority in Hong Kong; in November, the Seventh High-Level Seminar on Financial Markets, co-hosted by the Bank of Japan in Yokohama; and in January, the SEACEN-BIS Exco Seminar, co-hosted by the Central Bank of Sri Lanka in Colombo.

#### *Banking activity and the Asian Bond Funds*

Against the background of ongoing concerns about the global economic and financial environment, central banks in the region maintained a rather conservative stance in their reserve portfolio operations with the BIS, relying mainly on short-term liquid instruments. On balance, placements by central banks from the region in the 2011/12 financial year were down slightly from those in 2010/11.

As fund administrator, the BIS continued to support the second Asian Bond Fund (ABF2), an EMEAP initiative to foster the development of local currency bond markets. At the end of March 2012, the combined size of the funds stood at \$4.8 billion, an increase of about 21% since the end of March 2011. The total return on the Pan-Asia Bond Index Fund (PAIF) from its inception on 7 July 2005 to end-March 2012 was 59%, which compared favourably with the 44% return on a US Treasury index of similar duration.

#### *The Americas Office*

The Americas Office, together with the BIS head office, is currently studying the way capital inflows may be influencing regional monetary policy; also under review are the local effects of recent recommendations to enhance key supervisory standards and strengthen financial stability. Within the region, the Office is disseminating BIS research and analysis on these and related topics and is assisting Basel-based departments and groupings in their outreach efforts and analysis.

The Office's work with BIS member banks, other central banks, regulatory authorities and the academic community generated several papers on economic topics this year. Most of the papers are available on the Americas Office pages of the BIS website.

The Office supported meetings at regional central banks. These included the October 2011 meeting of the Working Party on Monetary Policy in Latin America, convened at the Central Bank of Argentina, and the July 2011 gathering of the Markets Committee Working Party on Markets in Latin America, hosted by the Bank of Mexico. The Americas Office also supported several training events organised by the FSI in cooperation with regional groupings of supervisors.

The Office provided speakers to, or participated in, various other conferences and meetings convened by regional central banks and international organisations and groupings. For example, it supported the November 2011 annual meeting of the Latin American and Caribbean Economic Association (LACEA). In December 2011, it hosted, together

with the Bank of Mexico and CEMLA (Center for Latin American Monetary Studies), a roundtable on external factors and monetary policy. And in March 2012, the Office contributed to a joint meeting on international banking after the crisis, convened at the Central Reserve Bank of Peru in cooperation with CEMLA.

#### *The Consultative Council for the Americas*

The Office serves as the secretariat to the Consultative Council for the Americas (CCA). The CCA, which comprises the Governors of the eight BIS member central banks in the Americas,<sup>8</sup> was established in May 2008 as an advisory committee to the BIS Board of Directors. CCA members are regularly informed of the work of the BIS and the Americas Office in the region and provide guidance on current and possible future work at the BIS of interest to the Americas. It is currently sponsoring cooperative efforts in economic research among its member central banks, including a series of research conferences. The second such conference was held at the Bank of Canada in May 2011.

José de Gregorio chaired the CCA from January 2011 until December 2011, the end of his term as Governor of the Central Bank of Chile. In January 2012, the BIS Board appointed Agustín Carstens, Governor of the Bank of Mexico, to a two-year term as chair beginning 10 January.

### Governance and management of the BIS

The governance and management of the Bank are conducted at three principal levels:

- the General Meeting of BIS member central banks;
- the BIS Board of Directors; and
- BIS Management.

The BIS has its head office in Basel, Switzerland. At the end of the 2011/12 financial year, the BIS employed 616 staff members from 54 countries.

#### *Membership expansion*

With a view to further strengthening central bank cooperation, the Board of Directors decided on 26 June 2011 to invite an additional four central banks to become members of the Bank in accordance with Article 8.3 of the BIS Statutes. The Bank of the Republic (Colombia), the Central Bank of Luxembourg, the Central Reserve Bank of Peru and the Central Bank of the United Arab Emirates were each invited to subscribe 3,000 shares of the third tranche of the capital of the BIS. By the close of the subscription period at end-2011, all four central banks had taken up the Board's offer to become members of the BIS.

At its meeting in June 2011, the Board fixed the issue price per share at SDR 21,904. As the Bank's authorised nominal capital of SDR 5,000 per share is

<sup>8</sup> Those of Argentina, Brazil, Canada, Chile, Colombia, Mexico, Peru and the United States.

paid up by members to the extent of 25%, or SDR 1,250 per share, the issue price of SDR 21,904 included a premium of SDR 20,654 per share. At 31 March 2012, following the subscription by the four new members totalling 12,000 shares, the number of the Bank's issued shares rose to 559,125, and the paid-up capital of the Bank in the balance sheet increased by SDR 15 million (at SDR 1,250 per share) to SDR 699 million. The aggregate premium received from the four new central bank members amounted to SDR 247.8 million, of which SDR 1.5 million was allocated to the legal reserve fund and SDR 246.3 million to the general reserve fund.

### *The General Meeting of BIS member central banks*

Sixty central banks and monetary authorities are currently members of the BIS and have rights of voting and representation at General Meetings. The Annual General Meeting (AGM) is held no later than four months after 31 March, the end of the BIS financial year. The AGM decides the distribution of the dividend and profit of the BIS, approves the annual report and the accounts of the Bank, makes adjustments in the allowances paid to Board members and selects the Bank's external auditor.

### *The BIS Board of Directors*

Consisting of 19 members, the Board of Directors is assisted by four committees of Board members: the Administrative Committee, the Audit Committee, the Banking and Risk Management Committee, and the Nomination Committee. The main responsibilities of the Board are determining the strategic and policy direction of the BIS and supervising the Bank's Management.

Nout Wellink retired as President of the Netherlands Bank at the end of June 2011 and therefore stepped down as a member of the BIS Board. He had been a member of the Board since 1997 and had served as its Chairman from March 2002 to February 2006. Mr Wellink's successor as President of the Netherlands Bank, Klaas Knot, was elected by the Board at its meeting in September 2011 to fill the remainder of Mr Wellink's BIS Board term, which ends on 30 June 2012.

Jean-Claude Trichet retired as President of the ECB, and therefore as a member of the BIS Board, at the end of October 2011. With effect from 1 November 2011, Mario Draghi stepped down as Governor of the Bank of Italy, thereby vacating his seat on the Board, to take up his new position as President of the ECB. Ignazio Visco succeeded Mr Draghi at the Bank of Italy and became an ex officio member of the Board. At its September 2011 meeting, the BIS Board elected Mario Draghi to fill the remainder of Mr Trichet's BIS Board term, which ends on 30 June 2012.

Paul Tucker, Deputy Governor, Financial Stability, of the Bank of England, stepped down as a member of the Board at the end of December 2011.

With effect from 1 January 2012, Jens Weidmann, President of the Deutsche Bundesbank, appointed Andreas Dombret, of the Executive Board of the Deutsche Bundesbank, to the BIS Board.

Following the retirement of Jean-Pierre Landau from the Board, Christian Noyer, Governor of the Bank of France, appointed Anne Le Lorier, First Deputy Governor of the Bank of France, to the BIS Board with effect from 1 January 2012.

On 9 January 2012, Philipp Hildebrand resigned as Chairman of the Governing Board of the Swiss National Bank and therefore also from the BIS Board and as Chairman of its Administrative Committee. His successor at the Swiss National Bank, Thomas Jordan, was elected to the BIS Board of Directors on 7 May 2012 for the remainder of Mr Hildebrand's term, which ends on 31 March 2013. Agustín Carstens, Governor of the Bank of Mexico, was elected to succeed Mr Hildebrand as Chairman of the Administrative Committee with effect from 5 March 2012.

BIS shareholding institutions and members of the BIS Board of Directors are listed on the following pages.

## BIS member central banks

|   |  |
|---|--|
| Bank of Algeria                         | Bank of Lithuania  |
| Central Bank of Argentina               | Central Bank of Luxembourg                                       |
| Reserve Bank of Australia               | National Bank of the Republic of Macedonia                       |
| Central Bank of the Republic of Austria | Central Bank of Malaysia   |
| National Bank of Belgium                | Bank of Mexico   |
| Central Bank of Bosnia and Herzegovina  | Netherlands Bank   |
| Central Bank of Brazil                  | Reserve Bank of New Zealand                                      |
| Bulgarian National Bank                 | Central Bank of Norway   |
| Bank of Canada                          | Central Reserve Bank of Peru                                     |
| Central Bank of Chile                   | Bangko Sentral ng Pilipinas<br>(Philippines)                     |
| People's Bank of China                  | National Bank of Poland  |
| Bank of the Republic (Colombia)         | Bank of Portugal   |
| Croatian National Bank                  | National Bank of Romania   |
| Czech National Bank                     | Central Bank of the Russian Federation                           |
| National Bank of Denmark                | Saudi Arabian Monetary Agency                                    |
| Bank of Estonia                         | National Bank of Serbia  |
| European Central Bank                   | Monetary Authority of Singapore                                  |
| Bank of Finland                         | National Bank of Slovakia  |
| Bank of France                          | Bank of Slovenia   |
| Deutsche Bundesbank (Germany)           | South African Reserve Bank                                       |
| Bank of Greece                          | Bank of Spain  |
| Hong Kong Monetary Authority            | Sveriges Riksbank (Sweden)                                       |
| Magyar Nemzeti Bank (Hungary)           | Swiss National Bank  |
| Central Bank of Iceland                 | Bank of Thailand   |
| Reserve Bank of India                   | Central Bank of the Republic of Turkey                           |
| Bank Indonesia                          | Central Bank of the United Arab Emirates                         |
| Central Bank of Ireland                 | Bank of England  |
| Bank of Israel                          | Board of Governors of the Federal Reserve System (United States) |
| Bank of Italy                           |  |
| Bank of Japan                           |  |
| Bank of Korea                           |  |
| Bank of Latvia                          |  |

## Board of Directors

Christian Noyer, Paris

Chairman

Masaaki Shirakawa, Tokyo

Vice-Chairman

Ben S Bernanke, Washington

Mark Carney, Ottawa

Agustín Carstens, Mexico City

Luc Coene, Brussels

Andreas Dombret, Frankfurt am Main

Mario Draghi, Frankfurt am Main

William C Dudley, New York

Stefan Ingves, Stockholm

Thomas Jordan, Zurich<sup>9</sup>

Mervyn King, London

Klaas Knot, Amsterdam

Anne Le Lorier, Paris

Guy Quaden, Brussels

Fabrizio Saccomanni, Rome

Ignazio Visco, Rome

Jens Weidmann, Frankfurt am Main

Zhou Xiaochuan, Beijing

### *Alternates*

Mathias Dewatripont or Jan Smets, Brussels

Pierre Jaitte or Christian Durand, Paris

Joachim Nagel or Karlheinz Bischofberger, Frankfurt am Main

Fabio Panetta, Rome

Paul Tucker or Paul Fisher, London

Janet L Yellen or Steven B Kamin, Washington

### *Committees of the Board of Directors*

Administrative Committee, chaired by Agustín Carstens

Audit Committee, chaired by Mark Carney

Banking and Risk Management Committee, chaired by Stefan Ingves

Nomination Committee, chaired by Christian Noyer

### *In memoriam*

The Board noted with deep regret the death on 15 April 2012 of Yasushi Mieno, former Governor of the Bank of Japan. He was 88. In September 1994, towards the end of his tenure as Governor, the Bank of Japan joined the Board; Mr Mieno thereupon became a member and served for three months.

<sup>9</sup> Elected to the BIS Board on 7 May 2012.

## *BIS Management*

BIS Management is under the overall direction of the General Manager, who is responsible to the Board of Directors for the conduct of the Bank. The General Manager is advised by the Executive Committee of the BIS, which consists of six members: the General Manager as chair; the Deputy General Manager; the Heads of the three BIS departments – the General Secretariat, the Monetary and Economic Department and the Banking Department – and the General Counsel.

Other senior officials are the Deputy Heads of the departments and the Chairman of the Financial Stability Institute.

|   |                      |
|---|----------------------|
| General Manager   | Jaime Caruana        |
| Deputy General Manager  | Hervé Hannoun        |
| Secretary General and Head of General Secretariat   | Peter Dittus         |
| Economic Adviser and Head of Monetary and Economic Department                             | Stephen G Cecchetti  |
| Head of Banking Department  | Günter Pleines       |
| General Counsel   | Diego Devos          |
| Deputy Secretary General  | Jim Etherington      |
| Deputy Head of Banking Department   | Louis de Montpellier |
| Deputy Head of Monetary and Economic Department (Research and Statistics)                 | Claudio Borio        |
| Deputy Head of Monetary and Economic Department (Policy, Coordination and Administration) | Philip Turner        |
| Chairman, Financial Stability Institute   | Josef Tošovský       |

## *Bank budget policy*

The process of formulating the Bank's expenditure budget for the next financial year starts about six months in advance with the setting by Management of a broad business orientation and financial framework. Within this context, business areas specify their plans and the corresponding resource requirements. The process of reconciling detailed business plans, objectives and overall resource availability culminates in a draft financial budget, which must be approved by the Board before the start of the financial year.

The budget distinguishes between administrative and capital expenditures. In common with organisations similar to the BIS, Management and staff expenditure – including remuneration, pensions, and health and accident insurance – amounts to around 70% of administrative expenditure. The other major expenditure categories, each accounting for about 10% of administrative spending, are information technology (IT), buildings and

equipment, and general operational costs. Capital spending, relating mainly to buildings and IT investment, can vary significantly from year to year depending on the projects in progress.

Administrative and capital expenditure for 2011/12 reflected the Bank's priority of responding to the global financial crisis. Additional staff positions were allocated to the Financial Stability Board (FSB), the Basel Committee on Banking Supervision (BCBS), the Committee on Payment and Settlement Systems (CPSS) and the Financial Stability Institute (FSI). At the same time, IT projects were undertaken to enhance statistical and research systems as well as to improve the dissemination of the Basel III package. In addition, the Banking Department completed work on improving the IT infrastructure for its asset management activities, which involved enhancements to data management, compliance checking, portfolio analysis, order management and trade processing.

For the financial year 2011/12, overall administrative expenditure on the Bank's budget basis of accounting<sup>10</sup> amounted to CHF 255.0 million, or CHF 13.5 million (5.0%) lower than the budget. It was CHF 1.3 million (0.5%) above actual administrative expenditure in 2010/11.

Capital expenditure was CHF 26.2 million, or CHF 0.4 million (1.5%) below the budget. It was CHF 4.5 million (20.7%) above actual capital expenditure in 2010/11.

Total expenditure was CHF 281.2 million, or CHF 13.9 million (4.7%) below budget. It was CHF 5.8 million (2.1%) above the actual expenditure in 2010/11.

For 2012/13, the Bank's business plan builds on the achievements in 2011/12, continuing to give priority to further enhancing financial stability activities. It allocates additional human and financial resources to deal with the expanding financial stability workload, particularly in the FSB, the BCBS and the statistical and long-term research sections of the Monetary and Economic Department. The additional work includes disseminating the Basel III package to the global community of central banks and financial supervisors and enhancing the Bank's statistical capacity for the monitoring of financial markets and institutions. Strengthening the resilience of BIS banking activities, based on appropriate levels of profitability and financial risk over the medium term, will continue to be the main priority of the Banking Department and the Risk Control, Finance and Compliance units. Additional resources were also made available in the budget to upgrade the Banking Department's main IT system.

In March 2012, the Board approved a 3.5% increase in the administrative budget for the financial year 2012/13, to CHF 277.4 million. It also approved a capital budget of CHF 23.3 million. The total budget of CHF 300.7 million is CHF 5.6 million (1.9%) higher than in 2011/12.

<sup>10</sup> The Bank's budget excludes financial accounting adjustments relating to post-employment benefit obligations for pensions and health and accident insurance. The expense for the next financial year depends on the actuarial valuations as at 31 March each year, which are not finalised until April, after the budget has been set by the Board. For similar reasons, certain extraordinary items are also excluded from the budget. These additional factors are included under "Operating expense" in the profit and loss account (see "Net profit and its distribution").

### *Bank remuneration policy*

The jobs performed by BIS staff members are assessed on the basis of a number of objective criteria, including qualifications, experience and responsibilities, and classified into distinct job grades. The job grades are associated with a structure of salary ranges. Salaries of individual staff members move within the ranges of the salary structure on the basis of performance. Every three years, a comprehensive survey benchmarks BIS salaries (in Swiss francs) against compensation in comparable institutions and market segments. In benchmarking, the Bank focuses on the upper half of market compensation in order to attract highly qualified staff. The analysis takes into account differences in the taxation of compensation at the surveyed institutions. In the most recent survey, which took place in the second half of 2010, the benchmark data reflected the comparator market as of 1 July 2010. As of 1 July 2011, the midpoints of the Bank's salary ranges were aligned with those observed market benchmarks and with the estimated change in external market salaries in the preceding year. The latter adjustment, based on the rate of inflation in Switzerland and the weighted average change in real wages in advanced economies, amounted to an increase of 1.4%.

Through the Bank, BIS staff members have access to a contributory health insurance plan and a contributory defined benefit pension plan. Non-locally hired, non-Swiss staff members recruited for a position at the Bank's headquarters, including senior officials, are entitled to an expatriation allowance. The allowance currently amounts to 14% of annual salary for unmarried staff members and 18% for married staff members, subject to a ceiling. Expatriate staff members are also entitled to receive an education allowance for their children, subject to certain conditions. In the Representative Offices, the BIS makes a distinction between staff members on an international assignment from the headquarters and staff members recruited directly for a position in a Representative Office. The employment conditions of the former are determined in accordance with the Bank's international assignment policy. For staff recruited directly, employment conditions are aligned with those in the market in which the Office is located, but they include access to the same health insurance and pension plans available to staff employed at the Bank's headquarters.

The salaries of senior officials are regularly benchmarked against compensation in comparable institutions and market segments. As with the survey for other staff, the most recent executive compensation survey took place in the second half of 2010. The results confirmed the appropriateness of the current practice of annually adjusting the salaries of senior officials for the rate of Swiss inflation.

As of 1 July 2011, the annual remuneration of senior officials, before expatriation allowances, is based on the salary structure (in Swiss francs) of 763,930 for the General Manager;<sup>11</sup> 646,400 for the Deputy General Manager; and 587,640 for Heads of Department.

<sup>11</sup> In addition to the basic salary, the General Manager receives an annual representation allowance and enhanced pension rights.

The Annual General Meeting approves the remuneration of members of the Board of Directors, with adjustments taking place at regular intervals. The total fixed annual remuneration paid to the Board of Directors was 1,049,520 Swiss francs as of 1 April 2012. In addition, Board members receive an attendance fee for each Board meeting in which they participate. Assuming the full Board is represented in all Board meetings, the annual total of these attendance fees amounts to 973,788 Swiss francs.

### Net profit and its distribution

The Bank recorded a net profit of SDR 758.9 million for its 82nd financial year, ended 31 March 2012. This result is 7% lower than the previous year, reflecting a lower average balance sheet as well as the difficult market conditions that prevailed for most of the year.

#### *Principal factors behind the 2011/12 profit*

The financial year 2011/12 included periods of rising and falling market tension. The first half of the financial year saw a challenging combination of widening credit spreads, heightened distortions in money markets and risk aversion among investors. Market conditions improved slightly in October before deteriorating sharply in November. The last four months of the financial year then saw narrowing credit spreads together with relative stability in foreign exchange and money markets.

Against this backdrop, net interest income amounted to SDR 1,458.1 million in 2011/12, compared with SDR 1,465.4 million in the preceding financial year. This reflected an almost unchanged average volume of currency deposits from customers.

Net valuation losses amounted to SDR 590.3 million, compared with a loss of SDR 509.2 million in the preceding financial year. These losses were mainly attributable to widening credit spreads on euro area debt instruments held in the Bank's credit portfolios.

Operating expenses amounted to SDR 226.7 million, 10.6% above the 2010/11 figure of SDR 205.0 million.<sup>12</sup>

After taking into account the above factors, the Bank's operating profit amounted to SDR 655.5 million, which was SDR 83 million below the SDR 738.5 million recorded in 2010/11.

The Bank's available for sale portfolios, one for investment securities and one for gold, hold positions for which valuation gains are recognised in the profit and loss account only on disposal. During 2011/12, the Bank continued to manage its portfolio of available for sale investment securities with a benchmark duration of three years, with disposals in this portfolio realising a net gain of

<sup>12</sup> See the earlier section "Bank budget policy" for details on this year's BIS budget, including the treatment of operating expenses. Because most of the Bank's administrative and capital expenditure is incurred in Swiss francs, the budget is expressed and controlled in that currency. As the Bank's financial statements are presented in SDR, they include the effect of the 11% appreciation of the Swiss franc against the SDR during the year.

SDR 24.7 million (2010/11: net gain of SDR 55.7 million). The Bank also realised a gain of SDR 78.7 million on the sale of 3 tonnes of its gold investment assets. This compares with a gain of SDR 21.8 million on the sale of 1 tonne in 2010/11.

As a result of these factors, the net profit for 2011/12 amounted to SDR 758.9 million, SDR 57.1 million below the SDR 816.0 million recorded in 2010/11.

### *Movements in equity*

The unrealised gains on the Bank's available for sale portfolios, one for investment securities and one for gold, are included in revaluation accounts in the Bank's equity.

The securities revaluation account increased by SDR 296.5 million from net unrealised gains (2010/11: loss of SDR 197.3 million), mainly the result of falling interest yields over the year. The gold revaluation account increased by SDR 551.8 million (2010/11: gain of SDR 650.4 million), which was attributable primarily to the 18% appreciation of the gold price during the year.

After these gains are taken into account, the Bank's total comprehensive income for 2011/12 was SDR 1,607.2 million. This represented a return of 9.2% on average equity of SDR 17,562 million. In 2010/11, the total return was SDR 1,269.1 million, or 7.8%, on average equity of SDR 16,238 million. Taking into account the dividend for 2010/11 of SDR 374.1 million that was paid during 2011/12 and the issue of new shares for SDR 262.9 million, the Bank's equity increased by SDR 1,709.0 million during the year ended 31 March 2012.

### *Proposed dividend*

The Board's review of the BIS dividend policy in 2009/10 took into consideration the Bank's capital needs and the interests of BIS shareholders in obtaining a fair and sustainable return on their investments in BIS shares. In framing the dividend policy, the Board adopted a number of governing principles, which are:

- First, the need for the Bank to maintain a strong capital base at all times, including during financial stress.
- Second, the dividend should be relatively stable, set at a sustainable level and changing in a predictable manner each year.
- Third, while the Bank's dividend policy should provide guidance for the medium term, the dividend should continue to reflect the prevailing financial circumstances of the Bank, and the Board's proposal to the AGM should remain an annual decision.

The dividend policy takes into account the Bank's capital adequacy and leverage ratio requirements. The policy, which is due to be reviewed again in 2014/15, incorporates:

- a normal sustainable dividend, decided ex ante in conformity with the medium-term dividend policy, which would increase by SDR 10 per share per annum; and
- a supplementary dividend, which would be decided ex post, while keeping leverage and economic capital within desired ranges.

The policy ensures that earnings are retained to augment the Bank's capital at a rate sufficient to support the Bank's business and maintain its capital position relative to the size of the balance sheet and its economic capital requirements. In normal circumstances, it results in a steady progression in annual dividends while retaining the flexibility to be operable in years of low or high profits. In addition, the final approval of the dividend coincides with the outcome of the annual economic capital allocation process (see note 2 of the capital adequacy section of the financial statements), enabling the Board to set an appropriate dividend while ensuring that the Bank's capital base remains strong.

Consistent with this dividend policy, the Board proposes for the financial year 2011/12 to declare a normal dividend of SDR 305 per share, SDR 10 per share above the normal dividend for 2010/11. No supplementary dividend is proposed for 2011/12.

At 31 March 2012, there were 559,125 issued and paid-up shares (2011: 547,125); this includes the 1,000 shares of the Albanian issue that are suspended and held in treasury. During 2011/12, 12,000 shares were issued to new members.

A full normal dividend will be paid on 546,125 shares, while the 12,000 shares issued during the year will receive a pro rata amount calculated from the date of subscription. No dividend will be paid on the 1,000 shares held in treasury.

The resulting total proposed dividend of SDR 168.4 million would be paid out on 29 June 2012 in any constituent currency of the SDR, or in Swiss francs, according to the instructions of each shareholder named in the Bank's share register at 31 March 2012.

#### *Proposed distribution and allocation of net profit for the year*

On the basis of Article 51 of the Bank's Statutes, the Board of Directors recommends to the Annual General Meeting that the net profit for the year of SDR 758.9 million be applied by the General Meeting in the following manner:

- (a) SDR 168.4 million to be paid as a normal dividend of SDR 305 per share;
- (b) SDR 29.5 million to be transferred to the general reserve fund;<sup>13</sup>
- (c) SDR 6.0 million to be transferred to the special dividend reserve fund; and
- (d) SDR 555.0 million, representing the remainder of the available profit, to be transferred to the free reserve fund.

#### *Report of the auditor*

The Bank's financial statements have been duly audited by Deloitte AG, who have confirmed that they give a true and fair view of the Bank's financial position at 31 March 2012 and the results of its operations for the year then

<sup>13</sup> The general reserve fund exceeded five times the Bank's paid-up capital at 31 March 2012. As such, under Article 51 of the Statutes, 5% of net profit, after accounting for the proposed dividend, should be allocated to the general reserve fund.

ended. The Deloitte report is to be found immediately following the financial statements.

*Auditor rotation*

In line with the Board policy on auditor rotation, Deloitte AG will resign as auditor after the year-end, having served for a term of seven years. A selection process involving the Bank's Management and the Audit Committee having been concluded, it is intended that Ernst & Young will become the Bank's new auditor; a resolution to appoint them for 2012/13 will be presented to the Annual General Meeting.

## **Financial statements**

**as at 31 March 2012**

The financial statements on pages 134–98 for the financial year ended 31 March 2012 were approved on 7 May 2012 for presentation to the Annual General Meeting on 24 June 2012. They are presented in a form approved by the Board of Directors pursuant to Article 49 of the Bank's Statutes and are subject to approval by the shareholders at the Annual General Meeting.

**Jaime Caruana  
General Manager**

**Hervé Hannoun  
Deputy General Manager**

## Balance sheet

As at 31 March

| <i>SDR millions</i>                          | Notes | 2012             | 2011             |
|--|-------|------------------|------------------|
| <b>Assets</b>                                |       |                  |                  |
| Cash and sight accounts with banks           | 3     | 4,077.8          | 329.8            |
| Gold and gold loans                          | 4     | 35,912.7         | 36,637.2         |
| Treasury bills                               | 5     | 53,492.3         | 76,932.1         |
| Securities purchased under resale agreements | 5     | 46,210.8         | 51,464.0         |
| Loans and advances                           | 6     | 22,757.1         | 24,170.4         |
| Government and other securities              | 5     | 77,877.7         | 56,987.9         |
| Derivative financial instruments             | 7     | 7,303.9          | 5,790.3          |
| Accounts receivable                          | 8     | 7,845.5          | 8,616.3          |
| Land, buildings and equipment                | 9     | 193.0            | 190.8            |
| <b>Total assets</b>                          |       | <b>255,670.8</b> | <b>261,118.8</b> |
| <b>Liabilities</b>                           |       |                  |                  |
| Currency deposits                            | 10    | 195,778.5        | 207,085.6        |
| Gold deposits                                | 11    | 19,624.0         | 21,269.9         |
| Derivative financial instruments             | 7     | 4,727.0          | 6,959.5          |
| Accounts payable                             | 12    | 16,745.5         | 8,758.1          |
| Other liabilities                            | 13    | 416.5            | 375.4            |
| <b>Total liabilities</b>                     |       | <b>237,291.5</b> | <b>244,448.5</b> |
| <b>Shareholders' equity</b>                  |       |                  |                  |
| Share capital                                | 14    | 698.9            | 683.9            |
| Statutory reserves                           | 15    | 13,057.2         | 12,154.4         |
| Profit and loss account                      |       | 758.9            | 816.0            |
| Less: shares held in treasury                | 16    | (1.7)            | (1.7)            |
| Other equity accounts                        | 17    | 3,866.0          | 3,017.7          |
| <b>Total equity</b>                          |       | <b>18,379.3</b>  | <b>16,670.3</b>  |
| <b>Total liabilities and equity</b>          |       | <b>255,670.8</b> | <b>261,118.8</b> |

## Profit and loss account

For the financial year ended 31 March

| <i>SDR millions</i>  | Notes | 2012           | 2011      |
|--|-------|----------------|-----------|
| Interest income  | 19    | 3,091.2        | 3,324.4   |
| Interest expense   | 20    | (1,633.1)      | (1,859.0) |
| <b>Net interest income</b>                                     |       | <b>1,458.1</b> | 1,465.4   |
| Net valuation movement   | 21    | (590.3)        | (509.2)   |
| <b>Net interest and valuation income</b>                       |       | <b>867.8</b>   | 956.2     |
| Net fee and commission income                                  | 22    | 4.7            | 3.1       |
| Net foreign exchange gain / (loss)                             | 23    | 9.7            | (15.8)    |
| <b>Total operating income</b>                                  |       | <b>882.2</b>   | 943.5     |
| Operating expense  | 24    | (226.7)        | (205.0)   |
| <b>Operating profit</b>  |       | <b>655.5</b>   | 738.5     |
| Net gain on sales of securities available for sale             | 25    | 24.7           | 55.7      |
| Net gain on sales of gold investment assets                    | 26    | 78.7           | 21.8      |
| <b>Net profit for the financial year</b>                       |       | <b>758.9</b>   | 816.0     |
| <b>Basic and diluted earnings per share (in SDR per share)</b> | 27    | <b>1,374.6</b> | 1,494.2   |

## Statement of comprehensive income

For the financial year ended 31 March

| <i>SDR millions</i>                                       | Notes | 2012           | 2011    |
|---|-------|----------------|---------|
| <b>Net profit for the financial year</b>                  |       | <b>758.9</b>   | 816.0   |
| Unrealised gain / (loss) on securities available for sale | 17A   | 296.5          | (197.3) |
| Unrealised gain on gold investment assets                 | 17B   | 551.8          | 650.4   |
| <b>Total comprehensive income for the financial year</b>  |       | <b>1,607.2</b> | 1,269.1 |

# Statement of cash flows

For the financial year ended 31 March

| <i>SDR millions</i>   | Notes | 2012           | 2011           |
|---|-------|----------------|----------------|
| <b>Cash flow from / (used in) operating activities</b>                              |       |                |                |
| Interest and similar income received  |       | 3,676.2        | 3,591.1        |
| Interest and similar expenses paid  |       | (1,625.4)      | (1,769.2)      |
| Net fee and commission income   | 22    | 4.7            | 3.1            |
| Net foreign exchange transaction gain   | 23    | 14.4           | 21.5           |
| Operating expenses paid   |       | (210.4)        | (190.8)        |
| <b>Non-cash flow items included in operating profit</b>                             |       |                |                |
| Valuation movements on operating assets and liabilities                             | 21    | (590.3)        | (509.2)        |
| Net foreign exchange translation loss   | 23    | (4.7)          | (37.3)         |
| Release of impairment provision on gold loans                                       |       | 34.7           | –              |
| Change in accruals and amortisation   |       | (627.4)        | (356.5)        |
| <b>Change in operating assets and liabilities</b>                                   |       |                |                |
| Currency deposit liabilities held at fair value through profit and loss             |       | (18,980.9)     | 17,500.9       |
| Currency banking assets   |       | 19,630.1       | (10,882.2)     |
| Sight and notice deposit account liabilities  |       | 7,251.1        | (11,022.2)     |
| Gold deposit liabilities  |       | (1,645.9)      | (10,794.2)     |
| Gold and gold loan banking assets   |       | 1,291.5        | 7,042.6        |
| Accounts receivable   |       | (2.0)          | 1.5            |
| Other liabilities / accounts payable  |       | 41.1           | (332.7)        |
| Net derivative financial instruments  |       | (3,746.1)      | 7,096.5        |
| <b>Net cash flow from / (used in) operating activities</b>                          |       | <b>4,510.7</b> | <b>(637.1)</b> |
| <b>Cash flow from / (used in) investment activities</b>                             |       |                |                |
| Net change in currency investment assets available for sale                         | 5B    | (923.0)        | (829.8)        |
| Net change in currency investment assets held at fair value through profit and loss |       | (51.7)         | (82.9)         |
| Net change in gold investment assets  | 4B    | 63.5           | 32.2           |
| Net purchase of land, buildings and equipment                                       | 9     | (18.9)         | (15.1)         |
| <b>Net cash flow used in investment activities</b>                                  |       | <b>(930.1)</b> | <b>(895.6)</b> |

| <i>SDR millions</i>  | Notes | 2012           | 2011      |
|--|-------|----------------|-----------|
| <b>Cash flow from / (used in) financing activities</b>           |       |                |           |
| Issue of shares  |       | 262.9          | –         |
| Dividends paid   |       | (161.1)        | (374.1)   |
| <b>Net cash flow from / (used in) financing activities</b>       |       | <b>101.8</b>   | (374.1)   |
| <b>Total net cash flow</b>                                       |       | <b>3,682.4</b> | (1,906.8) |
| Net effect of exchange rate changes on cash and cash equivalents |       | 1.1            | 178.4     |
| Net movement in cash and cash equivalents                        |       | 3,681.3        | (2,085.2) |
| <b>Net change in cash and cash equivalents</b>                   |       | <b>3,682.4</b> | (1,906.8) |
| <b>Cash and cash equivalents, beginning of year</b>              | 28    | <b>582.0</b>   | 2,488.8   |
| <b>Cash and cash equivalents, end of year</b>                    | 28    | <b>4,264.4</b> | 582.0     |

## Movements in the Bank's equity

For the financial year ended 31 March

| <i>SDR millions</i>  | <i>Notes</i> | <b>Share capital</b> | <b>Statutory reserves</b> | <b>Profit and loss</b> | <b>Shares held in treasury</b> | <b>Other equity accounts</b> | <b>Total equity</b> |
|--|--------------|----------------------|---------------------------|------------------------|--------------------------------|------------------------------|---------------------|
| <b>Equity at 31 March 2010</b>   |              | <b>683.9</b>         | <b>10,668.7</b>           | <b>1,859.8</b>         | <b>(1.7)</b>                   | <b>2,564.6</b>               | <b>15,775.3</b>     |
| Total comprehensive income   | 17           | –                    | –                         | 816.0                  | –                              | 453.1                        | 1,269.1             |
| Payment of 2009/10 normal dividend   |              | –                    | –                         | (155.6)                | –                              | –                            | (155.6)             |
| Payment of 2009/10 supplementary dividend  |              | –                    | –                         | (218.5)                | –                              | –                            | (218.5)             |
| Allocation of 2009/10 profit   |              | –                    | 1,485.7                   | (1,485.7)              | –                              | –                            | –                   |
| <b>Equity at 31 March 2011</b>   |              | <b>683.9</b>         | <b>12,154.4</b>           | <b>816.0</b>           | <b>(1.7)</b>                   | <b>3,017.7</b>               | <b>16,670.3</b>     |
| Total comprehensive income   | 17           | –                    | –                         | 758.9                  | –                              | 848.3                        | 1,607.2             |
| Payment of 2010/11 dividend  |              | –                    | –                         | (161.1)                | –                              | –                            | (161.1)             |
| Issue of shares  | 15.0         | 247.9                | –                         | –                      | –                              | –                            | 262.9               |
| Allocation of 2010/11 profit   |              | –                    | 654.9                     | (654.9)                | –                              | –                            | –                   |
| <b>Equity at 31 March 2012 per balance sheet before proposed profit allocation</b> |              | <b>698.9</b>         | <b>13,057.2</b>           | <b>758.9</b>           | <b>(1.7)</b>                   | <b>3,866.0</b>               | <b>18,379.3</b>     |
| Proposed dividend  |              | –                    | –                         | (168.4)                | –                              | –                            | (168.4)             |
| Proposed transfers to reserves   |              | –                    | 590.5                     | (590.5)                | –                              | –                            | –                   |
| <b>Equity at 31 March 2012 after proposed profit allocation</b>                    |              | <b>698.9</b>         | <b>13,647.7</b>           | –                      | <b>(1.7)</b>                   | <b>3,866.0</b>               | <b>18,210.9</b>     |

At 31 March 2012 statutory reserves included share premiums of SDR 1,059.6 million (2011: SDR 811.7 million).

## Statement of proposed profit allocation

For the financial year ended 31 March

| <i>SDR millions</i>  | Notes | <b>2012</b>  |
|--|-------|--------------|
| <b>Net profit for the financial year</b>   |       | <b>758.9</b> |
| Transfer to legal reserve fund   | 15    | –            |
| <b>Proposed dividend:</b>  |       |              |
| SDR 305 per share on 546,125 shares  |       | (166.6)      |
| On 12,000 newly issued shares (pro rata from the value date of the share subscription) |       | (1.8)        |
| <b>Profit available for allocation</b>   |       | <b>590.5</b> |
| <b>Proposed transfers to reserves:</b>   |       |              |
| General reserve fund   | 15    | (29.5)       |
| Special dividend reserve fund  | 15    | (6.0)        |
| Free reserve fund  | 15    | (555.0)      |
| <b>Balance after allocation to reserves</b>  |       | <b>–</b>     |

The proposed profit allocation is in accordance with Article 51 of the Bank's Statutes.

## Movements in the Bank's statutory reserves

For the financial year ended 31 March

| <i>SDR millions</i>   | Notes | Legal<br>reserve<br>fund | General<br>reserve<br>fund | Special<br>dividend<br>reserve<br>fund | Free<br>reserve<br>fund | Total<br>statutory<br>reserves |
|---|-------|--------------------------|----------------------------|--|-------------------------|--------------------------------|
| <b>Balance at 31 March 2011</b>   |       | <b>68.3</b>              | <b>3,228.5</b>             | <b>166.0</b>                           | <b>8,691.6</b>          | <b>12,154.4</b>                |
| Allocation of 2010/11 profit  | 15    | –                        | 65.5                       | 6.0                                    | 583.4                   | 654.9                          |
| New shares issued   |       | 1.5                      | 246.4                      | –                                      | –                       | 247.9                          |
| <b>Balance at 31 March 2012 per balance sheet before proposed profit allocation</b> |       | <b>69.8</b>              | <b>3,540.4</b>             | <b>172.0</b>                           | <b>9,275.0</b>          | <b>13,057.2</b>                |
| Proposed transfers to reserves  | 15    | –                        | 29.5                       | 6.0                                    | 555.0                   | 590.5                          |
| <b>Balance at 31 March 2012 after proposed profit allocation</b>                    |       | <b>69.8</b>              | <b>3,569.9</b>             | <b>178.0</b>                           | <b>9,830.0</b>          | <b>13,647.7</b>                |

# Accounting policies

The accounting policies set out below have been applied to both of the financial years presented unless otherwise stated.

## 1. Scope of the financial statements

These financial statements contain all assets and liabilities that are controlled by the Bank and in respect of which the economic benefits as well as the rights and obligations lie with the Bank.

Assets and liabilities in the name of but not controlled by the Bank and in respect of which the economic benefits as well as the rights and obligations do not lie with the Bank are not included in these financial statements. Information on off-balance sheet assets and liabilities is disclosed in note 31.

## 2. Functional and presentation currency

The functional and presentation currency of the Bank is the Special Drawing Right (SDR) as defined by the International Monetary Fund (IMF).

The SDR is calculated from a basket of major trading currencies according to Rule 0–1 as adopted by the Executive Board of the IMF on 30 December 2010 and effective 1 January 2011. As currently calculated, one SDR is equivalent to the sum of USD 0.660, EUR 0.423, JPY 12.1 and GBP 0.111. Prior to 1 January 2011, one SDR was equivalent to the sum of USD 0.632, EUR 0.410, JPY 18.4 and GBP 0.0903. The change in the composition of the SDR basket was such that the values of the SDR under the old and new baskets were equivalent at 31 December 2010 and no significant gains or losses resulted from the change in the weights of the currencies. The composition of the SDR currency basket is subject to review every five years by the IMF; the next review is due to be undertaken in December 2015.

All figures in these financial statements are presented in SDR millions unless otherwise stated.

## 3. Currency translation

Monetary assets and liabilities are translated into SDR at the exchange rates ruling at the balance sheet date. Other

assets and liabilities are recorded in SDR at the exchange rates ruling at the date of the transaction. Profits and losses are translated into SDR at an average rate. Exchange differences arising from the retranslation of monetary assets and liabilities and from the settlement of transactions are included as net foreign exchange gains or losses in the profit and loss account.

## 4. Designation of financial instruments

Upon initial recognition the Bank allocates each financial instrument to one of the following categories:

- Loans and receivables
- Financial assets and financial liabilities held at fair value through profit and loss
- Available for sale financial assets
- Financial liabilities measured at amortised cost

The allocation to these categories is dependent on the nature of the financial instrument and the purpose for which it was entered into, as described in Section 5 below.

The resulting designation of each financial instrument determines the accounting methodology that is applied, as described in the accounting policies below. Where the financial instrument is designated as held at fair value through profit and loss, the Bank does not subsequently change this designation.

## 5. Asset and liability structure

Assets and liabilities are organised into two sets of portfolios:

### A. Banking portfolios

These comprise currency and gold deposit liabilities and related banking assets and derivatives.

The Bank operates a banking business in currency and gold on behalf of its customers. In this business the Bank takes limited gold price, interest rate and foreign currency risk.

The Bank designates all currency financial instruments in its banking portfolios (other than cash and sight and notice accounts with banks, and sight and notice deposit account liabilities) as held at fair value through profit and loss. The use of fair values in the currency banking portfolios is described in Section 9 below.

All gold financial assets in these portfolios are designated as loans and receivables and all gold financial liabilities are designated as financial liabilities measured at amortised cost.

#### **B. Investment portfolios**

These comprise assets, liabilities and derivatives relating principally to the investment of the Bank's equity.

The Bank holds most of its equity in financial instruments denominated in the constituent currencies of the SDR, which are managed using a fixed duration benchmark of bonds.

Except for the currency assets described in the next paragraph, currency assets (other than cash and sight and notice accounts with banks) are designated as available for sale. Related securities sold under repurchase agreements are designated as financial liabilities measured at amortised cost.

In addition, the Bank maintains some of its equity in more actively traded portfolios. The currency investment assets in these portfolios are trading assets and as such are designated as held at fair value through profit and loss.

The remainder of the Bank's equity is held in gold. The Bank's own gold holdings are designated as available for sale.

#### **6. Cash and sight accounts with banks**

Cash and sight accounts with banks are included in the balance sheet at their principal value plus accrued interest where applicable.

#### **7. Notice accounts**

Notice accounts are short-term monetary assets. They typically have notice periods of three days or less and are included under the balance sheet heading "Loans and advances". They are considered to be cash equivalents for the purposes of the cash flow statement.

Due to their short-term nature, these financial instruments are designated as loans and receivables. They are included in the balance sheet at their principal value plus accrued interest. Interest is included in interest income on an accruals basis.

#### **8. Sight and notice deposit account liabilities**

Sight and notice deposit accounts are short-term monetary liabilities. They typically have notice periods of three days or less and are included under the balance sheet heading "Currency deposits".

Due to their short-term nature, these financial instruments are designated as financial liabilities measured at amortised cost. They are included in the balance sheet at their principal value plus accrued interest. Interest is included in interest expense on an accruals basis.

#### **9. Use of fair values in the currency banking portfolios**

In operating its currency banking business, the Bank acts as a market-maker in certain of its currency deposit liabilities. As a result of this activity the Bank incurs realised profits and losses on these liabilities.

In accordance with the Bank's risk management policies, the market risk inherent in this activity is managed on an overall fair value basis, combining all the relevant assets, liabilities and derivatives in its currency banking portfolios. The realised and unrealised profits or losses on currency deposit liabilities are thus largely offset by realised and unrealised losses or profits on the related currency banking assets and derivatives, or on other currency deposit liabilities.

To reduce the accounting inconsistency that would arise from recognising realised and unrealised gains and losses on different bases, the Bank designates the relevant assets, liabilities and derivatives in its currency banking portfolios as held at fair value through profit and loss.

#### **10. Currency deposit liabilities held at fair value through profit and loss**

As described above, all currency deposit liabilities, with the exception of sight and notice deposit account liabilities, are designated as held at fair value through profit and loss.

These currency deposit liabilities are initially included in the balance sheet on a trade date basis at cost. The subsequent accrual of interest to be paid and amortisation of premiums received and discounts paid are included under the profit and loss account heading "Interest expense" on an effective interest rate basis.

After trade date, the currency deposit liabilities are revalued to fair value, with all realised and unrealised movements in fair value included under "Net valuation movement".

## **11. Currency assets held at fair value through profit and loss**

Currency assets include treasury bills, securities purchased under resale agreements, loans and advances, and government and other securities.

As described above, the Bank designates all of the relevant assets in its currency banking portfolios as held at fair value through profit and loss. In addition, the Bank maintains certain actively traded investment portfolios. The currency investment assets in these portfolios are trading assets and as such are designated as held at fair value through profit and loss.

These currency assets are initially included in the balance sheet on a trade date basis at cost. The subsequent accrual of interest and amortisation of premiums paid and discounts received are included in the profit and loss account under "Interest income" on an effective interest rate basis.

After trade date, the currency assets are revalued to fair value, with all realised and unrealised movements in fair value included under "Net valuation movement".

## **12. Currency investment assets available for sale**

Currency assets include treasury bills, securities purchased under resale agreements, loans and advances, and government and other securities.

As described above, the Bank designates as available for sale all of the relevant assets in its currency investment portfolios, except for those assets in the Bank's more actively traded investment portfolios.

These currency investment assets are initially included in the balance sheet on a trade date basis at cost. The subsequent accrual of interest and amortisation of premiums paid and discounts received are included in the profit and loss account under "Interest income" on an effective interest rate basis.

After trade date, the currency investment assets are revalued to fair value, with unrealised gains or losses included in the securities revaluation account, which is reported under the balance sheet heading "Other equity accounts". The movement in fair value is included in the statement of comprehensive income under the heading "Unrealised gain / (loss) on securities available for sale". Realised profits on disposal are included in the profit and loss account under "Net gain on sales of securities available for sale".

## **13. Short positions in currency assets**

Short positions in currency assets are included in the balance sheet under the heading "Other liabilities" at fair value on a trade date basis.

## **14. Gold**

Gold comprises gold bar assets held in custody at central banks and sight accounts denominated in gold. Gold is considered by the Bank to be a financial instrument.

Gold is included in the balance sheet at its weight in gold (translated at the gold market price and USD exchange rate into SDR). Purchases and sales of gold are accounted for on a settlement date basis. Forward purchases or sales of gold are treated as derivatives prior to the settlement date.

The treatment of realised and unrealised gains or losses on gold is described in Section 17 below.

## **15. Gold loans**

Gold loans comprise fixed-term gold loans. Gold loans are included in the balance sheet on a trade date basis at their weight in gold (translated at the gold market price and USD exchange rate into SDR) plus accrued interest.

Accrued interest on gold loans is included in the profit and loss account under "Interest income" on an effective interest rate basis.

## **16. Gold deposits**

Gold deposits comprise unallocated sight and fixed-term deposits of gold from central banks.

Unallocated gold deposits provide customers with a general claim on the Bank for delivery of gold of the same weight and quality as that delivered by the customer to the Bank, but do not provide the right to specific gold bars. Unallocated gold deposits are included in the balance sheet on a trade date basis at their weight in gold (translated at the gold market price and USD exchange rate into SDR) plus accrued interest. Accrued interest on gold deposits is included in the profit and loss account under "Interest expense" on an effective interest rate basis.

Allocated (or "earmarked") gold deposits provide depositors with a claim for delivery of the specific gold bars deposited by the customer with the Bank on a custody basis. Beneficial ownership and risk remain with the customer. As such, allocated gold deposit liabilities

and the related gold bar assets are not included on the Bank's balance sheet. They are disclosed as off-balance sheet items (see note 31).

## **17. Realised and unrealised gains or losses on gold**

The treatment of realised and unrealised gains or losses on gold depends on the designation as described below:

### **A. Banking portfolios, comprising gold deposits and related gold banking assets**

The Bank designates gold loans in its banking portfolios as loans and receivables and gold deposits as financial liabilities measured at amortised cost. The gold derivatives included in the portfolios are designated as held at fair value through profit and loss.

Gains or losses on these transactions in gold are included in the profit and loss account under "Net foreign exchange gain / (loss)" as net transaction gains or losses.

Gains or losses on the retranslation of the net position in gold in the banking portfolios are included under "Net foreign exchange gain / (loss)" as net translation gains or losses.

### **B. Investment portfolios, comprising gold investment assets**

The Bank's own holdings of gold are designated and accounted for as available for sale assets.

Unrealised gains or losses on the Bank's gold investment assets over their deemed cost are taken to the gold revaluation account in equity, which is reported under the balance sheet heading "Other equity accounts". The movement in fair value is included in the statement of comprehensive income under the heading "Unrealised gain on gold investment assets".

For gold investment assets held on 31 March 2003 (when the Bank changed its functional and presentation currency from the gold franc to the SDR) the deemed cost is approximately SDR 151 per ounce, based on the value of USD 208 that was applied from 1979 to 2003 following a decision by the Bank's Board of Directors, translated at the 31 March 2003 exchange rate.

Realised gains or losses on disposal of gold investment assets are included in the profit and loss account as "Net gain on sales of gold investment assets".

## **18. Securities sold under repurchase agreements**

Where these liabilities are associated with the management of currency assets held at fair value through profit and loss, they are designated as financial instruments held at fair value through profit and loss. Where these liabilities are associated with currency assets available for sale, they are designated as financial liabilities measured at amortised cost.

They are initially included in the balance sheet on a trade date basis at cost. The subsequent accrual of interest is included in the profit and loss account under "Interest expense" on an effective interest rate basis.

After trade date, those liabilities that are designated as held at fair value through profit and loss are revalued to fair value, with unrealised gains or losses included under "Net valuation movement".

## **19. Derivatives**

Derivatives are used either to manage the Bank's market risk or for trading purposes. They are designated as financial instruments held at fair value through profit and loss.

Derivatives are initially included in the balance sheet on a trade date basis at cost. The subsequent accrual of interest and amortisation of premiums paid and discounts received are included in the profit and loss account under "Interest income" on an effective interest rate basis.

After trade date, derivatives are revalued to fair value, with all realised and unrealised movements in value included under "Net valuation movement".

Derivatives are included as either assets or liabilities, depending on whether the contract has a positive or a negative fair value for the Bank.

Where a derivative contract is embedded within a host contract which is not accounted for as held at fair value through profit and loss, it is separated from the host contract for accounting purposes and treated as though it were a standalone derivative as described above.

## **20. Valuation policy**

The Bank's valuation policy has been approved by the Board of Directors. In this policy the Bank defines how financial instruments are designated, which determines their valuation basis and accounting treatment. This policy is supplemented with detailed valuation procedures.

The majority of the financial instruments on the balance sheet are included at fair value. The Bank defines the fair value of a financial instrument as the amount at which the instrument could be exchanged between knowledgeable, willing parties in an arm's length transaction.

The use of fair values ensures that the financial reporting to the Board and shareholders reflects the way in which the banking business is managed and is consistent with the risk management and economic performance figures reported to Management.

The Bank considers published price quotations in active markets as the best evidence of fair value. Where no published price quotations exist, the Bank determines fair values using a valuation technique appropriate to the particular financial instrument. Such valuation techniques may involve using market prices of recent arm's length market transactions in similar instruments or may make use of financial models. Where financial models are used, the Bank aims at making maximum use of observable market inputs (eg interest rates and volatilities) as appropriate, and relies as little as possible on its own estimates. Such valuation models comprise discounted cash flow analyses and option pricing models.

Where valuation techniques are used to determine fair values, the valuation models are subject to initial approval and periodic review in line with the requirements of the Bank's model validation policy.

The Bank has an independent valuation control function which periodically reviews the value of its financial instruments, taking into account both the accuracy of the valuations and the valuation methodologies used. Other valuation controls include the review and analysis of daily profit and loss.

The Bank values its assets at the bid price and its liabilities at the offer price. Derivative financial instruments are valued on a bid-offer basis, with valuation reserves, where necessary, included in derivative financial liabilities. Financial assets and liabilities that are not valued at fair value are included in the balance sheet at amortised cost.

## **21. Impairment of financial assets**

Financial assets, other than those designated as held at fair value through profit and loss, are assessed for indications of impairment at each balance sheet date. A financial asset is impaired when there is objective evidence that the estimated future cash flows of the asset have been reduced as a result of one or more events that occurred after the initial recognition of the asset. Evidence of impairment could include significant financial difficulty, default, or probable bankruptcy / financial reorganisation of the counterparty or issuer.

Impairment losses are recognised to the extent that a decline in fair value below amortised cost is considered other than temporary. Impairment of currency assets is included in the profit and loss account under "Net valuation movement", with impairment of gold loans included under "Interest income". If the amount of the impairment loss decreases in a subsequent period, the previously recognised impairment loss is reversed through profit and loss to the extent that the carrying amount of the investment does not exceed that which it would have been had the impairment not been recognised.

## **22. Accounts receivable and accounts payable**

Accounts receivable and accounts payable are principally very short-term amounts relating to the settlement of financial transactions. They are initially recognised at fair value and subsequently included in the balance sheet at amortised cost.

## **23. Land, buildings and equipment**

The cost of the Bank's buildings and equipment is capitalised and depreciated on a straight line basis over the estimated useful lives of the assets concerned, as follows:

- Buildings – 50 years
- Building installations and machinery – 15 years
- Information technology equipment – up to 4 years
- Other equipment – 4 to 10 years

The Bank's land is not depreciated. The Bank undertakes an annual review of impairment of land, buildings and equipment. Where the carrying amount of an asset is greater than its estimated recoverable amount, it is written down to that amount.

## **24. Provisions**

Provisions are recognised when the Bank has a present legal or constructive obligation as a result of events arising before the balance sheet date and it is probable that economic resources will be required to settle the obligation, provided that a reliable estimate can be made of the amount of the obligation. Best estimates and assumptions are used when determining the amount to be recognised as a provision.

## **25. Post-employment benefit obligations**

The Bank operates three post-employment benefit arrangements for staff pensions, Directors' pensions, and health and accident insurance for current and former staff members. An independent actuarial valuation is performed annually for each arrangement.

### **A. Staff pensions**

The Bank provides a final salary defined benefit pension arrangement for its staff, based on a fund without separate legal personality, out of which benefits are paid. The fund

assets are administered by the Bank for the sole benefit of current and former members of staff who participate in the arrangement. The Bank remains ultimately liable for all benefits due under the arrangement.

The liability in respect of the staff pension fund is based on the present value of the defined benefit obligation at the balance sheet date, less the fair value of the fund assets at the balance sheet date, together with adjustments for unrecognised actuarial gains and losses and past service costs. The defined benefit obligation is calculated using the projected unit credit method. The present value of the defined benefit obligation is determined from the estimated future cash outflows. The rate used to discount the cash flows is determined by the Bank based on the market yield of highly rated corporate debt securities in Swiss francs which have terms to maturity approximating the terms of the related liability.

The amount charged to the profit and loss account represents the sum of the current service cost of the benefits accruing for the year under the scheme, and interest at the discount rate on the defined benefit obligation. In addition, actuarial gains and losses arising from experience adjustments (where the actual outcome is different from the actuarial assumptions previously made), changes in actuarial assumptions and amendments to the pension fund regulations are charged to the profit and loss account over the service period of staff concerned in accordance with the "corridor accounting" methodology described below. The resulting liabilities are included under the heading "Other liabilities" in the balance sheet.

#### ***B. Directors' pensions***

The Bank provides an unfunded defined benefit arrangement for Directors' pensions. The liability, defined benefit obligation and amount charged to the profit and loss account in respect of the Directors' pension arrangement are calculated on a similar basis to that used for the staff pension fund.

#### ***C. Post-employment health and accident benefits***

The Bank provides an unfunded post-employment health and accident benefit arrangement for its staff. The liability, benefit obligation and amount charged to the profit and loss account in respect of the health and accident benefit arrangement are calculated on a similar basis to that used for the staff pension fund.

#### ***D. Corridor accounting***

Actuarial gains or losses arise from experience adjustments (where the actual outcome is different from the actuarial assumptions previously made), changes in actuarial assumptions and amendments to the pension fund regulations. Where the cumulative unrecognised actuarial gains or losses exceed the higher of the benefit obligation or any assets used to fund the obligation by more than a corridor of 10%, the resulting excess outside

the corridor is amortised over the expected remaining service period of the staff concerned.

## **26. Cash flow statement**

The Bank's cash flow statement is prepared using an indirect method. It is based on the movements in the Bank's balance sheet, adjusted for changes in financial transactions awaiting settlement.

Cash and cash equivalents consist of cash and sight and notice accounts with banks, which are very short-term financial assets that typically have notice periods of three days or less.

# Notes to the financial statements

## 1. Introduction

The Bank for International Settlements (BIS, "the Bank") is an international financial institution which was established pursuant to the Hague Agreements of 20 January 1930, the Bank's Constituent Charter and its Statutes. The headquarters of the Bank are at Centralbahnplatz 2, 4002 Basel, Switzerland. The Bank maintains representative offices in Hong Kong, Special Administrative Region of the People's Republic of China (for Asia and the Pacific) and in Mexico City, Mexico (for the Americas).

The objectives of the BIS, as laid down in Article 3 of its Statutes, are to promote cooperation among central banks, to provide additional facilities for international financial operations and to act as trustee or agent for international financial settlements. Sixty central banks are currently members of the Bank. Rights of representation and voting at General Meetings are exercised in proportion to the number of BIS shares issued in the respective countries. The Board of Directors of the BIS is composed of the Governors and appointed Directors from the Bank's founding central banks, being those of Belgium, France, Germany, Italy, the United Kingdom and the United States of America, as well as the Governors of the central banks of Canada, China, Japan, Mexico, the Netherlands and Sweden, and the President of the European Central Bank.

## 2. Use of estimates

The preparation of the financial statements requires the Bank's Management to make some estimates in arriving at the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of income and expenses during the financial year. To arrive at these estimates, Management uses available information, makes assumptions and exercises judgment.

Assumptions include forward-looking estimates, for example relating to the valuation of assets and liabilities, the assessment of post-employment benefit obligations and the assessment of provisions and contingent liabilities.

Judgment is exercised when selecting and applying the Bank's accounting policies. The judgments relating to the designation and valuation of financial instruments are another key element in the preparation of these financial statements. In particular, the valuation of derivative financial instruments involves a significant amount of judgment over the discount curve to be used and the adjustments necessary to allow for credit risk and collateral.

Subsequent actual results could differ materially from those estimates.

### A. The valuation of financial assets and liabilities

There is no active secondary market for certain of the Bank's financial assets and financial liabilities. Such assets and liabilities are valued using valuation techniques which require judgment to determine appropriate valuation parameters. Changes in assumptions about these parameters could materially affect the reported fair values. The valuation impact of a 1 basis point change in spread assumptions is shown in the table below:

For the financial year ended 31 March

| SDR millions                                 | 2012 | 2011 |
|--|------|------|
| Treasury bills                               | 0.1  | 0.2  |
| Securities purchased under resale agreements | 0.1  | 0.3  |
| Loans and advances                           | 0.2  | 0.5  |
| Government and other securities              | 11.3 | 10.2 |
| Currency deposits                            | 13.5 | 14.3 |
| Derivative financial instruments             | 4.1  | 4.3  |

#### **B. Impairment provision on financial assets**

The Bank conducts an annual review for impairment at the date of each balance sheet. At 31 March 2012 the Bank did not have any financial assets that were considered to be impaired (31 March 2011: SDR 29.0 million).

#### **C. Actuarial assumptions**

The valuation of the Bank's pension fund and health care arrangements relies on actuarial assumptions which include expectations of inflation, interest rates, medical cost inflation and retirement age and life expectancy of participants. Changes to these assumptions have an impact on the valuation of the Bank's pension fund liabilities and the amounts recognised in the financial statements.

### **3. Cash and sight accounts with banks**

Cash and sight accounts with banks consist of cash balances with central banks and commercial banks that are available to the Bank on demand.

### **4. Gold and gold loans**

#### **A. Total gold holdings**

The composition of the Bank's total gold holdings was as follows:

As at 31 March

| <i>SDR millions</i>                    | <b>2012</b>     | <b>2011</b>     |
|--|-----------------|-----------------|
| Gold                                   | 34,831.9        | 35,401.7        |
| Gold loans                             | 1,080.8         | 1,235.5         |
| <b>Total gold and gold loan assets</b> | <b>35,912.7</b> | <b>36,637.2</b> |
| Comprising:                            |                 |                 |
| Gold investment assets                 | 4,018.2         | 3,451.2         |
| Gold and gold loan banking assets      | 31,894.5        | 33,186.0        |

Included in "Gold" is SDR 12,262.8 million (355 tonnes) of gold (2011: SDR 11,940.5 million; 409 tonnes) that the Bank holds in connection with its gold swap contracts. Under such contracts the Bank exchanges currencies for physical gold, and has an obligation to return the gold at the end of the contract. See note 7 for more details on gold swap transactions.

#### **B. Gold investment assets**

The Bank's gold investment assets are included in the balance sheet at their weight in gold (translated at the gold market price and USD exchange rate into SDR) plus accrued interest. The excess of this value over the deemed cost value is included in the gold revaluation account, which is reported under the balance sheet heading "Other equity accounts"; the movement in this value is included in the statement of comprehensive income under the heading "Unrealised gain on gold investment assets". Realised gains or losses on the disposal of gold investment assets are recognised in the profit and loss account under the heading "Net gain on sales of gold investment assets".

Note 17B provides further analysis of the gold revaluation account. Note 26 provides further analysis of the net gain on sales of gold investment assets.

The table below analyses the movements in the Bank's gold investment assets:

For the financial year ended 31 March

| <i>SDR millions</i>                               | <b>2012</b>    | <b>2011</b>    |
|---|----------------|----------------|
| Balance at beginning of year                      | 3,451.2        | 2,811.2        |
| <b>Net change in gold investment assets</b>       |                |                |
| Disposals of gold                                 | (93.3)         | (26.7)         |
| Maturities, sight account and other net movements | (4.9)          | (5.5)          |
| Release of impairment provision                   | 34.7           | –              |
|   | (63.5)         | (32.2)         |
| Gold price movement                               | 630.5          | 672.2          |
| <b>Balance at end of year</b>                     | <b>4,018.2</b> | <b>3,451.2</b> |

At 31 March 2011 the Bank's gold and gold loans included an impairment provision of SDR 29.0 million. This provision was released when the related gold loans were repaid in full during the financial year ended 31 March 2012. The gain of SDR 5.7 million between 31 March 2011 and the release date was due to changes in gold prices and exchange rates.

At 31 March 2012 the Bank's gold investment assets amounted to 116 tonnes of fine gold (2011: 119 tonnes).

## 5. Currency assets

### A. Total holdings

Currency assets comprise treasury bills, securities purchased under resale agreements, fixed-term loans and advances, and government and other securities.

Currency assets held at fair value through profit and loss comprise those currency banking assets that represent the reinvestment of currency deposit liabilities along with currency investment assets that are part of more actively traded portfolios. The remaining part of the Bank's currency investment assets are categorised as available for sale and, together with the gold investment assets, largely represent the investment of the Bank's equity.

*Treasury bills* are short-term debt securities issued by governments on a discount basis.

*Securities purchased under resale agreements* ("reverse repurchase agreements") are usually short-term transactions under which the Bank makes a fixed-term loan to a counterparty which provides collateral in the form of securities. The rate on the loan is fixed at the beginning of the transaction, and there is an irrevocable commitment to return the equivalent securities subject to the repayment of the loan. During the term of the agreement the Bank monitors the fair value of the collateral securities and may call for additional collateral or be required to return collateral based on the movement in its market value.

*Fixed-term loans* are primarily investments made with commercial banks. Also included in this category are investments made with central banks, international institutions and other public sector organisations. This includes advances made as part of committed and uncommitted standby facilities. These loans are recognised in the balance sheet total "Loans and advances", which also includes notice accounts (see note 6).

*Government and other securities* are debt securities issued by governments, international institutions, other public sector institutions, commercial banks and corporates. They include commercial paper, certificates of deposit, fixed and floating rate bonds, covered bonds and asset-backed securities.

The tables below analyse the Bank's holdings of currency assets:

| As at 31 March 2012<br><i>SDR millions</i>          | Banking assets                             |                    | Investment assets                          |                 | Total currency assets |
|---|--|--------------------|--|-----------------|-----------------------|
|   | Held at fair value through profit and loss | Available for sale | Held at fair value through profit and loss | Total           |                       |
| <b>Treasury bills</b>                               | <b>53,338.3</b>                            | –                  | <b>154.0</b>                               | <b>154.0</b>    | <b>53,492.3</b>       |
| <b>Securities purchased under resale agreements</b> | <b>46,210.8</b>                            | –                  | –  | –               | <b>46,210.8</b>       |
| <b>Fixed-term loans and advances</b>                | <b>22,570.5</b>                            | –                  | –  | –               | <b>22,570.5</b>       |
| <b>Government and other securities</b>              |  |                    |  |                 |                       |
| Government  | 35,885.9                                   | 13,181.9           | 130.9                                      | 13,312.8        | 49,198.7              |
| Financial institutions                              | 15,790.4                                   | 201.9              | –  | 201.9           | 15,992.3              |
| Other   | 12,099.9                                   | 94.8               | 492.0                                      | 586.8           | 12,686.7              |
|   | <b>63,776.2</b>                            | <b>13,478.6</b>    | <b>622.9</b>                               | <b>14,101.5</b> | <b>77,877.7</b>       |
| <b>Total currency assets</b>                        | <b>185,895.8</b>                           | <b>13,478.6</b>    | <b>776.9</b>                               | <b>14,255.5</b> | <b>200,151.3</b>      |

| As at 31 March 2011<br><i>SDR millions</i>          | Banking assets                             |                    | Investment assets                          |                 | Total currency assets |
|---|--|--------------------|--|-----------------|-----------------------|
|   | Held at fair value through profit and loss | Available for sale | Held at fair value through profit and loss | Total           |                       |
| <b>Treasury bills</b>                               | <b>76,739.3</b>                            | –                  | <b>192.8</b>                               | <b>192.8</b>    | <b>76,932.1</b>       |
| <b>Securities purchased under resale agreements</b> | <b>51,464.0</b>                            | –                  | –  | –               | <b>51,464.0</b>       |
| <b>Fixed-term loans and advances</b>                | <b>23,918.2</b>                            | –                  | –  | –               | <b>23,918.2</b>       |
| <b>Government and other securities</b>              |  |                    |  |                 |                       |
| Government  | 11,498.1                                   | 11,083.5           | –  | 11,083.5        | 22,581.6              |
| Financial institutions                              | 18,933.2                                   | 226.9              | 601.6                                      | 828.5           | 19,761.7              |
| Other   | 13,808.6                                   | 836.0              | –  | 836.0           | 14,644.6              |
|   | <b>44,239.9</b>                            | <b>12,146.4</b>    | <b>601.6</b>                               | <b>12,748.0</b> | <b>56,987.9</b>       |
| <b>Total currency assets</b>                        | <b>196,361.4</b>                           | <b>12,146.4</b>    | <b>794.4</b>                               | <b>12,940.8</b> | <b>209,302.2</b>      |

## B. Currency investment assets available for sale

The Bank's currency investment assets relate principally to the investment of its equity. They are designated as available for sale unless they are part of an actively traded portfolio.

The table below analyses the movements in the Bank's currency investment assets available for sale:

For the financial year ended 31 March

| SDR millions   | 2012            | 2011            |
|--|-----------------|-----------------|
| Balance at beginning of year                                       | 12,146.4        | 11,556.2        |
| <b>Net change in currency investment assets available for sale</b> |                 |                 |
| Additions  | 4,086.5         | 5,299.8         |
| Disposals  | (2,132.0)       | (2,996.5)       |
| Other net movements  | (1,031.5)       | (1,473.5)       |
|  | 923.0           | 829.8           |
| Net change in transactions awaiting settlement                     | 88.0            | (98.0)          |
| Fair value and other movements                                     | 321.2           | (141.6)         |
| <b>Balance at end of year</b>                                      | <b>13,478.6</b> | <b>12,146.4</b> |

## 6. Loans and advances

Loans and advances comprise fixed-term loans to commercial banks, advances and notice accounts. Advances relate to committed and uncommitted standby facilities which the Bank provides for its customers. Notice accounts are very short-term financial assets, typically having a notice period of three days or less.

Fixed-term loans and advances are designated as held at fair value through profit and loss. Notice accounts are designated as loans and receivables and are included in the balance sheet at amortised cost.

As at 31 March

| SDR millions                    | 2012            | 2011            |
|---------------------------------|-----------------|-----------------|
| Fixed-term loans and advances   | 22,570.5        | 23,918.2        |
| Notice accounts                 | 186.6           | 252.2           |
| <b>Total loans and advances</b> | <b>22,757.1</b> | <b>24,170.4</b> |

The amount of the change in fair value recognised in the profit and loss account on fixed-term loans and advances is SDR -1.7 million (2011: SDR 12.3 million).

## 7. Derivative financial instruments

The Bank uses the following types of derivative instruments for economic hedging and trading purposes.

*Interest rate and bond futures* are contractual agreements to receive or pay a net amount based on changes in interest rates or bond prices on a future date. Futures contracts are settled daily with the exchange. Associated margin payments are settled by cash or marketable securities.

*Currency and gold options* are contractual agreements under which the seller grants the purchaser the right, but not the obligation, to either buy (call option) or sell (put option), by or on a set date, a specific amount of a currency or gold at a predetermined price. In consideration, the seller receives a premium from the purchaser.

*Currency and gold swaps, cross-currency interest rate swaps and interest rate swaps* are bilateral contractual agreements to exchange cash flows related to currencies, gold or interest rates (for example, fixed rate for floating rate). Cross-currency interest rate swaps involve the exchange of cash flows related to a combination of interest rates and foreign exchange rates. Except for certain currency and gold swaps and cross-currency interest rate swaps, no exchange of principal takes place.

*Currency and gold forwards* are bilateral contractual agreements involving the exchange of foreign currencies or gold at a future date. This includes undelivered spot transactions.

*Forward rate agreements* are bilateral interest rate forward contracts that result in cash settlement at a future date for the difference between a contracted rate of interest and the prevailing market rate.

*Swaptions* are bilateral options under which the seller grants the purchaser the right, but not the obligation, to enter into a currency or interest rate swap at a predetermined price by or on a set date. In consideration, the seller receives a premium from the purchaser.

In addition, the Bank sells products to its customers which contain embedded derivatives (see note 10). Where the host contract is not accounted for as held at fair value, embedded derivatives are separated from the host contract for accounting purposes and treated as though they are regular derivatives. As such, the gold currency options embedded in gold dual currency deposits are included within derivatives as currency and gold options.

The table below analyses the fair value of derivative financial instruments:

| SDR millions   | As at 31 March   |                | 2012             |                  | 2011           |                  |
|--|------------------|----------------|------------------|------------------|----------------|------------------|
|  | Notional amounts | Fair values    |                  | Notional amounts | Fair values    |                  |
|  |                  | Assets         | Liabilities      |                  | Assets         | Liabilities      |
| Bond futures   | 1,023.8          | 0.2            | (0.2)            | 1,095.0          | 0.5            | (0.4)            |
| Cross-currency interest rate swaps                           | 1,456.3          | 0.1            | (275.4)          | 1,597.0          | 4.8            | (314.8)          |
| Currency and gold forwards                                   | 950.2            | 7.0            | (2.6)            | 2,747.7          | 13.6           | (25.2)           |
| Currency and gold options                                    | 115.2            | –              | (0.2)            | 3,430.0          | 43.7           | (43.8)           |
| Currency and gold swaps                                      | 116,556.3        | 2,381.9        | (945.0)          | 128,060.9        | 766.9          | (3,711.9)        |
| Forward rate agreements                                      | 15,881.2         | 4.1            | (4.0)            | 18,945.7         | 6.3            | (5.1)            |
| Interest rate futures  | 4,722.1          | 0.1            | –                | 7,559.2          | 0.1            | –                |
| Interest rate swaps  | 304,954.9        | 4,910.5        | (3,496.6)        | 304,357.4        | 4,954.4        | (2,853.3)        |
| Swaptions  | 1,446.9          | –              | (3.0)            | 773.4            | –              | (5.0)            |
| <b>Total derivative financial instruments at end of year</b> | <b>447,106.9</b> | <b>7,303.9</b> | <b>(4,727.0)</b> | <b>468,566.3</b> | <b>5,790.3</b> | <b>(6,959.5)</b> |
| <b>Net derivative financial instruments at end of year</b>   |                  |                |                  |                  |                | <b>(1,169.2)</b> |

## 8. Accounts receivable

As at 31 March

| SDR millions                               | 2012                                       |              | 2011                                       |                |
|--|--|--------------|--|----------------|
|  | Financial transactions awaiting settlement | Other assets | Financial transactions awaiting settlement | Other assets   |
| Financial transactions awaiting settlement |  |              | 7,833.2                                    | 8,606.0        |
| Other assets                               |  |              | 12.3                                       | 10.3           |
| <b>Total accounts receivable</b>           |  |              | <b>7,845.5</b>                             | <b>8,616.3</b> |

“Financial transactions awaiting settlement” relates to short-term receivables (typically due in three days or less) where transactions have been effected but cash has not yet been transferred. This includes assets that have been sold and liabilities that have been issued.

## 9. Land, buildings and equipment

| SDR millions                         | Land        | Buildings    | IT and other equipment | 2012         |  | 2011<br>Total |
|--------------------------------------|-------------|--------------|------------------------|--------------|--|---------------|
|                                      |             |              |                        | Total        |  |               |
| <b>Historical cost</b>               |             |              |                        |              |  |               |
| Balance at beginning of year         | 41.2        | 250.2        | 92.9                   | 384.3        |  | 373.7         |
| Capital expenditure                  | –           | 7.5          | 11.4                   | 18.9         |  | 15.1          |
| Disposals and retirements            | –           | –            | (1.6)                  | (1.6)        |  | (4.5)         |
| <b>Balance at end of year</b>        | <b>41.2</b> | <b>257.7</b> | <b>102.7</b>           | <b>401.6</b> |  | 384.3         |
| <b>Depreciation</b>                  |             |              |                        |              |  |               |
| Balance at beginning of year         | –           | 123.0        | 70.5                   | 193.5        |  | 183.8         |
| Depreciation                         | –           | 7.7          | 9.0                    | 16.7         |  | 14.2          |
| Disposals and retirements            | –           | –            | (1.6)                  | (1.6)        |  | (4.5)         |
| <b>Balance at end of year</b>        | <b>–</b>    | <b>130.7</b> | <b>77.9</b>            | <b>208.6</b> |  | 193.5         |
| <b>Net book value at end of year</b> | <b>41.2</b> | <b>127.0</b> | <b>24.8</b>            | <b>193.0</b> |  | 190.8         |

The depreciation charge for the financial year ended 31 March 2012 includes an additional charge of SDR 1.6 million for IT and other equipment following an impairment review (2011: SDR 1.0 million).

## 10. Currency deposits

Currency deposits are book entry claims on the Bank. The currency deposit instruments are analysed in the table below:

As at 31 March

| SDR millions  | 2012             | 2011             |
|---|------------------|------------------|
| <b>Deposit instruments repayable at one to two days' notice</b> |                  |                  |
| Medium-Term Instruments (MTIs)                                  | 57,867.3         | 54,453.9         |
| Callable MTIs   | 2,016.5          | 1,556.7          |
| Fixed Rate Investments of the BIS (FIXBIS)                      | 43,507.5         | 42,751.3         |
|   | <b>103,391.3</b> | <b>98,761.9</b>  |
| <b>Other currency deposits</b>                                  |                  |                  |
| Floating Rate Investments of the BIS (FRIBIS)                   | 731.8            | 962.8            |
| Fixed-term deposits   | 66,560.0         | 89,550.9         |
| Dual Currency Deposits (DCDs)                                   | 119.9            | 85.7             |
| Sight and notice deposit accounts                               | 24,975.5         | 17,724.3         |
|   | <b>92,387.2</b>  | <b>108,323.7</b> |
| <b>Total currency deposits</b>                                  | <b>195,778.5</b> | <b>207,085.6</b> |
| Comprising:   |                  |                  |
| Designated as held at fair value through profit and loss        | 170,803.1        | 189,361.3        |
| Designated as financial liabilities measured at amortised cost  | 24,975.4         | 17,724.3         |

*Medium-Term Instruments (MTIs)* are fixed rate investments at the BIS for quarterly maturities of up to 10 years.

*Callable MTIs* are MTIs that are callable at the option of the Bank at an exercise price of par, with call dates between September 2012 and March 2013 (2011: June 2011 and December 2011). The balance sheet total for callable MTIs includes the fair value of the embedded interest rate option.

*FIXBIS* are fixed rate investments at the Bank for any maturities between one week and one year.

*FRIBIS* are floating rate investments at the Bank with maturities of one year or longer for which the interest rate is reset in line with prevailing market conditions.

*Fixed-term deposits* are fixed rate investments at the BIS, typically with a maturity of less than one year.

*Dual Currency Deposits (DCDs)* are fixed-term deposits that are repayable on the maturity date either in the original currency or at a fixed amount in a different currency at the option of the Bank. The balance sheet total for DCDs includes the fair value of the embedded foreign exchange option. These deposits all mature in April 2012 or May 2012 (2011: in April 2011 or May 2011).

*Sight and notice deposit accounts* are very short-term financial liabilities, typically having a notice period of three days or less. They are designated as financial liabilities measured at amortised cost.

The Bank acts as the sole market-maker in certain of its currency deposit liabilities and has undertaken to repay some of these financial instruments at fair value, in whole or in part, at one to two business days' notice.

### A. Valuation of currency deposits

Currency deposits (other than sight and notice deposit accounts) are included in the balance sheet at fair value. This value differs from the amount that the Bank is contractually obliged to pay at maturity to the holder of the deposit. The amount the Bank is contractually obliged to pay at maturity in respect of its total currency deposits (including accrued interest to 31 March 2012) is SDR 194,313.6 million (2011: SDR 206,432.4 million).

The Bank uses valuation techniques to estimate the fair value of its currency deposits. These valuation techniques comprise discounted cash flow models and option pricing models. The discounted cash flow models value the expected cash flows of financial instruments using discount factors that are partly derived from quoted interest rates (eg Libor and swap rates) and partly based on assumptions about spreads at which each product is offered to and repurchased from customers.

The spread assumptions are based on recent market transactions in each product. Where the product series has been closed to new investors (and thus there are no recent market transactions) the Bank uses the latest quoted spread for the series as the basis for determining the appropriate model inputs.

The option pricing models include assumptions about volatilities that are derived from market quotes.

#### **B. Impact of changes in the Bank's creditworthiness**

The fair value of the Bank's liabilities would be affected by any change in its creditworthiness. If the Bank's creditworthiness deteriorated, the value of its liabilities would decrease, and the change in value would be reflected as a valuation movement in the profit and loss account. The Bank regularly assesses its creditworthiness as part of its risk management processes. The Bank's assessment of its creditworthiness did not indicate a change which could have had an impact on the fair value of the Bank's liabilities during the period under review.

### **11. Gold deposits**

Gold deposits placed with the Bank originate entirely from central banks. They are all designated as financial liabilities measured at amortised cost.

### **12. Accounts payable**

Accounts payable consist of financial transactions awaiting settlement, relating to short-term payables (typically payable within three days or less) where transactions have been effected but cash has not yet been transferred. This includes assets that have been purchased and liabilities that have been repurchased.

### **13. Other liabilities**

The Bank's other liabilities consist of:

As at 31 March

| <i>SDR millions</i>                               | <b>2012</b>  | <b>2011</b>  |
|---|--------------|--------------|
| Post-employment benefit obligations (see note 18) |              |              |
| Staff pensions                                    | 30.0         | 22.7         |
| Directors' pensions                               | 6.4          | 5.9          |
| Health and accident benefits                      | 287.0        | 258.3        |
| Short positions in currency assets                | 69.7         | 65.7         |
| Payable to former shareholders                    | 0.6          | 0.6          |
| Other   | 22.8         | 22.2         |
| <b>Total other liabilities</b>                    | <b>416.5</b> | <b>375.4</b> |

## 14. Share capital

The Bank's share capital consists of:

As at 31 March

| <i>SDR millions</i>   | <b>2012</b>  | <b>2011</b>  |
|---|--------------|--------------|
| Authorised capital: 600,000 shares, each of SDR 5,000 par value,<br>of which SDR 1,250 is paid up | 3,000.0      | 3,000.0      |
| Issued capital: 559,125 shares (2011: 547,125)  | 2,795.6      | 2,735.6      |
| <b>Paid-up capital (25%)</b>  | <b>698.9</b> | <b>683.9</b> |

During the financial year ended 31 March 2012 the Bank issued 3,000 shares each to the Bank of the Republic (Colombia), the Central Bank of Luxembourg, the Central Reserve Bank of Peru and the Central Bank of the United Arab Emirates. This increased the number of member central banks to 60 (31 March 2011: 56).

The number of shares eligible for dividend is:

| <i>As at 31 March</i>   | <b>2012</b>    | <b>2011</b>    |
|---|----------------|----------------|
| Issued shares   | 559,125        | 547,125        |
| Less: shares held in treasury   | (1,000)        | (1,000)        |
| <b>Outstanding shares eligible for dividend</b>                               | <b>558,125</b> | <b>546,125</b> |
| Of which:   |                |                |
| Eligible for full dividend  | 546,125        | 546,125        |
| New shares eligible for dividend pro rata from the value date of subscription | 12,000         | –              |

## 15. Statutory reserves

The Bank's Statutes provide for application of the Bank's annual net profit by the Annual General Meeting on the proposal of the Board of Directors to three specific reserve funds: the legal reserve fund, the general reserve fund and the special dividend reserve fund; the remainder of the net profit after payment of any dividend is generally allocated to the free reserve fund.

*Legal reserve fund.* This fund is currently fully funded at 10% of the Bank's paid-up capital.

*General reserve fund.* After payment of any dividend, 5% of the remainder of the Bank's annual net profit currently must be allocated to the general reserve fund.

*Special dividend reserve fund.* A portion of the remainder of the annual net profit may be allocated to the special dividend reserve fund, which shall be available, in case of need, for paying the whole or any part of a declared dividend. Dividends are normally paid out of the Bank's net profit.

*Free reserve fund.* After the above allocations have been made, any remaining unallocated net profit is generally transferred to the free reserve fund.

Receipts from the subscription of the Bank's shares are allocated to the legal reserve fund as necessary to keep it fully funded, with the remainder being credited to the general reserve fund.

The free reserve fund, general reserve fund and legal reserve fund are available, in that order, to meet any losses incurred by the Bank. In the event of liquidation of the Bank, the balances of the reserve funds (after the discharge of the liabilities of the Bank and the costs of liquidation) would be divided among the Bank's shareholders.

## 16. Shares held in treasury

| For the financial year ended 31 March  | 2012         | 2011         |
|--|--------------|--------------|
| Number of shares at beginning of year  | 1,000        | 1,000        |
| Movements during the year              | -            | -            |
| <b>Number of shares at end of year</b> | <b>1,000</b> | <b>1,000</b> |

The shares held in treasury consist of 1,000 shares of the Albanian issue which were suspended in 1977.

## 17. Other equity accounts

Other equity accounts represent the revaluation accounts of the currency assets available for sale and gold investment assets, which are further described in notes 4 and 5.

Other equity accounts comprise:

As at 31 March

| SDR millions                       | 2012           | 2011           |
|------------------------------------|----------------|----------------|
| Securities revaluation account     | 417.8          | 121.3          |
| Gold revaluation account           | 3,448.2        | 2,896.4        |
| <b>Total other equity accounts</b> | <b>3,866.0</b> | <b>3,017.7</b> |

### A. Securities revaluation account

This account contains the difference between the fair value and the amortised cost of the Bank's currency assets available for sale. The movements in the securities revaluation account were as follows:

For the financial year ended 31 March

| SDR millions                   | 2012         | 2011           |
|--------------------------------|--------------|----------------|
| Balance at beginning of year   | 121.3        | 318.6          |
| <b>Net valuation movement</b>  |              |                |
| Net gain on sales              | (24.7)       | (55.7)         |
| Fair value and other movements | 321.2        | (141.6)        |
|                                | <b>296.5</b> | <b>(197.3)</b> |
| <b>Balance at end of year</b>  | <b>417.8</b> | <b>121.3</b>   |

The table below analyses the balance in the securities revaluation account, which relates to government and other securities:

| <i>SDR millions</i>        | Fair value of assets | Historical cost | Securities revaluation account | Gross gains | Gross losses |
|----------------------------|----------------------|-----------------|--------------------------------|-------------|--------------|
| <b>As at 31 March 2012</b> | 13,478.6             | 13,060.8        | <b>417.8</b>                   | 422.7       | (4.9)        |
| As at 31 March 2011        | 12,146.4             | 12,025.1        | 121.3                          | 190.4       | (69.1)       |

#### **B. Gold revaluation account**

This account contains the difference between the book value and the deemed cost of the Bank's gold investment assets. For gold investment assets held on 31 March 2003 (when the Bank changed its functional and presentation currency from the gold franc to the SDR) the deemed cost is approximately SDR 151 per ounce, based on the value of USD 208 that was applied from 1979 to 2003 in accordance with a decision by the Bank's Board of Directors, translated at the 31 March 2003 exchange rate.

The movements in the gold revaluation account were as follows:

For the financial year ended 31 March

| <i>SDR millions</i>           | <b>2012</b>    | <b>2011</b>    |
|-------------------------------|----------------|----------------|
| Balance at beginning of year  | 2,896.4        | 2,246.0        |
| <b>Net valuation movement</b> |                |                |
| Net gain on sales             | (78.7)         | (21.8)         |
| Gold price movement           | 630.5          | 672.2          |
|                               | 551.8          | 650.4          |
| <b>Balance at end of year</b> | <b>3,448.2</b> | <b>2,896.4</b> |

## 18. Post-employment benefit obligations

The Bank operates three post-employment arrangements:

1. A final salary defined benefit pension arrangement for its staff. The pension arrangement is based on a fund without separate legal personality, out of which benefits are paid. The fund assets are administered by the Bank for the sole benefit of current and former members of staff who participate in the arrangement. The Bank remains ultimately liable for all benefits due under the arrangement.
2. An unfunded defined benefit arrangement for its Directors, whose entitlement is based on a minimum service period of four years.
3. An unfunded post-employment health and accident benefit arrangement for its staff. Entitlement to this arrangement is based in principle on the employee remaining in service up to 50 years of age and the completion of a minimum service period of 10 years.

All arrangements are valued annually by independent actuaries.

### A. Amounts recognised in the balance sheet

| As at 31 March                  |  | Staff pensions |               |               |              |         |
|---------------------------------|--|----------------|---------------|---------------|--------------|---------|
| SDR millions                    |  | 2012           | 2011          | 2010          | 2009         | 2008    |
| Present value of obligation     |  | (1,264.5)      | (1,039.1)     | (913.1)       | (747.4)      | (709.7) |
| Fair value of fund assets       |  | 929.2          | 881.9         | 762.4         | 619.6        | 714.3   |
| Funded status                   |  | (335.3)        | (157.2)       | (150.7)       | (127.8)      | 4.6     |
| Unrecognised actuarial losses   |  | 305.3          | 134.5         | 138.6         | 125.4        | 41.2    |
| Unrecognised past service cost  |  | –              | –             | –             | –            | (45.8)  |
| <b>Liability at end of year</b> |  | <b>(30.0)</b>  | <b>(22.7)</b> | <b>(12.1)</b> | <b>(2.4)</b> | –       |

| As at 31 March                  |  | Directors' pensions |              |              |              |              |
|---------------------------------|--|---------------------|--------------|--------------|--------------|--------------|
| SDR millions                    |  | 2012                | 2011         | 2010         | 2009         | 2008         |
| Present value of obligation     |  | (8.6)               | (7.2)        | (6.5)        | (5.7)        | (5.4)        |
| Fair value of fund assets       |  | –                   | –            | –            | –            | –            |
| Funded status                   |  | (8.6)               | (7.2)        | (6.5)        | (5.7)        | (5.4)        |
| Unrecognised actuarial losses   |  | 2.2                 | 1.3          | 1.3          | 0.9          | 0.6          |
| Unrecognised past service cost  |  | –                   | –            | –            | –            | –            |
| <b>Liability at end of year</b> |  | <b>(6.4)</b>        | <b>(5.9)</b> | <b>(5.2)</b> | <b>(4.8)</b> | <b>(4.8)</b> |

| As at 31 March                  |  | Post-employment health and accident benefits |                |                |                |                |
|---------------------------------|--|--|----------------|----------------|----------------|----------------|
| SDR millions                    |  | 2012   | 2011           | 2010           | 2009           | 2008           |
| Present value of obligation     |  | (434.3)                                      | (316.7)        | (284.2)        | (225.4)        | (208.0)        |
| Fair value of fund assets       |  | –  | –              | –              | –              | –              |
| Funded status                   |  | (434.3)                                      | (316.7)        | (284.2)        | (225.4)        | (208.0)        |
| Unrecognised actuarial losses   |  | 151.2  | 63.3           | 72.3           | 40.1           | 30.3           |
| Unrecognised past service cost  |  | (3.9)  | (4.9)          | (5.6)          | (6.3)          | (7.7)          |
| <b>Liability at end of year</b> |  | <b>(287.0)</b>                               | <b>(258.3)</b> | <b>(217.5)</b> | <b>(191.6)</b> | <b>(185.4)</b> |

**B. Present value of defined benefit obligation**

The reconciliation of the opening and closing amounts of the present value of the benefit obligation is as follows:

| As at 31 March<br><i>SDR millions</i>             | Staff pensions |         |        | Directors' pensions |       |       | Post-employment health and accident benefits |        |       |
|---|----------------|---------|--------|---------------------|-------|-------|--|--------|-------|
|   | 2012           | 2011    | 2010   | 2012                | 2011  | 2010  | 2012   | 2011   | 2010  |
| Present value of obligation at beginning of year  | 1,039.1        | 913.1   | 747.4  | 7.2                 | 6.5   | 5.7   | 316.7  | 284.2  | 225.4 |
| Current service cost                              | 45.6           | 40.1    | 32.0   | 0.4                 | 0.3   | 0.2   | 11.3   | 9.4    | 8.5   |
| Employee contributions                            | 6.0            | 5.2     | 4.5    | –                   | –     | –     | –  | –      | –     |
| Interest cost                                     | 29.5           | 25.6    | 24.5   | 0.2                 | 0.2   | 0.2   | 9.0  | 8.1    | 7.5   |
| Actuarial loss / (gain)                           | 146.8          | (11.8)  | 84.3   | 1.0                 | –     | –     | 88.9   | (11.9) | 30.2  |
| Benefit payments                                  | (40.0)         | (29.0)  | (28.3) | (0.4)               | (0.4) | (0.3) | (2.6)  | (2.5)  | (2.2) |
| Exchange differences                              | 37.5           | 95.9    | 48.7   | 0.3                 | 0.6   | 0.7   | 11.0   | 29.4   | 14.8  |
| <b>Present value of obligation at end of year</b> | <b>1,264.5</b> | 1,039.1 | 913.1  | <b>8.7</b>          | 7.2   | 6.5   | <b>434.3</b>                                 | 316.7  | 284.2 |

**C. Fair value of fund assets for staff pensions**

The reconciliation of the opening and closing amounts of the fair value of fund assets for the staff pension arrangement is as follows:

For the financial year ended 31 March

| <i>SDR millions</i>                             | 2012         | 2011 |        | 2010   |
|---|--------------|------|--------|--------|
|   |              |      |        |        |
| Fair value of fund assets at beginning of year  | 881.9        |      | 762.4  | 619.6  |
| Expected return on fund assets                  | 46.2         |      | 39.4   | 31.8   |
| Actuarial gain / (loss)                         | (23.9)       |      | 0.9    | 74.4   |
| Employer contributions                          | 25.7         |      | 22.0   | 20.0   |
| Employee contributions                          | 6.0          |      | 5.2    | 4.5    |
| Benefit payments                                | (40.0)       |      | (29.0) | (28.3) |
| Exchange differences                            | 33.3         |      | 81.0   | 40.4   |
| <b>Fair value of fund assets at end of year</b> | <b>929.2</b> |      | 881.9  | 762.4  |

**D. Amounts recognised in the profit and loss account**

| For the financial year ended 31 March<br><i>SDR millions</i> | Staff pensions |             |             | Directors' pensions |            |            | Post-employment health and accident benefits |             |             |
|--|----------------|-------------|-------------|---------------------|------------|------------|--|-------------|-------------|
|  | 2012           | 2011        | 2010        | 2012                | 2011       | 2010       | 2012   | 2011        | 2010        |
| Current service cost   | 45.6           | 40.1        | 32.0        | 0.4                 | 0.3        | 0.2        | 11.3   | 9.4         | 8.5         |
| Interest cost  | 29.5           | 25.6        | 24.5        | 0.2                 | 0.2        | 0.2        | 9.0  | 8.1         | 7.5         |
| Less: expected return on fund assets                         | (46.2)         | (39.4)      | (31.8)      | –                   | –          | –          | –  | –           | –           |
| Less: past service cost                                      | –              | –           | –           | –                   | –          | –          | (1.3)  | (1.2)       | (1.1)       |
| Net actuarial losses recognised in year                      | 2.9            | 4.2         | 4.4         | 0.1                 | 0.1        | 0.1        | 2.9  | 3.5         | 1.4         |
| <b>Total included in operating expense</b>                   | <b>31.8</b>    | <b>30.5</b> | <b>29.1</b> | <b>0.7</b>          | <b>0.6</b> | <b>0.5</b> | <b>21.9</b>                                  | <b>19.8</b> | <b>16.3</b> |

The Bank expects to make a contribution to its post-employment arrangements of SDR 28.8 million in 2012/13.

**E. Major categories of fund assets as a percentage of total fund assets**

As at 31 March

| <i>Percentages</i>                  | 2012        | 2011        |
|-------------------------------------|-------------|-------------|
| European equities                   | 12.7        | 14.6        |
| Other equities                      | 30.4        | 32.0        |
| European fixed income               | 28.8        | 16.3        |
| Other fixed income                  | 22.3        | 30.1        |
| Other assets                        | 5.8         | 7.0         |
| <b>Actual return on fund assets</b> | <b>2.4%</b> | <b>4.9%</b> |

The staff pension fund does not invest in financial instruments issued by the Bank.

**F. Principal actuarial assumptions used in these financial statements**

| As at 31 March  | 2012  | 2011  |
|---|-------|-------|
| <b>Applicable to all three post-employment benefit arrangements</b>               |       |       |
| Discount rate – market rate of highly rated Swiss corporate bonds                 | 2.00% | 2.75% |
| <b>Applicable to staff and Directors' pension arrangements</b>                    |       |       |
| Assumed increase in pensions payable  | 1.50% | 1.50% |
| <b>Applicable to staff pension arrangement only</b>                               |       |       |
| Expected return on fund assets  | 5.00% | 5.00% |
| Assumed salary increase rate  | 4.10% | 4.10% |
| <b>Applicable to Directors' pension arrangement only</b>                          |       |       |
| Assumed Directors' pensionable remuneration increase rate                         | 1.50% | 1.50% |
| <b>Applicable to post-employment health and accident benefit arrangement only</b> |       |       |
| Long-term medical cost inflation assumption                                       | 5.00% | 5.00% |

The assumed increases in staff salaries, Directors' pensionable remuneration and pensions payable incorporate an inflation assumption of 1.5% at 31 March 2012 (2011: 1.5%).

The expected rate of return on fund assets is based on long-term expectations for inflation, interest rates, risk premia and asset allocations. The estimate takes into consideration historical returns and is determined in conjunction with the fund's independent actuaries.

The assumption for medical inflation has a significant effect on the amounts recognised in the profit and loss account. A 1% change in the assumption for medical inflation compared to that used for the 2011/12 calculation would have the following effects:

For the financial year ended 31 March

| SDR millions   | 2012  | 2011  |
|--|-------|-------|
| Increase / (decrease) of the total service and interest cost |       |       |
| 6% medical inflation   | 7.7   | 5.6   |
| 4% medical inflation   | (5.4) | (4.1) |

As at 31 March

| SDR millions                                    | 2012   | 2011   |
|---|--------|--------|
| Increase / (decrease) of the benefit obligation |        |        |
| 6% medical inflation                            | 104.0  | 70.6   |
| 4% medical inflation                            | (77.6) | (53.6) |

## 19. Interest income

For the financial year ended 31 March

| <i>SDR millions</i>   | 2012           | 2011           |
|---|----------------|----------------|
| <b>Currency assets available for sale</b>   |                |                |
| Government and other securities   | 288.9          | 299.9          |
|   | <b>288.9</b>   | <b>299.9</b>   |
| <b>Currency assets held at fair value through profit and loss</b>                   |                |                |
| Treasury bills  | 304.6          | 335.6          |
| Securities purchased under resale agreements  | 235.8          | 188.3          |
| Loans and advances  | 209.0          | 123.9          |
| Government and other securities   | 862.9          | 838.7          |
|   | <b>1,612.3</b> | <b>1,486.5</b> |
| <b>Assets designated as loans and receivables</b>                                   |                |                |
| Sight and notice accounts   | 2.2            | 2.8            |
| Gold investment assets  | 1.0            | 1.2            |
| Gold banking assets   | 1.6            | 2.2            |
| Release of impairment provision on repayment in full of related gold banking assets | 34.7           | –              |
|   | <b>39.5</b>    | <b>6.2</b>     |
| <b>Derivative financial instruments held at fair value through profit and loss</b>  | <b>1,150.5</b> | <b>1,531.8</b> |
| <b>Total interest income</b>  | <b>3,091.2</b> | <b>3,324.4</b> |

## 20. Interest expense

For the financial year ended 31 March

| <i>SDR millions</i>   | 2012           | 2011           |
|---|----------------|----------------|
| <b>Liabilities held at fair value through profit and loss</b>                     |                |                |
| Currency deposits   | 1,564.8        | 1,811.0        |
| <b>Liabilities designated as financial liabilities measured at amortised cost</b> |                |                |
| Sight and notice deposit accounts   | 67.3           | 46.6           |
| Gold deposits   | 1.0            | 1.4            |
|   | <b>68.3</b>    | <b>48.0</b>    |
| <b>Total interest expense</b>   | <b>1,633.1</b> | <b>1,859.0</b> |

## 21. Net valuation movement

The net valuation movement arises entirely on financial instruments designated as held at fair value through profit and loss. Included in the table is a credit loss of SDR 31.9 million (2011: nil) relating to a sovereign debt restructuring.

For the financial year ended 31 March

| <i>SDR millions</i>  | <b>2012</b>    | <b>2011</b>    |
|--|----------------|----------------|
| <b>Currency assets held at fair value through profit and loss</b>      |                |                |
| Unrealised valuation movements on currency assets                      | 530.1          | (473.7)        |
| Realised gains on currency assets                                      | 52.9           | 108.5          |
|  | <b>583.0</b>   | <b>(365.2)</b> |
| <b>Currency liabilities held at fair value through profit and loss</b> |                |                |
| Unrealised valuation movements on financial liabilities                | (258.0)        | 646.4          |
| Realised losses on financial liabilities                               | (185.1)        | (292.4)        |
|  | <b>(443.1)</b> | <b>354.0</b>   |
| <b>Valuation movements on derivative financial instruments</b>         | <b>(730.2)</b> | <b>(498.0)</b> |
| <b>Net valuation movement</b>  | <b>(590.3)</b> | <b>(509.2)</b> |

## 22. Net fee and commission income

For the financial year ended 31 March

| <i>SDR millions</i>                  | <b>2012</b> | <b>2011</b> |
|--------------------------------------|-------------|-------------|
| Fee and commission income            | 14.5        | 12.1        |
| Fee and commission expense           | (9.8)       | (9.0)       |
| <b>Net fee and commission income</b> | <b>4.7</b>  | <b>3.1</b>  |

## 23. Net foreign exchange gain / (loss)

For the financial year ended 31 March

| <i>SDR millions</i>                       | <b>2012</b> | <b>2011</b>   |
|---|-------------|---------------|
| Net transaction gain                      | 14.4        | 21.5          |
| Net translation loss                      | (4.7)       | (37.3)        |
| <b>Net foreign exchange gain / (loss)</b> | <b>9.7</b>  | <b>(15.8)</b> |

## 24. Operating expense

The following table analyses the Bank's operating expense in Swiss francs (CHF), the currency in which most expenditure is incurred:

For the financial year ended 31 March

| <i>CHF millions</i>                             | <b>2012</b>  | <b>2011</b>  |
|---|--------------|--------------|
| <b>Board of Directors</b>                       |              |              |
| Directors' fees                                 | 1.9          | 2.2          |
| Pensions to former Directors                    | 0.9          | 0.6          |
| Travel, external Board meetings and other costs | 1.2          | 1.2          |
|   | <b>4.0</b>   | <b>4.0</b>   |
| <b>Management and staff</b>                     |              |              |
| Remuneration                                    | 122.2        | 120.4        |
| Pensions  | 46.2         | 50.8         |
| Other personnel-related expense                 | 48.1         | 48.3         |
|   | <b>216.5</b> | <b>219.5</b> |
| <b>Office and other expense</b>                 | <b>70.0</b>  | <b>71.3</b>  |
| <b>Administrative expense in CHF millions</b>   | <b>290.5</b> | <b>294.8</b> |
| Administrative expense in SDR millions          | 210.0        | 190.8        |
| Depreciation in SDR millions                    | 16.7         | 14.2         |
| <b>Operating expense in SDR millions</b>        | <b>226.7</b> | <b>205.0</b> |

The average number of full-time equivalent employees during the financial year ended 31 March 2012 was 554 (2011: 547).

## 25. Net gain on sales of securities available for sale

For the financial year ended 31 March

| <i>SDR millions</i>                                       | <b>2012</b> | <b>2011</b> |
|---|-------------|-------------|
| Disposal proceeds   | 2,132.0     | 3,038.7     |
| Amortised cost  | (2,107.3)   | (2,983.0)   |
| <b>Net gain on sales of securities available for sale</b> | <b>24.7</b> | <b>55.7</b> |
| Comprising:   |             |             |
| Gross realised gains                                      | 39.5        | 69.9        |
| Gross realised losses                                     | (14.8)      | (14.2)      |

## 26. Net gain on sales of gold investment assets

For the financial year ended 31 March

| <i>SDR millions</i>                                | 2012        | 2011        |
|--|-------------|-------------|
| Disposal proceeds                                  | 93.2        | 26.7        |
| Deemed cost (see note 17B)                         | (14.5)      | (4.9)       |
| <b>Net gain on sales of gold investment assets</b> | <b>78.7</b> | <b>21.8</b> |

## 27. Earnings and dividends per share

| For the financial year ended 31 March                       | 2012           | 2011           |
|---|----------------|----------------|
| Net profit for the financial year (SDR millions)            | 758.9          | 816.0          |
| Weighted average number of shares entitled to dividend      | 552,076        | 546,125        |
| <b>Basic and diluted earnings per share (SDR per share)</b> | <b>1,374.6</b> | <b>1,494.2</b> |
| <b>Dividends per share (SDR per share)</b>                  |                |                |
| Normal  | 305            | 295            |

The Bank's dividend policy incorporates two elements: a normal sustainable dividend that is intended to change in a predictable manner from year to year, and a supplementary dividend that is appropriate when profits are high and the Bank's capital requirements are met. Only a normal dividend will be paid this financial year.

## 28. Cash and cash equivalents

The cash and cash equivalents in the cash flow statement comprise:

As at 31 March

| <i>SDR millions</i>                    | 2012           | 2011         |
|--|----------------|--------------|
| Cash and sight accounts with banks     | 4,077.8        | 329.8        |
| Notice accounts                        | 186.6          | 252.2        |
| <b>Total cash and cash equivalents</b> | <b>4,264.4</b> | <b>582.0</b> |

## 29. Taxes

The Bank's special legal status in Switzerland is set out principally in its Headquarters Agreement with the Swiss Federal Council. Under the terms of this document the Bank is exempted from virtually all direct and indirect taxes at both federal and local government level in Switzerland.

Similar agreements exist with the government of the People's Republic of China for the Asian Office in Hong Kong SAR and with the Mexican government for the Americas Office.

### 30. Exchange rates

The following table shows the principal rates and prices used to translate balances in foreign currency and gold into SDR:

|                  | Spot rate as at 31 March |         | Average rate for the financial year |         |
|------------------|--------------------------|---------|-------------------------------------|---------|
|                  | 2012                     | 2011    | 2012                                | 2011    |
| USD              | <b>0.646</b>             | 0.631   | <b>0.636</b>                        | 0.654   |
| EUR              | <b>0.861</b>             | 0.895   | <b>0.875</b>                        | 0.864   |
| JPY              | <b>0.00784</b>           | 0.00762 | <b>0.00806</b>                      | 0.00764 |
| GBP              | <b>1.033</b>             | 1.013   | <b>1.015</b>                        | 1.016   |
| CHF              | <b>0.715</b>             | 0.689   | <b>0.723</b>                        | 0.647   |
| Gold (in ounces) | <b>1,074.7</b>           | 907.5   | <b>1,046.3</b>                      | 844.9   |

### 31. Off-balance sheet items

Fiduciary transactions are effected in the Bank's name on behalf of, and at the risk of, the Bank's customers without recourse to the other assets of the Bank. They are not included in the Bank's balance sheet and comprise:

As at 31 March

| SDR millions                  | 2012            | 2011     |
|-------------------------------|-----------------|----------|
| Safe custody arrangements     | 11,167.9        | 11,260.6 |
| Collateral pledge agreements  | 34.7            | 33.9     |
| Portfolio management mandates | 11,341.6        | 10,507.9 |
| Gold bars held under earmark  | 11,176.2        | 8,671.1  |
| <b>Total</b>                  | <b>33,720.4</b> | 30,473.5 |

The above table includes the nominal value of securities held under safe custody and collateral pledge arrangements, and the net asset value of portfolio management mandates. Portfolio management mandates include BIS Investment Pools (BISIPs), which are collective investment arrangements for central banks, and dedicated mandates for single central bank investors.

Gold bars held under earmark comprise specific gold bars which have been deposited with the Bank on a custody basis. They are included at their weight in gold (translated at the gold market price and the USD exchange rate into SDR). At 31 March 2012 gold bars held under earmark amounted to 323 tonnes of fine gold (2011: 297 tonnes).

The financial instruments listed above are deposited with external custodians, either central banks or commercial institutions.

In addition to the off-balance sheet items listed above, the Bank also manages portfolios of BIS currency deposits on behalf of its customers. These totalled SDR 6,253.2 million at 31 March 2012 (2011: SDR 5,776.7 million). The assets in these portfolios are included in the balance sheet under the heading "Currency deposits".

### 32. Commitments

The Bank provides a number of committed standby facilities for its customers on a collateralised or uncollateralised basis. As at 31 March 2012 the outstanding commitments to extend credit under these committed standby facilities amounted to SDR 2,570.6 million (2011: SDR 2,287.7 million), of which SDR 193.8 million was uncollateralised (2011: SDR 189.4 million).

### 33. The fair value hierarchy

The Bank categorises its financial instrument fair value measurements using a hierarchy that reflects the significance of inputs used in measuring fair value. The valuation is categorised at the lowest level of input that is significant to the fair value measurement in its entirety. The fair value hierarchy used by the Bank comprises the following levels:

Level 1 – inputs are unadjusted quoted prices in active markets for identical financial instruments.

Level 2 – inputs, other than those listed in level 1, are observable for the financial instrument either directly (ie as a price) or indirectly (ie derived from prices for similar financial instruments). This includes observable interest rates, spreads and volatilities.

Level 3 – inputs are not observable in financial markets.

#### A. Assets measured at fair value

**As at 31 March 2012**

| SDR millions  | Level 1          | Level 2            | Level 3    | Total              |
|---|------------------|--------------------|------------|--------------------|
| <b>Financial assets held at fair value through profit and loss</b>      |                  |                    |            |                    |
| Treasury bills  | 51,306.1         | 2,186.2            | –          | 53,492.3           |
| Securities purchased under resale agreements                            | –                | 46,210.8           | –          | 46,210.8           |
| Fixed-term loans  | –                | 22,570.5           | –          | 22,570.5           |
| Government and other securities   | 36,620.2         | 27,770.6           | 8.3        | 64,399.1           |
| Derivative financial instruments  | 20.9             | 7,283.0            | –          | 7,303.9            |
| <b>Financial assets designated as available for sale</b>                |                  |                    |            |                    |
| Government and other securities   | 13,361.1         | 117.5              | –          | 13,478.6           |
| <b>Total financial assets accounted for at fair value</b>               | <b>101,308.3</b> | <b>106,138.6</b>   | <b>8.3</b> | <b>207,455.2</b>   |
| <b>Financial liabilities held at fair value through profit and loss</b> |                  |                    |            |                    |
| Currency deposits   | –                | (170,803.1)        | –          | (170,803.1)        |
| Derivative financial instruments  | (35.6)           | (4,691.4)          | –          | (4,727.0)          |
| Other liabilities (short positions in currency assets)                  | –                | (69.7)             | –          | (69.7)             |
| <b>Total financial liabilities accounted for at fair value</b>          | <b>(35.6)</b>    | <b>(175,564.2)</b> | <b>–</b>   | <b>(175,599.8)</b> |

As at 31 March 2011

| <i>SDR millions</i>   | Level 1          | Level 2            | Level 3     | Total              |
|---|------------------|--------------------|-------------|--------------------|
| <b>Financial assets held at fair value through profit and loss</b>      |                  |                    |             |                    |
| Treasury bills  | 71,198.0         | 5,734.2            | –           | 76,932.1           |
| Securities purchased under resale agreements                            | –                | 51,464.0           | –           | 51,464.0           |
| Fixed-term loans  | –                | 23,918.2           | –           | 23,918.2           |
| Government and other securities   | 18,401.2         | 26,376.2           | 64.1        | 44,841.5           |
| Derivative financial instruments  | 5.5              | 5,784.8            | –           | 5,790.3            |
| <b>Financial assets designated as available for sale</b>                |                  |                    |             |                    |
| Government and other securities   | 11,862.1         | 284.4              | –           | 12,146.4           |
| <b>Total financial assets accounted for at fair value</b>               | <b>101,466.7</b> | <b>113,561.7</b>   | <b>64.1</b> | <b>215,092.5</b>   |
| <b>Financial liabilities held at fair value through profit and loss</b> |                  |                    |             |                    |
| Currency deposits   | –                | (189,361.3)        | –           | (189,361.3)        |
| Derivative financial instruments  | (16.5)           | (6,943.0)          | –           | (6,959.5)          |
| Other liabilities (short positions in currency assets)                  | –                | (65.7)             | –           | (65.7)             |
| <b>Total financial liabilities accounted for at fair value</b>          | <b>(16.5)</b>    | <b>(196,370.0)</b> | <b>–</b>    | <b>(196,386.5)</b> |

The Bank considers published price quotations in active markets as the best evidence of fair value. The financial instruments using active market quote inputs are categorised as level 1.

Where reliable published price quotations are not available for a financial instrument, the Bank determines fair value by using market standard valuation techniques. These valuation techniques include the use of discounted cash flow models as well as other standard market valuation methods. Where financial models are used, the Bank aims at making maximum use of observable market inputs. The financial instruments valued in this manner are categorised as level 2.

A small percentage of the Bank's financial instruments valuations are produced using valuation techniques that utilise significant unobservable inputs. The financial instruments valued in this manner are categorised as level 3. The financial instruments categorised as level 3 at 31 March 2012 and at 31 March 2011 comprise illiquid bonds.

The accuracy of the Bank's valuations is ensured through an independent price verification exercise performed by the valuation control function.

**B. Reconciliation of assets and liabilities measured at fair value level 3**

As at 31 March 2012

| SDR millions  | Financial assets held at fair value through profit and loss | Financial assets designated as available for sale | Total      |
|---|---|---|------------|
| Balance at beginning of year  | 64.1  | –   | 64.1       |
| Gains in profit or loss   | 1.3   | –   | 1.3        |
| Gains in equity   | –   | –   | –          |
| <b>Total gains</b>  | <b>1.3</b>  | <b>–</b>  | <b>1.3</b> |
| Disposals   | (27.4)  | –   | (27.4)     |
| Transfers out of level 3  | (38.0)  | –   | (38.0)     |
| Transfers into level 3  | 8.3   | –   | 8.3        |
| <b>Balance at end of year</b>   | <b>8.3</b>  | <b>–</b>  | <b>8.3</b> |
| Gains / (losses) in profit or loss for assets and liabilities held at end of year | (20.0)  | –   | (20.0)     |

As at 31 March 2011

| SDR millions   | Financial assets held at fair value through profit and loss | Financial assets designated as available for sale | Total       |
|--|---|---|-------------|
| Balance at beginning of year   | 91.4  | –   | 91.4        |
| Gains in profit or loss  | 0.7   | –   | 0.7         |
| <b>Total gains</b>   | <b>0.7</b>  | <b>–</b>  | <b>0.7</b>  |
| Disposals  | (11.4)  | –   | (11.4)      |
| Transfers out of level 3   | (31.7)  | –   | (31.7)      |
| Transfers into level 3   | 15.1  | –   | 15.1        |
| <b>Balance at end of year</b>  | <b>64.1</b>   | <b>–</b>  | <b>64.1</b> |
| Gains in profit or loss for assets and liabilities held at end of year | 1.0   | –   | 1.0         |

### 34. Effective interest rates

The effective interest rate is the rate that discounts the expected future cash flows of a financial instrument to the current book value.

The tables below summarise the effective interest rate by major currency for applicable financial instruments:

**As at 31 March 2012**

| <i>Percentages</i>                           | USD  | EUR  | GBP  | JPY  | Other currencies |
|--|------|------|------|------|------------------|
| <b>Assets</b>                                |      |      |      |      |                  |
| <b>Gold loans</b>                            |      |      |      |      |                  |
| Gold loans                                   | –    | –    | –    | –    | 0.50             |
| Treasury bills                               | 0.12 | 0.85 | 0.45 | 0.09 | 0.59             |
| Securities purchased under resale agreements | 0.07 | 0.07 | 0.39 | 0.05 | –                |
| Loans and advances                           | 0.24 | 0.46 | 0.71 | 0.09 | 0.15             |
| Government and other securities              | 1.15 | 1.76 | 2.00 | 0.35 | 4.72             |
| <b>Liabilities</b>                           |      |      |      |      |                  |
| <b>Currency deposits</b>                     |      |      |      |      |                  |
| Currency deposits                            | 0.57 | 0.68 | 0.72 | 0.03 | 0.77             |
| Gold deposits                                | –    | –    | –    | –    | 0.42             |
| Short positions in currency assets           | 4.33 | –    | –    | –    | –                |

**As at 31 March 2011**

| <i>Percentages</i>                           | USD  | EUR  | GBP  | JPY  | Other currencies |
|--|------|------|------|------|------------------|
| <b>Assets</b>                                |      |      |      |      |                  |
| <b>Gold loans</b>                            |      |      |      |      |                  |
| Gold loans                                   | –    | –    | –    | –    | 0.46             |
| Treasury bills                               | 0.26 | 0.93 | 0.60 | 0.11 | 0.82             |
| Securities purchased under resale agreements | 0.08 | 0.60 | 0.53 | 0.04 | –                |
| Loans and advances                           | 0.28 | 0.94 | 0.68 | 0.10 | 0.16             |
| Government and other securities              | 1.54 | 2.64 | 2.08 | 0.51 | 5.07             |
| <b>Liabilities</b>                           |      |      |      |      |                  |
| <b>Currency deposits</b>                     |      |      |      |      |                  |
| Currency deposits                            | 0.82 | 1.02 | 1.06 | 0.04 | 0.56             |
| Gold deposits                                | –    | –    | –    | –    | 0.38             |
| Short positions in currency assets           | 4.53 | –    | –    | –    | –                |

## 35. Geographical analysis

### A. Total liabilities

As at 31 March

| <i>SDR millions</i>         | 2012             | 2011             |
|-----------------------------|------------------|------------------|
| Africa and Europe           | 80,509.2         | 76,200.4         |
| Asia-Pacific                | 99,805.3         | 105,303.5        |
| Americas                    | 42,594.0         | 48,847.3         |
| International organisations | 14,383.0         | 14,097.3         |
| <b>Total</b>                | <b>237,291.5</b> | <b>244,448.5</b> |

### B. Off-balance sheet items

As at 31 March

| <i>SDR millions</i> | 2012            | 2011            |
|---------------------|-----------------|-----------------|
| Africa and Europe   | 7,972.9         | 7,652.0         |
| Asia-Pacific        | 20,144.4        | 18,918.4        |
| Americas            | 5,603.1         | 3,903.1         |
| <b>Total</b>        | <b>33,720.4</b> | <b>30,473.5</b> |

Note 31 provides further analysis of the Bank's off-balance sheet items. A geographical analysis of the Bank's assets is provided in the "Risk management" section below (note 3B).

### C. Credit commitments

As at 31 March

| <i>SDR millions</i> | 2012           | 2011           |
|---------------------|----------------|----------------|
| Africa and Europe   | –              | 179.1          |
| Asia-Pacific        | 2,570.6        | 2,108.6        |
| <b>Total</b>        | <b>2,570.6</b> | <b>2,287.7</b> |

Note 32 provides further analysis of the Bank's credit commitments.

## 36. Related parties

The Bank considers the following to be its related parties:

- the members of the Board of Directors;
- the senior officials of the Bank;
- close family members of the above individuals;
- enterprises which could exert significant influence over a member of the Board of Directors or senior official, and enterprises over which one of these individuals could exert significant influence;
- the Bank's post-employment benefit arrangements; and
- central banks whose Governor is a member of the Board of Directors and institutions that are connected with these central banks.

A listing of the members of the Board of Directors and senior officials is shown in the sections of the Annual Report entitled "Board of Directors" and "BIS Management". Note 18 provides details of the Bank's post-employment benefit arrangements.

### **A. Related party individuals**

The total compensation of the Board of Directors and senior officials recognised in the profit and loss account amounted to:

For the financial year ended 31 March

| CHF millions                           | 2012       | 2011       |
|--|------------|------------|
| Salaries, allowances and medical cover | 7.7        | 7.7        |
| Post-employment benefits               | 2.1        | 2.2        |
| <b>Total compensation</b>              | <b>9.8</b> | <b>9.9</b> |
| SDR equivalent                         | 7.1        | 6.8        |

Note 24 provides details of the total compensation of the Board of Directors.

The Bank offers personal deposit accounts for all staff members and its Directors. The accounts bear interest at a rate determined by the Bank based on the rate offered by the Swiss National Bank on staff accounts. The movements and total balance on personal deposit accounts relating to members of the Board of Directors and the senior officials of the Bank were as follows:

For the financial year ended 31 March

| CHF millions  | 2012        | 2011        |
|---|-------------|-------------|
| Balance at beginning of year                                      | 21.7        | 19.7        |
| Deposits taken including interest income (net of withholding tax) | 4.2         | 4.2         |
| Withdrawals   | (1.8)       | (2.2)       |
| <b>Balance at end of year</b>                                     | <b>24.1</b> | <b>21.7</b> |
| SDR equivalent  | 17.2        | 15.0        |
| Interest expense on deposits in CHF millions                      | 0.5         | 0.5         |
| SDR equivalent  | 0.4         | 0.3         |

Balances related to individuals who are appointed as members of the Board of Directors or as senior officials of the Bank during the financial year are included in the table above along with other deposits taken. Balances related to individuals who cease to be members of the Board of Directors or senior officials of the Bank during the financial year are included in the table above along with other withdrawals.

In addition, the Bank operates a blocked personal deposit account for certain staff members who were previously members of the Bank's savings fund, which closed on 1 April 2003. The terms of these blocked accounts are such that staff members cannot make further deposits or withdrawals and the balances are paid out when they leave the Bank. The accounts bear interest at a rate determined by the Bank based on the rate offered by the Swiss National Bank on staff accounts plus 1%. The total balance of blocked accounts at 31 March 2012 was SDR 19.4 million (2011: SDR 20.9 million). They are reported under the balance sheet heading "Currency deposits".

## **B. Related party central banks and connected institutions**

The BIS provides banking services to its customers, which are predominantly central banks, monetary authorities and international financial institutions. In fulfilling this role, the Bank in the normal course of business enters into transactions with related party central banks and connected institutions. These transactions include making advances, and taking currency and gold deposits.

It is the Bank's policy to enter into transactions with related party central banks and connected institutions on similar terms and conditions to transactions with other, non-related party customers.

### *Currency deposits from related party central banks and connected institutions*

For the financial year ended 31 March

| <i>SDR millions</i>                                  | <b>2012</b>     | <b>2011</b> |
|--|-----------------|-------------|
| Balance at beginning of year                         | 47,156.3        | 57,512.6    |
| Deposits taken                                       | 290,890.7       | 362,877.5   |
| Maturities, repayments and fair value movements      | (289,823.8)     | (370,954.6) |
| Net movement on notice accounts                      | 1,205.6         | (2,279.2)   |
| <b>Balance at end of year</b>                        | <b>49,428.8</b> | 47,156.3    |
| Percentage of total currency deposits at end of year | 25.2%           | 22.8%       |

### *Gold deposit liabilities from related central banks and connected institutions*

For the financial year ended 31 March

| <i>SDR millions</i>                              | <b>2012</b>     | <b>2011</b> |
|--|-----------------|-------------|
| Balance at beginning of year                     | 15,536.0        | 27,688.7    |
| Net movement on gold sight accounts              | (1,768.9)       | (12,152.7)  |
| <b>Balance at end of year</b>                    | <b>13,767.1</b> | 15,536.0    |
| Percentage of total gold deposits at end of year | 70.2%           | 73.0%       |

### *Securities purchased under resale transactions with related party central banks and connected institutions*

For the financial year ended 31 March

| <i>SDR millions</i>   | <b>2012</b>    | <b>2011</b>   |
|---|----------------|---------------|
| Balance at beginning of year  | 5,947.0        | 4,942.7       |
| Collateralised deposits placed  | 1,569,113.8    | 1,176,076.2   |
| Maturities and fair value movements   | (1,569,300.2)  | (1,175,071.9) |
| <b>Balance at end of year</b>   | <b>5,760.6</b> | 5,947.0       |
| Percentage of total securities purchased under resale agreements at end of year | 12.5%          | 11.6%         |

### *Derivatives transactions with related party central banks and connected institutions*

The BIS enters into derivatives transactions with related party central banks and connected institutions, including foreign exchange deals and interest rate swaps. The total nominal value of these transactions with related party central banks and connected institutions during the year ended 31 March 2012 was SDR 16,196.5 million (2011: SDR 22,669.5 million).

*Other balances and transactions with related party central banks and connected institutions*

The Bank maintains eight accounts in currencies with related party central banks and connected institutions, the total balance of which was SDR 4,061.8 million as at 31 March 2012 (2011: SDR 314.6 million). Gold held with related party central banks and connected institutions totalled SDR 34,816.2 million as at 31 March 2012 (2011: SDR 35,383.0 million).

During the year ended 31 March 2012 the Bank acquired SDR 34,276.9 million of securities issued by related party central banks and connected institutions (2011: SDR 6,013.5 million). A total of SDR 36,724.0 million of such securities matured or were sold during the financial year (2011: SDR 2,535.8 million). As at 31 March 2012 the Bank held SDR 1,167.8 million of related party securities (2011: SDR 3,614.8 million).

During the financial year, the Bank purchased third-party securities from central banks and connected institutions amounting to SDR 131.1 million, all of which were subsequently disposed of before the end of the year (2011: nil).

**37. Contingent liabilities**

In the opinion of the Bank's Management there were no material contingent liabilities at 31 March 2012.

# Capital adequacy

## 1. Capital

The table below shows the composition of the Bank's Tier 1 and total capital.

As at 31 March

| SDR millions                         | 2012            | 2011     |
|--------------------------------------|-----------------|----------|
| Share capital                        | 698.9           | 683.9    |
| Statutory reserves per balance sheet | 13,057.2        | 12,154.4 |
| Less: shares held in treasury        | (1.7)           | (1.7)    |
| <b>Tier 1 capital</b>                | <b>13,754.4</b> | 12,836.6 |
| Profit and loss account              | 758.9           | 816.0    |
| Other equity accounts                | 3,866.0         | 3,017.7  |
| <b>Total equity</b>                  | <b>18,379.3</b> | 16,670.3 |

The Bank assesses its capital adequacy continuously. The assessment is supported by an annual capital and business planning process.

The Bank has implemented a risk framework that is consistent with the revised *International Convergence of Capital Measurement and Capital Standards* (Basel II Framework) issued by the Basel Committee on Banking Supervision in June 2006. The implementation includes all three pillars of the Framework, and takes the particular scope and nature of the Bank's activities into account. Since the Bank is not subject to national banking supervisory regulation, the application of Pillar 2 is limited to the Bank's own assessment of capital adequacy. This assessment is based primarily on an economic capital methodology which is more comprehensive and geared to a substantially higher solvency level than the minimum Pillar 1 capital level required by the Basel II Framework.

## 2. Economic capital

The Bank's own assessment of its capital adequacy is performed on the basis of its economic capital frameworks for market risk, credit risk, operational risk and other risks. These are designed to determine the amount of equity needed to absorb losses arising from its exposures to a statistical level of confidence consistent with the objective of maintaining superior credit quality. The Bank's economic capital frameworks measure economic capital to a 99.995% confidence level assuming a one-year horizon, except for settlement risk (included in the utilisation for credit risk) and other risks. The amount of economic capital set aside for settlement risk and other risks, ie risks which are not, or not fully, reflected in the Bank's economic capital calculations, is based on an assessment by Management.

The following table summarises the Bank's economic capital utilisation for credit risk, market risk, operational risk and other risks:

As at 31 March

| SDR millions                              | 2012            | 2011    |
|---|-----------------|---------|
| Credit risk                               | 6,886.2         | 5,974.2 |
| Market risk                               | 3,287.9         | 2,836.5 |
| Operational risk                          | 700.0           | 700.0   |
| Other risks                               | 300.0           | 300.0   |
| <b>Total economic capital utilisation</b> | <b>11,174.1</b> | 9,810.7 |

### 3. Risk-weighted assets and minimum capital requirements under the Basel II Framework

The Basel II Framework includes several approaches for calculating risk-weighted assets and the corresponding minimum capital requirements. In principle, the minimum capital requirements are determined by taking 8% of the risk-weighted assets.

The following table summarises the relevant exposure types and approaches as well as the risk-weighted assets and related minimum capital requirements for credit risk, market risk and operational risk.

| As at 31 March<br><i>SDR millions</i>                                    | Approach used  | 2012               |                          |                                 | 2011               |                          |                                 |
|--|--|--------------------|--------------------------|---------------------------------|--------------------|--------------------------|---------------------------------|
|  |  | Amount of exposure | Risk-weighted assets (A) | Minimum capital requirement (B) | Amount of exposure | Risk-weighted assets (A) | Minimum capital requirement (B) |
| <b>Credit risk</b>   |  |                    |                          |                                 |                    |                          |                                 |
| Exposure to sovereigns, banks and corporates                             | Advanced internal ratings-based approach, where (B) is derived as (A) x 8% | 153,430.0          | 10,041.9                 | 803.4                           | 158,491.3          | 7,538.3                  | 603.1                           |
| Securitisation exposures, externally managed portfolios and other assets | Standardised approach, where (B) is derived as (A) x 8%                    | 1,853.2            | 1,107.8                  | 88.6                            | 2,256.6            | 1,190.0                  | 95.2                            |
| <b>Market risk</b>   |  |                    |                          |                                 |                    |                          |                                 |
| Exposure to foreign exchange risk and gold price risk                    | Internal models approach, where (A) is derived as (B) / 8%                 | –                  | 16,005.8                 | 1,280.5                         | –                  | 10,806.2                 | 864.5                           |
| <b>Operational risk</b>  |  |                    |                          |                                 |                    |                          |                                 |
|  | Advanced measurement approach, where (A) is derived as (B) / 8%            | –                  | 4,270.3                  | 341.6                           | –                  | 3,760.4                  | 300.8                           |
| <b>Total</b>   |  | <b>31,425.8</b>    | <b>2,514.0</b>           |                                 | <b>23,294.9</b>    | <b>1,863.6</b>           |                                 |

For credit risk, the Bank has adopted the advanced internal ratings-based approach for the majority of its exposures. Under this approach, the risk weighting for a transaction is determined by the relevant Basel II risk weight function using the Bank's own estimates for key inputs. For certain exposures, the Bank has adopted the standardised approach. Under this approach, risk weightings are mapped to exposure types.

Risk-weighted assets for market risk are derived following an internal models approach. For operational risk, the advanced measurement approach is used. Both these approaches rely on value-at-risk (VaR) methodologies. The minimum capital requirements are derived from the VaR figures and are translated into risk-weighted assets taking into account the 8% minimum capital requirement.

More details on the assumptions underlying the calculations are provided in the sections on credit risk, market risk and operational risk.

#### 4. Tier 1 capital ratio

The capital ratio measures capital adequacy by comparing the Bank's Tier 1 capital with its risk-weighted assets. The table below shows the Bank's Tier 1 capital ratio, consistent with the Basel II Framework.

As at 31 March

| <i>SDR millions</i>                            | <b>2012</b>     | <b>2011</b> |
|--|-----------------|-------------|
| <b>Tier 1 capital</b>                          | <b>13,754.3</b> | 12,836.6    |
| Expected loss                                  | (24.3)          | –           |
| <b>Tier 1 capital net of expected loss (A)</b> | <b>13,730.0</b> | 12,836.6    |
| Total risk-weighted assets (B)                 | <b>31,425.8</b> | 23,294.9    |
| <b>Tier 1 capital ratio (A) / (B)</b>          | <b>43.7%</b>    | 55.1%       |

As required by the Basel II Framework, expected loss is calculated for credit risk exposures subject to the advanced internal ratings-based approach. The expected loss is calculated at the balance sheet date taking into account any impairment provision which is reflected in the Bank's financial statements. At 31 March 2011 the Bank had an impairment provision of SDR 29.0 million relating to gold loan assets. The Bank had no impaired financial assets at 31 March 2012. Note 2B to the financial statements provides details of the impairment provision that was recorded at 31 March 2011. In accordance with the requirements of the Basel II Framework, the expected loss is compared with the impairment provision and any shortfall is deducted from the Bank's Tier 1 capital.

The Bank maintains a very high creditworthiness and performs a comprehensive capital assessment considering its specific characteristics. As such, it maintains a capital position substantially in excess of the minimum requirement.

# Risk management

## 1. Risks faced by the Bank

The Bank supports its customers, predominantly central banks, monetary authorities and international financial institutions, in the management of their reserves and related financial activities.

Banking activities form an essential element of meeting the Bank's objectives and ensure its financial strength and independence. The BIS engages in banking activities that are customer-related as well as activities that are related to the investment of its equity, each of which may give rise to financial risk comprising credit risk, market risk and liquidity risk. The Bank is also exposed to operational risk.

Within the risk framework defined by the Board of Directors, the Management of the Bank has established risk management policies designed to ensure that risks are identified, appropriately measured and controlled as well as monitored and reported.

## 2. Risk management approach and organisation

The Bank maintains superior credit quality and adopts a prudent approach to financial risk-taking, by:

- maintaining an exceptionally strong capital position;
- investing its assets predominantly in high credit quality financial instruments;
- seeking to diversify its assets across a range of sectors;
- adopting a conservative approach to its tactical market risk-taking and carefully managing market risk associated with the Bank's strategic positions, which include its gold holdings; and
- maintaining a high level of liquidity.

### A. Organisation

Under Article 39 of the Bank's Statutes, the General Manager is responsible to the Board for the management of the Bank, and is assisted by the Deputy General Manager. The Deputy General Manager is responsible for the Bank's independent risk control and compliance functions. The General Manager and the Deputy General Manager are supported by senior management advisory committees.

The key advisory committees are the Executive Committee, the Finance Committee and the Compliance and Operational Risk Committee. The first two committees are chaired by the General Manager and the third by the Deputy General Manager, and all include other senior members of the Bank's Management. The Executive Committee advises the General Manager primarily on the Bank's strategic planning and the allocation of resources, as well as on decisions related to the broad financial objectives for the banking activities and operational risk management. The Finance Committee advises the General Manager on the financial management and policy issues related to the banking business, including the allocation of economic capital to risk categories. The Compliance and Operational Risk Committee acts as an advisory committee to the Deputy General Manager and ensures the coordination of compliance matters and operational risk management throughout the Bank.

The independent risk control function for financial risks is performed by the Risk Control unit. The independent operational risk control function is shared between Risk Control, which maintains the operational risk quantification, and the Compliance and Operational Risk Unit. Both units report directly to the Deputy General Manager.

The Bank's compliance function is performed by the Compliance and Operational Risk Unit. The objective of this function is to provide reasonable assurance that the activities of the Bank and its staff conform to applicable laws and regulations, the BIS Statutes, the Bank's Code of Conduct and other internal rules, policies and relevant standards of sound practice.

The Compliance and Operational Risk Unit identifies and assesses compliance risks and guides and educates staff on compliance issues. The Head of the Compliance and Operational Risk Unit also has a direct reporting line to the Audit Committee, which is an advisory committee to the Board of Directors.

The Finance unit and the Legal Service complement the Bank's risk management. The Finance unit operates an independent valuation control function, produces the Bank's financial statements and controls the Bank's expenditure by setting and monitoring the annual budget. The objective of the independent valuation control function is to ensure that the Bank's valuations comply with its valuation policy and procedures, and that the processes and procedures which influence the Bank's valuations conform to best practice guidelines. The Finance unit reports to the Deputy General Manager and the Secretary General.

The Legal Service provides legal advice and support covering a wide range of issues relating to the Bank's activities. The Legal Service has a direct reporting line to the General Manager.

The Internal Audit function reviews internal control procedures and reports on how they comply with internal standards and industry best practices. The scope of internal audit work includes the review of risk management procedures, internal control systems, information systems and governance processes. Internal Audit has a direct reporting line to the Audit Committee and is responsible to the General Manager and the Deputy General Manager.

#### ***B. Risk monitoring and reporting***

The Bank's financial and operational risk profile, position and performance are monitored on an ongoing basis by the relevant units. Financial risk and compliance reports aimed at various management levels are regularly provided to enable Management to adequately assess the Bank's risk profile and financial condition.

Management reports financial and risk information to the Board of Directors on a monthly and a quarterly basis. Furthermore, the Audit Committee receives regular reports from Internal Audit, the Compliance and Operational Risk Unit and the Finance unit. The Banking and Risk Management Committee, another advisory committee to the Board, receives an annual report from the Risk Control unit. The preparation of reports is subject to comprehensive policies and procedures, thus ensuring strong controls.

#### ***C. Risk methodologies***

The Bank revalues virtually all of its financial assets to fair value on a daily basis and reviews its valuations monthly, taking into account necessary adjustments for impairment. It uses a comprehensive range of quantitative methodologies for valuing financial instruments and for measuring risk to its net profit and equity. The Bank reassesses its quantitative methodologies in the light of its changing risk environment and evolving best practice.

The Bank's model validation policy defines the roles and responsibilities and processes related to the implementation of new or materially changed risk models.

A key methodology used by the Bank to measure and manage risk is the calculation of economic capital based on value-at-risk (VaR) techniques. VaR expresses the statistical estimate of the maximum potential loss on the current positions of the Bank measured to a specified level of confidence and a specified time horizon.

The Bank's economic capital calculation is designed to measure the amount of equity needed to absorb losses arising from its exposures to a statistical level of confidence determined by the Bank's aim to remain of the highest creditworthiness.

The Bank assesses its capital adequacy on the basis of economic capital frameworks for market risk, credit risk, operational risk and other risks, supplemented by sensitivity and risk factor analyses. The Bank's economic capital frameworks measure economic capital to a 99.995% confidence interval assuming a one-year holding period.

The Bank allocates economic capital to the above risk categories. An additional amount of economic capital is set aside based on Management's assessment of risks which are not, or not fully, reflected in the economic capital calculations.

A comprehensive stress testing framework complements the Bank's risk assessment including its VaR and economic capital calculations for financial risk. The Bank's key market risk factors and credit exposures are stress-tested. The stress testing includes the analysis of severe historical and adverse hypothetical macroeconomic scenarios, as well as sensitivity tests of extreme but still plausible movements of the key risk factors identified. The Bank also performs stress tests related to liquidity risk.

### **3. Credit risk**

Credit risk arises because a counterparty may fail to meet its obligations in accordance with the agreed contractual terms and conditions. A financial asset is considered past due when a counterparty fails to make a payment on the contractual due date.

The Bank manages credit risk within a framework and policies set by the Board of Directors and Management. These are complemented by more detailed guidelines and procedures at the level of the independent risk control function.

#### **A. Credit risk assessment**

Credit risk is continuously controlled at both a counterparty and an aggregated level. As part of the independent risk control function, individual counterparty credit assessments are performed subject to a well defined internal rating process, involving 18 rating grades. As part of this process, counterparty financial statements and market information are analysed. The rating methodologies depend on the nature of the counterparty. Based on the internal rating and specific counterparty features, the Bank sets a series of credit limits covering individual counterparties and countries. Internal ratings are assigned to all counterparties. In principle, the ratings and related limits are reviewed at least annually. The main assessment criterion in these reviews is the ability of the counterparties to meet interest and principal repayment obligations in a timely manner.

Credit risk limits at the counterparty level are approved by the Bank's Management and fit within a framework set by the Board of Directors.

On an aggregated level credit risk, including default and country transfer risk, is measured, monitored and controlled based on the Bank's economic capital calculation for credit risk. To calculate economic capital for credit risk, the Bank uses a portfolio VaR model. Management limits the Bank's overall exposure to credit risk by allocating an amount of economic capital to credit risk.

#### **B. Default risk**

The following tables show the exposure of the Bank to default risk, without taking into account any collateral held or other credit enhancements available to the Bank. Credit risk is further mitigated through the use of collateral and legally enforceable netting or setoff agreements. The corresponding assets and liabilities are not offset on the balance sheet.

The exposures set out in the tables below are based on the carrying value of the assets on the balance sheet as categorised by sector, geographical region and credit quality. The carrying value is the fair value of the financial instruments, including derivatives, except in the case of very short-term financial instruments (sight and notice accounts) and gold, which are shown at amortised cost net of any impairment charge. Commitments are reported at their notional amounts. Gold and gold loans exclude gold bar assets held in custody, and accounts receivable do not include unsettled liability issues, because these items do not represent credit exposures of the Bank.

The vast majority of the Bank's assets are invested in securities issued by G10 governments and financial institutions rated A– or above by at least one of the major external credit assessment institutions. Limitations on the number of high-quality counterparties in these sectors mean that the Bank is exposed to single-name concentration risk.

The Bank conducts an annual review for impairment at the date of each balance sheet. At 31 March 2012 the Bank did not have any financial assets that were considered to be impaired (31 March 2011: SDR 29.0 million). As at 31 March 2012 no financial assets were considered past due (31 March 2011: nil). During the period under review, the Bank recorded a credit loss of SDR 31.9 million (2011: nil) due to a sovereign debt restructuring.

**Default risk by asset class and issuer type**

The following tables show the exposure of the Bank to default risk by asset class and issuer type. "Public sector" includes international and other public sector institutions.

**As at 31 March 2012**

| SDR millions                                 | Sovereign and central banks | Public sector   | Banks           | Corporate      | Securitisation | Total            |
|--|-----------------------------|-----------------|-----------------|----------------|----------------|------------------|
| <b>On-balance sheet exposures</b>            |                             |                 |                 |                |                |                  |
| Cash and sight accounts with banks           | 4,064.5                     | –               | 11.9            | 1.4            | –              | 4,077.8          |
| Gold and gold loans                          | –                           | –               | 1,096.5         | –              | –              | 1,096.5          |
| Treasury bills                               | 53,492.3                    | –               | –               | –              | –              | 53,492.3         |
| Securities purchased under resale agreements | 5,760.6                     | –               | 40,450.2        | –              | –              | 46,210.8         |
| Loans and advances                           | 4,520.6                     | 391.6           | 17,844.9        | –              | –              | 22,757.1         |
| Government and other securities              | 49,198.7                    | 15,588.9        | 7,617.7         | 4,467.4        | 1,005.0        | 77,877.7         |
| Derivatives                                  | 49.1                        | 139.8           | 7,114.6         | 0.4            | –              | 7,303.9          |
| Accounts receivable                          | 10.0                        | 337.5           | 20.6            | 9.6            | –              | 377.7            |
| <b>Total on-balance sheet exposure</b>       | <b>117,095.8</b>            | <b>16,457.8</b> | <b>74,156.4</b> | <b>4,478.8</b> | <b>1,005.0</b> | <b>213,193.8</b> |
| <b>Commitments</b>                           |                             |                 |                 |                |                |                  |
| Undrawn unsecured facilities                 | 193.8                       | –               | –               | –              | –              | 193.8            |
| Undrawn secured facilities                   | 2,376.8                     | –               | –               | –              | –              | 2,376.8          |
| <b>Total commitments</b>                     | <b>2,570.6</b>              | <b>–</b>        | <b>–</b>        | <b>–</b>       | <b>–</b>       | <b>2,570.6</b>   |
| <b>Total exposure</b>                        | <b>119,666.4</b>            | <b>16,457.8</b> | <b>74,156.4</b> | <b>4,478.8</b> | <b>1,005.0</b> | <b>215,764.4</b> |

**As at 31 March 2011**

| SDR millions                                 | Sovereign and central banks | Public sector   | Banks           | Corporate      | Securitisation | Total            |
|--|-----------------------------|-----------------|-----------------|----------------|----------------|------------------|
| <b>On-balance sheet exposures</b>            |                             |                 |                 |                |                |                  |
| Cash and sight accounts with banks           | 316.7                       | –               | 6.8             | 6.3            | –              | 329.8            |
| Gold and gold loans                          | –                           | –               | 1,225.1         | 29.1           | –              | 1,254.2          |
| Treasury bills                               | 76,932.1                    | –               | –               | –              | –              | 76,932.1         |
| Securities purchased under resale agreements | 5,947.0                     | –               | 45,517.0        | –              | –              | 51,464.0         |
| Loans and advances                           | 1,182.5                     | 424.2           | 22,563.7        | –              | –              | 24,170.4         |
| Government and other securities              | 28,467.5                    | 14,375.1        | 9,206.9         | 3,589.2        | 1,349.2        | 56,987.9         |
| Derivatives                                  | 156.2                       | 31.4            | 5,602.1         | 0.6            | –              | 5,790.3          |
| Accounts receivable                          | 2.0                         | 434.9           | 131.5           | 8.0            | –              | 576.4            |
| <b>Total on-balance sheet exposure</b>       | <b>113,004.0</b>            | <b>15,265.6</b> | <b>84,253.1</b> | <b>3,633.2</b> | <b>1,349.2</b> | <b>217,505.1</b> |
| <b>Commitments</b>                           |                             |                 |                 |                |                |                  |
| Undrawn unsecured facilities                 | 189.4                       | –               | –               | –              | –              | 189.4            |
| Undrawn secured facilities                   | 2,098.3                     | –               | –               | –              | –              | 2098.3           |
| <b>Total commitments</b>                     | <b>2,287.7</b>              | <b>–</b>        | <b>–</b>        | <b>–</b>       | <b>–</b>       | <b>2,287.7</b>   |
| <b>Total exposure</b>                        | <b>115,291.7</b>            | <b>15,265.6</b> | <b>84,253.1</b> | <b>3,633.2</b> | <b>1,349.2</b> | <b>219,792.8</b> |

### **Default risk by geographical region**

The following tables represent the exposure of the Bank to default risk by geographical region. The Bank has allocated exposures to regions based on the country of incorporation of each legal entity to which the Bank has exposures.

**As at 31 March 2012**

| <i>SDR millions</i>                          | Africa and Europe | Asia-Pacific    | Americas        | International institutions | Total            |
|--|-------------------|-----------------|-----------------|----------------------------|------------------|
| <b>On-balance sheet exposures</b>            |                   |                 |                 |                            |                  |
| Cash and sight accounts with banks           | 4,063.9           | 7.7             | 6.2             | –                          | 4,077.8          |
| Gold and gold loans                          | 782.5             | 68.9            | 245.1           | –                          | 1,096.5          |
| Treasury bills                               | 14,394.7          | 37,072.8        | 2,024.8         | –                          | 53,492.3         |
| Securities purchased under resale agreements | 39,158.3          | 5,252.6         | 1,799.9         | –                          | 46,210.8         |
| Loans and advances                           | 14,584.2          | 6,799.0         | 1,227.8         | 146.1                      | 22,757.1         |
| Government and other securities              | 39,858.2          | 4,411.6         | 25,233.2        | 8,374.7                    | 77,877.7         |
| Derivatives                                  | 5,613.2           | 94.8            | 1,595.8         | 0.1                        | 7,303.9          |
| Accounts receivable                          | 31.6              | 0.9             | 345.2           | –                          | 377.7            |
| <b>Total on-balance sheet exposure</b>       | <b>118,486.6</b>  | <b>53,708.3</b> | <b>32,478.0</b> | <b>8,520.9</b>             | <b>213,193.8</b> |
| <b>Commitments</b>                           |                   |                 |                 |                            |                  |
| Undrawn unsecured facilities                 | –                 | 193.8           | –               | –                          | 193.8            |
| Undrawn secured facilities                   | –                 | 2,376.8         | –               | –                          | 2,376.8          |
| <b>Total commitments</b>                     | <b>–</b>          | <b>2,570.6</b>  | <b>–</b>        | <b>–</b>                   | <b>2,570.6</b>   |
| <b>Total exposure</b>                        | <b>118,486.6</b>  | <b>56,278.9</b> | <b>32,478.0</b> | <b>8,520.9</b>             | <b>215,764.4</b> |

**As at 31 March 2011**

| <i>SDR millions</i>                          | Africa and Europe | Asia-Pacific    | Americas        | International institutions | Total            |
|--|-------------------|-----------------|-----------------|----------------------------|------------------|
| <b>On-balance sheet exposures</b>            |                   |                 |                 |                            |                  |
| Cash and sight accounts with banks           | 315.1             | 1.2             | 13.5            | –                          | 329.8            |
| Gold and gold loans                          | 901.8             | 58.3            | 294.1           | –                          | 1,254.2          |
| Treasury bills                               | 37,831.2          | 36,796.9        | 2,304.0         | –                          | 76,932.1         |
| Securities purchased under resale agreements | 45,359.2          | 5,710.0         | 394.8           | –                          | 51,464.0         |
| Loans and advances                           | 19,224.0          | 3,429.6         | 1,345.2         | 171.6                      | 24,170.4         |
| Government and other securities              | 31,368.7          | 3,427.6         | 13,667.5        | 8,524.1                    | 56,987.9         |
| Derivatives                                  | 4,082.8           | 175.1           | 1,532.1         | 0.3                        | 5,790.3          |
| Accounts receivable                          | 140.6             | 0.8             | 435             | –                          | 576.4            |
| <b>Total on-balance sheet exposure</b>       | <b>139,223.4</b>  | <b>49,599.5</b> | <b>19,986.2</b> | <b>8,696.0</b>             | <b>217,505.1</b> |
| <b>Commitments</b>                           |                   |                 |                 |                            |                  |
| Undrawn unsecured facilities                 | –                 | 189.4           | –               | –                          | 189.4            |
| Undrawn secured facilities                   | 179.1             | 1,919.2         | –               | –                          | 2,098.3          |
| <b>Total commitments</b>                     | <b>179.1</b>      | <b>2,108.6</b>  | <b>–</b>        | <b>–</b>                   | <b>2,287.7</b>   |
| <b>Total exposure</b>                        | <b>139,402.5</b>  | <b>51,708.1</b> | <b>19,986.2</b> | <b>8,696.0</b>             | <b>219,792.8</b> |

**Default risk by counterparty / issuer rating**

The following tables show the exposure of the Bank to default risk by class of financial asset. The ratings shown reflect the Bank's internal ratings expressed as equivalent external ratings.

| As at 31 March 2012<br><i>SDR millions</i>   | AAA             | AA              | A               | BBB            | BB and below   | Unrated    | Total            |
|--|-----------------|-----------------|-----------------|----------------|----------------|------------|------------------|
| <b>On-balance sheet exposures</b>            |                 |                 |                 |                |                |            |                  |
| Cash and sight accounts with banks           | 3,969.7         | 97.8            | 9.4             | 0.3            | 0.3            | 0.3        | 4,077.8          |
| Gold and gold loans                          | –               | 83.3            | 1,013.2         | –              | –              | –          | 1,096.5          |
| Treasury bills                               | 6,160.9         | 43,461.9        | 3,310.6         | 558.9          | –              | –          | 53,492.3         |
| Securities purchased under resale agreements | –               | 5,760.6         | 39,287.8        | 1,162.4        | –              | –          | 46,210.8         |
| Loans and advances                           | 1,101.0         | 4,360.9         | 15,913.0        | 800.8          | 581.4          | –          | 22,757.1         |
| Government and other securities              | 24,965.8        | 42,492.8        | 7,471.8         | 2,029.8        | 917.5          | –          | 77,877.7         |
| Derivatives                                  | 107.9           | 1,472.0         | 5,723.0         | –              | 0.6            | 0.4        | 7,303.9          |
| Accounts receivable                          | –               | 345.5           | 25.0            | 0.5            | 0.2            | 6.5        | 377.7            |
| <b>Total on-balance sheet exposure</b>       | <b>36,305.3</b> | <b>98,074.8</b> | <b>72,753.8</b> | <b>4,552.7</b> | <b>1,500.0</b> | <b>7.2</b> | <b>213,193.8</b> |
| <i>Percentages</i>                           |                 |                 |                 |                |                |            |                  |
|  | 17.0%           | 46.0%           | 34.1%           | 2.1%           | 0.8%           | 0.0%       | 100.0%           |
| <b>Commitments</b>                           |                 |                 |                 |                |                |            |                  |
| Undrawn unsecured facilities                 | –               | –               | –               | 193.8          | –              | –          | 193.8            |
| Undrawn secured facilities                   | –               | 771.3           | 784.4           | 261.4          | 559.7          | –          | 2,376.8          |
| <b>Total commitments</b>                     | <b>–</b>        | <b>771.3</b>    | <b>784.4</b>    | <b>455.2</b>   | <b>559.7</b>   | <b>–</b>   | <b>2,570.6</b>   |
| <b>Total exposure</b>                        | <b>36,305.3</b> | <b>98,846.1</b> | <b>73,538.2</b> | <b>5,007.9</b> | <b>2,059.7</b> | <b>7.2</b> | <b>215,764.4</b> |

As at 31 March 2011

| <i>SDR millions</i>                          | AAA             | AA              | A               | BBB            | BB and below | Unrated    | Total            |
|--|-----------------|-----------------|-----------------|----------------|--------------|------------|------------------|
| <b>On-balance sheet exposures</b>            |                 |                 |                 |                |              |            |                  |
| Cash and sight accounts with banks           | 315.3           | 11.7            | 2.1             | 0.3            | 0.1          | 0.3        | 329.8            |
| Gold and gold loans                          | –               | 303.8           | 921.3           | 29.1           | –            | –          | 1,254.2          |
| Treasury bills                               | 28,360.2        | 41,532.1        | 7,039.8         | –              | –            | –          | 76,932.1         |
| Securities purchased under resale agreements | 237.0           | 13,499.4        | 37,727.6        | –              | –            | –          | 51,464.0         |
| Loans and advances                           | 1,543.6         | 7,498.1         | 15,128.7        | –              | –            | –          | 24,170.4         |
| Government and other securities              | 36,427.9        | 12,321.0        | 7,501.6         | 686.5          | 50.9         | –          | 56,987.9         |
| Derivatives                                  | 31.3            | 798.3           | 4,914.0         | 0.1            | 46.0         | 0.6        | 5,790.3          |
| Accounts receivable                          | 435.0           | 0.3             | 134.9           | 0.3            | 1.4          | 4.5        | 576.4            |
| <b>Total on-balance sheet exposure</b>       | <b>67,350.3</b> | <b>75,964.7</b> | <b>73,370.0</b> | <b>716.3</b>   | <b>98.4</b>  | <b>5.4</b> | <b>217,505.1</b> |
| <i>Percentages</i>                           | 31.0%           | 34.9%           | 33.7%           | 0.3%           | 0.1%         | 0.0%       | 100.0%           |
| <b>Commitments</b>                           |                 |                 |                 |                |              |            |                  |
| Undrawn unsecured facilities                 | –               | –               | –               | 189.4          | –            | –          | 189.4            |
| Undrawn secured facilities                   | –               | 710.0           | 721.8           | 419.7          | 246.8        | –          | 2,098.3          |
| <b>Total commitments</b>                     | <b>–</b>        | <b>710.0</b>    | <b>721.8</b>    | <b>609.1</b>   | <b>246.8</b> | <b>–</b>   | <b>2,287.7</b>   |
| <b>Total exposure</b>                        | <b>67,350.3</b> | <b>76,674.7</b> | <b>74,091.8</b> | <b>1,325.4</b> | <b>345.2</b> | <b>5.4</b> | <b>219,792.8</b> |

### C. Credit risk mitigation

Credit risk is mitigated through the use of collateral and legally enforceable netting or setoff agreements. The corresponding assets and liabilities are not offset on the balance sheet.

The Bank requires counterparties to provide collateral, under reverse repurchase agreements, some derivative financial instrument contracts and certain drawn-down facility agreements, to mitigate counterparty default risk in accordance with the respective policies and procedures. During the term of the agreement, the Bank monitors the fair value of the collateral securities and may call for further collateral or be required to return collateral based on the movement in its market value.

The Bank mitigates settlement risk by using established clearing centres and by settling transactions where possible through a delivery versus payment settlement mechanism. Daily settlement risk limits are monitored on a continuous basis.

The table below shows the collateral obtained by the Bank. It excludes transactions which have yet to settle (on which neither cash nor collateral has been exchanged).

| <i>SDR millions</i>                          | 2012                             |                     | 2011                             |                     |
|--|----------------------------------|---------------------|----------------------------------|---------------------|
|  | Fair value of relevant contracts | Value of collateral | Fair value of relevant contracts | Value of collateral |
| <b>Collateral obtained for</b>               |                                  |                     |                                  |                     |
| Securities purchased under resale agreements | 36,567.3                         | 36,960.2            | 45,703.9                         | 45,858.7            |
| Advances                                     | 3,811.0                          | 4,340.4             | 63.1                             | 67.5                |
| Derivatives                                  | 2,754.7                          | 2,938.2             | 1,639.8                          | 1,743.5             |
| <b>Total collateral obtained</b>             | <b>43,133.0</b>                  | <b>44,238.8</b>     | <b>47,406.8</b>                  | <b>47,669.7</b>     |

The Bank is allowed to sell or pledge collateral obtained, but must deliver equivalent financial instruments upon expiry of the contract. The Bank accepts sovereign securities and cash as collateral for derivatives. Eligible collateral for reverse repurchase agreements comprises sovereign and supranational debt as well as state agency securities. Eligible collateral for loans and advances includes currency deposits with the Bank as well as units in the BIS Investment Pools (BISIPs) and securities in portfolios managed by the BIS.

As at 31 March 2012 the total amount of undrawn facilities which could be drawn down subject to collateralisation by the counterparty was SDR 2,376.8 million (2011: SDR 2,098.3 million).

The Bank did not provide collateral on any of its financial instrument contracts as at 31 March 2012 (2011: nil).

#### **D. Economic capital for credit risk**

The Bank determines economic capital for credit risk using a VaR methodology on the basis of a portfolio VaR model, assuming a one-year time horizon and a 99.995% confidence interval, except for settlement risk (included in the utilisation for credit risk since July 2011). The amount of economic capital set aside for settlement risk reflected in the Bank's economic capital calculations is based on an assessment by Management.

| For the financial year<br><i>SDR millions</i>       | 2012    |         |         |                | 2011    |         |         |             |
|---|---------|---------|---------|----------------|---------|---------|---------|-------------|
|   | Average | High    | Low     | At 31 March    | Average | High    | Low     | At 31 March |
| <b>Economic capital utilisation for credit risk</b> | 6,504.4 | 7,131.2 | 5,602.3 | <b>6,886.2</b> | 5,807.1 | 6,315.0 | 5,345.7 | 5,974.2     |

#### **E. Minimum capital requirements for credit risk**

##### **Exposure to sovereigns, banks and corporates**

For the calculation of risk-weighted assets for exposures to banks, sovereigns and corporates, the Bank has adopted an approach that is consistent with the advanced internal ratings-based approach.

As a general rule, under this approach risk-weighted assets are determined by multiplying the credit risk exposures with risk weights derived from the relevant Basel II risk weight function using the Bank's own estimates for key inputs. These estimates for key inputs are also relevant to the Bank's economic capital calculation for credit risk.

The credit risk exposure for a transaction or position is referred to as the exposure at default (EAD). The Bank determines the EAD as the notional amount of all on- and off-balance sheet credit exposures, except derivative contracts and certain collateralised exposures. The EAD for derivatives is calculated using an approach consistent with the internal models method proposed under the Basel II Framework. In line with this methodology, the Bank calculates effective expected positive exposures that are then multiplied by a factor alpha as set out in the Framework.

Key inputs to the risk weight function are a counterparty's estimated one-year probability of default (PD) as well as the estimated loss-given-default (LGD) and maturity for each transaction.

Due to the high credit quality of the Bank's investments and the conservative credit risk management process at the BIS, the Bank is not in a position to estimate PDs and LGDs based on its own default experience. The Bank calibrates counterparty PD estimates through a mapping of internal rating grades to external credit assessments taking external default data into account. Similarly, LGD estimates are derived from external data. Where appropriate, these estimates are adjusted to reflect the risk-reducing effects of collateral obtained giving consideration to market price volatility, remargining and revaluation frequency. The recognition of the risk-reducing effects of collateral obtained for derivative contracts, reverse repurchase agreements and collateralised advances is accounted for in calculating the EAD.

The table below details the calculation of risk-weighted assets. The exposures are measured taking netting and collateral benefits into account. The total amount of exposures reported in the table as at 31 March 2012 includes SDR 421.4 million for interest rate contracts (31 March 2011: SDR 463.0 million) and SDR 726.5 million for FX and gold contracts (31 March 2011: SDR 287.5 million).

**As at 31 March 2012**

| <b>Internal rating grades expressed as equivalent external rating grades</b> | Amount of exposure  | Exposure-weighted PD % | Exposure-weighted average LGD % | Exposure-weighted average risk weight % | Risk-weighted assets |
|--|---------------------|------------------------|---------------------------------|---|----------------------|
| <i>SDR millions / percentages</i>  | <i>SDR millions</i> |                        |                                 |   | <i>SDR millions</i>  |
| AAA  | 34,310.0            | 0.002                  | 35.6                            | 1.2                                     | 397.8                |
| AA   | 88,287.5            | 0.02                   | 37.6                            | 3.9                                     | 3,415.5              |
| A  | 26,344.3            | 0.07                   | 49.5                            | 15.8                                    | 4,158.9              |
| BBB  | 3,530.3             | 0.15                   | 42.8                            | 30.1                                    | 1,064.2              |
| BB and below   | 957.9               | 1.32                   | 48.4                            | 105.0                                   | 1,005.5              |
| <b>Total</b>   | <b>153,430.0</b>    |                        |                                 |   | <b>10,041.9</b>      |

**As at 31 March 2011**

| <b>Internal rating grades expressed as equivalent external rating grades</b> | Amount of exposure  | Exposure-weighted PD % | Exposure-weighted average LGD % | Exposure-weighted average risk weight % | Risk-weighted assets |
|--|---------------------|------------------------|---------------------------------|---|----------------------|
| <i>SDR millions / percentages</i>  | <i>SDR millions</i> |                        |                                 |   | <i>SDR millions</i>  |
| AAA  | 63,927.4            | 0.004                  | 37.8                            | 1.9                                     | 1,197.8              |
| AA   | 61,483.3            | 0.02                   | 40.7                            | 4.1                                     | 2,496.1              |
| A  | 32,008.5            | 0.05                   | 48.2                            | 10.6                                    | 3,399.1              |
| BBB  | 1,008.2             | 0.19                   | 41.7                            | 39.5                                    | 398.1                |
| BB and below   | 63.9                | 1.00                   | 42.3                            | 73.7                                    | 47.2                 |
| <b>Total</b>   | <b>158,491.3</b>    |                        |                                 |   | <b>7,538.3</b>       |

The table below summarises the impact of collateral arrangements on the amount of credit exposure after taking netting into account.

**Impact of collateral arrangements**

| <i>SDR millions</i>        | Amount of exposure after taking netting into account | Benefits from collateral arrangements | Amount of exposure after taking into account netting and collateral arrangements |
|----------------------------|--|---------------------------------------|--|
| <b>As at 31 March 2012</b> | <b>207,533.6</b>                                     | <b>54,103.6</b>                       | <b>153,430.0</b>   |
| As at 31 March 2011        | 212,964.8  | 54,473.5                              | 158,491.3  |

#### **F. Securitisation exposures**

The Bank invests in highly rated securitisation exposures based on traditional, ie non-synthetic, securitisation structures. Given the scope of the Bank's activities, risk-weighted assets under the Basel II Framework are determined according to the standardised approach for securitisation. Under this approach, external credit assessments of the securities are used to determine the relevant risk weights. External credit assessment institutions used for this purpose are Moody's Investors Service, Standard & Poor's and Fitch Ratings. Risk-weighted assets are then derived as the product of the notional amounts of the exposures and the associated risk weights.

The following table shows the Bank's investments in securitisation analysed by type of securitised assets:

**As at 31 March 2012**

| <i>SDR millions</i>   | External rating | Amount of exposure | Risk weight | Risk-weighted assets |
|---|-----------------|--------------------|-------------|----------------------|
| Residential mortgage-backed securities                        | AAA             | 62.8               | 20%         | 12.6                 |
| Residential mortgage-backed securities                        | A               | 39.7               | 50%         | 19.9                 |
| Securities backed by credit card receivables                  | AAA             | 78.8               | 20%         | 15.8                 |
| Securities backed by other receivables (government-sponsored) | AAA             | 765.5              | 20%         | 153.1                |
| <b>Total</b>  |                 | <b>946.8</b>       |             | <b>201.4</b>         |

**As at 31 March 2011**

| <i>SDR millions</i>   | External rating | Amount of exposure | Risk weight | Risk-weighted assets |
|---|-----------------|--------------------|-------------|----------------------|
| Residential mortgage-backed securities                        | AAA             | 161.1              | 20%         | 32.2                 |
| Securities backed by credit card receivables                  | AAA             | 376.3              | 20%         | 75.3                 |
| Securities backed by other receivables (government-sponsored) | AAA             | 795.8              | 20%         | 159.2                |
| <b>Total</b>  |                 | <b>1,333.2</b>     |             | <b>266.7</b>         |

## 4. Market risk

The Bank is exposed to market risk through adverse movements in market prices. The main components of the Bank's market risk are gold price risk, interest rate risk and foreign exchange risk. The Bank measures market risk and calculates economic capital based on a VaR methodology using a Monte Carlo simulation technique. Risk factor volatilities and correlations are estimated using a one-year observation period. Furthermore, the Bank computes sensitivities to certain market risk factors.

In line with the Bank's objective of maintaining its superior credit quality, economic capital is measured at the 99.995% confidence interval assuming a one-year holding period. The Bank's Management manages market risk economic capital usage within a framework set by the Board of Directors. VaR limits are supplemented by operating limits.

VaR models depend on statistical assumptions and the quality of available market data and, while forward-looking, they extrapolate from past events.

To ensure that models provide a reliable measure of potential losses over the one-year time horizon, the Bank has established a comprehensive regular backtesting framework, comparing daily performance with corresponding VaR estimates. The results are analysed and reported to Management.

The Bank also supplements its market risk measurement based on VaR modelling and related economic capital calculations with a series of stress tests. These include severe historical scenarios, adverse hypothetical macroeconomic scenarios and sensitivity tests of gold price, interest rate and foreign exchange rate movements.

### A. Gold price risk

Gold price risk is the exposure of the Bank's financial condition to adverse movements in the price of gold.

The Bank is exposed to gold price risk principally through its holdings of gold investment assets, which amount to 116 tonnes (2011: 119 tonnes). These gold investment assets are held in custody or placed on deposit with commercial banks. At 31 March 2012 the Bank's net gold investment assets amounted to SDR 4,018.2 million (2011: SDR 3,451.2 million), approximately 22% of its equity (2011: 21%). The Bank sometimes also has small exposures to gold price risk arising from its banking activities with central and commercial banks. Gold price risk is measured within the Bank's VaR methodology, including its economic capital framework and stress tests.

### B. Interest rate risk

Interest rate risk is the exposure of the Bank's financial condition to adverse movements in interest rates including credit spreads. The Bank is exposed to interest rate risk through the interest bearing assets relating to the management of its equity held in its investment portfolios and investments relating to its banking portfolios. The investment portfolios are managed using a fixed duration benchmark of bonds.

The Bank measures and monitors interest rate risk using a VaR methodology and sensitivity analyses taking into account movements in relevant money market rates, government bonds, swap rates and credit spreads.

The tables below show the impact on the Bank's equity of a 1% upward shift in the relevant yield curve per time band:

#### As at 31 March 2012

| SDR millions     | Up to 6 months | 6 to 12 months | 1 to 2 years  | 2 to 3 years  | 3 to 4 years   | 4 to 5 years  | Over 5 years  |
|------------------|----------------|----------------|---------------|---------------|----------------|---------------|---------------|
| Euro             | (1.2)          | (13.6)         | (14.0)        | (25.6)        | (32.4)         | (16.7)        | (40.0)        |
| Japanese yen     | 1.1            | (2.7)          | (4.2)         | (16.3)        | (7.3)          | (4.0)         | (7.2)         |
| Pound sterling   | 1.4            | (3.7)          | (6.0)         | (15.2)        | (18.0)         | (7.6)         | 0.1           |
| Swiss franc      | 6.1            | (0.2)          | (0.4)         | (0.6)         | (3.2)          | (4.6)         | 8.6           |
| US dollar        | 17.3           | (36.2)         | (26.9)        | (31.2)        | (47.8)         | (37.9)        | (12.4)        |
| Other currencies | (1.3)          | 0.4            | –             | (0.9)         | 0.4            | –             | 0.1           |
| <b>Total</b>     | <b>23.4</b>    | <b>(56.0)</b>  | <b>(51.5)</b> | <b>(89.8)</b> | <b>(108.3)</b> | <b>(70.8)</b> | <b>(50.8)</b> |

As at 31 March 2011

| <i>SDR millions</i> | Up to 6 months | 6 to 12 months | 1 to 2 years  | 2 to 3 years  | 3 to 4 years  | 4 to 5 years  | Over 5 years  |
|---------------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|
| Euro                | 2.6            | (8.6)          | (16.9)        | (11.0)        | (27.4)        | (32.1)        | (29.3)        |
| Japanese yen        | 0.9            | (3.3)          | (6.1)         | (5.2)         | (13.7)        | (2.8)         | (3.2)         |
| Pound sterling      | 1.8            | (2.9)          | (3.5)         | (12.8)        | (9.5)         | (9.1)         | (19.9)        |
| Swiss franc         | (1.2)          | (0.3)          | (0.4)         | (0.6)         | (0.8)         | (5.7)         | 7.5           |
| US dollar           | 19.4           | (15.9)         | (13.5)        | (47.5)        | (39.4)        | (26.7)        | (7.3)         |
| Other currencies    | (0.7)          | (5.6)          | 0.2           | (0.6)         | 0.4           | 0.3           | –             |
| <b>Total</b>        | <b>22.8</b>    | <b>(36.6)</b>  | <b>(40.2)</b> | <b>(77.7)</b> | <b>(90.4)</b> | <b>(76.1)</b> | <b>(52.2)</b> |

### C. Foreign exchange risk

The Bank's functional currency, the SDR, is a composite currency comprising fixed amounts of USD, EUR, JPY and GBP. Currency risk is the exposure of the Bank's financial condition to adverse movements in exchange rates. The Bank is exposed to foreign exchange risk primarily through the assets relating to the management of its equity. The Bank is also exposed to foreign exchange risk through managing its customer deposits and through acting as an intermediary in foreign exchange transactions between central and commercial banks. The Bank reduces its foreign exchange exposures by matching the relevant assets to the constituent currencies of the SDR on a regular basis, and by limiting currency exposures arising from customer deposits and foreign exchange transaction intermediation.

Foreign exchange risk is measured and monitored based on the Bank's VaR methodology and sensitivity analyses considering movements in key foreign exchange rates.

The following tables show the Bank's assets and liabilities by currency and gold exposure. The net foreign exchange and gold position in these tables therefore includes the Bank's gold investments. To determine the Bank's net foreign exchange exposure, the gold amounts need to be removed. The SDR-neutral position is then deducted from the net foreign exchange position excluding gold to arrive at the net currency exposure of the Bank on an SDR-neutral basis.

**As at 31 March 2012**

| <i>SDR millions</i>                               | SDR              | USD                | EUR               | GBP               | JPY               | CHF              | Gold              | Other currencies | Total              |
|---|------------------|--------------------|-------------------|-------------------|-------------------|------------------|-------------------|------------------|--------------------|
| <b>Assets</b>                                     |                  |                    |                   |                   |                   |                  |                   |                  |                    |
| Cash and sight accounts with banks                | –                | 6.4                | 171.6             | 4.7               | 0.1               | 3,883.7          | –                 | 11.3             | 4,077.8            |
| Gold and gold loans                               | –                | 9.7                | –                 | –                 | –                 | –                | 35,903.0          | (0.0)            | 35,912.7           |
| Treasury bills                                    | –                | 1,960.6            | 12,504.4          | 322.6             | 36,439.9          | 1,108.8          | –                 | 1,156.0          | 53,492.3           |
| Securities purchased under resale agreements      | –                | 2,768.8            | 27,383.6          | 10,805.8          | 5,252.6           | –                | –                 | –                | 46,210.8           |
| Loans and advances                                | 146.1            | 11,071.1           | 8,671.5           | 679.4             | 436.4             | 56.7             | –                 | 1,695.9          | 22,757.1           |
| Government and other securities                   | –                | 37,283.1           | 30,273.3          | 5,329.0           | 2,421.1           | –                | –                 | 2,571.2          | 77,877.7           |
| Derivative financial instruments                  | 1,224.8          | 50,812.8           | (8,337.0)         | 117.1             | (28,957.4)        | (1,093.0)        | (6,939.9)         | 476.5            | 7,303.9            |
| Accounts receivable                               | –                | 7,662.4            | 0.7               | –                 | –                 | 9.7              | –                 | 172.7            | 7,845.5            |
| Land, buildings and equipment                     | 189.6            | –                  | –                 | –                 | –                 | 3.4              | –                 | –                | 193.0              |
| <b>Total assets</b>                               | <b>1,560.5</b>   | <b>111,574.9</b>   | <b>70,668.1</b>   | <b>17,258.6</b>   | <b>15,592.7</b>   | <b>3,969.3</b>   | <b>28,963.1</b>   | <b>6,083.6</b>   | <b>255,670.8</b>   |
| <b>Liabilities</b>                                |                  |                    |                   |                   |                   |                  |                   |                  |                    |
| Currency deposits                                 | (7,840.2)        | (136,634.5)        | (27,870.9)        | (13,147.3)        | (2,798.4)         | (514.0)          | –                 | (6,973.2)        | (195,778.5)        |
| Gold deposits                                     | –                | (6.4)              | –                 | –                 | –                 | –                | (19,617.6)        | –                | (19,624.0)         |
| Derivative financial instruments                  | 3,793.5          | 35,928.0           | (25,098.0)        | (1,185.9)         | (10,347.6)        | (3,445.0)        | (5,324.2)         | 952.2            | (4,727.0)          |
| Accounts payable                                  | –                | (3,387.4)          | (11,585.7)        | (925.7)           | (783.5)           | –                | –                 | (63.2)           | (16,745.5)         |
| Other liabilities                                 | –                | (70.9)             | –                 | –                 | –                 | (345.3)          | –                 | (0.3)            | (416.5)            |
| <b>Total liabilities</b>                          | <b>(4,046.7)</b> | <b>(104,171.2)</b> | <b>(64,554.6)</b> | <b>(15,258.9)</b> | <b>(13,929.5)</b> | <b>(4,304.3)</b> | <b>(24,941.8)</b> | <b>(6,084.5)</b> | <b>(237,291.5)</b> |
| <b>Net currency and gold position</b>             | <b>(2,486.2)</b> | <b>7,403.7</b>     | <b>6,113.5</b>    | <b>1,999.7</b>    | <b>1,663.2</b>    | <b>(335.0)</b>   | <b>4,021.3</b>    | <b>(0.9)</b>     | <b>18,379.3</b>    |
| Adjustment for gold investment assets             | –                | –                  | –                 | –                 | –                 | –                | (4,021.3)         | –                | (4,021.3)          |
| <b>Net currency position</b>                      | <b>(2,486.2)</b> | <b>7,403.7</b>     | <b>6,113.5</b>    | <b>1,999.7</b>    | <b>1,663.2</b>    | <b>(335.0)</b>   | <b>–</b>          | <b>(0.9)</b>     | <b>14,358.0</b>    |
| SDR-neutral position                              | 2,486.2          | (7,019.0)          | (6,378.0)         | (1,895.0)         | (1,552.2)         | –                | –                 | –                | (14,358.0)         |
| <b>Net currency exposure on SDR-neutral basis</b> | <b>–</b>         | <b>384.7</b>       | <b>(264.5)</b>    | <b>104.7</b>      | <b>111.0</b>      | <b>(335.0)</b>   | <b>–</b>          | <b>(0.9)</b>     | <b>–</b>           |

As at 31 March 2011

| <i>SDR millions</i>                               | SDR              | USD               | EUR                | GBP               | JPY               | CHF              | Gold              | Other currencies | Total              |
|---|------------------|-------------------|--------------------|-------------------|-------------------|------------------|-------------------|------------------|--------------------|
| <b>Assets</b>                                     |                  |                   |                    |                   |                   |                  |                   |                  |                    |
| Cash and sight accounts with banks                | –                | 12.6              | 151.3              | 8.0               | –                 | 151.3            | –                 | 6.6              | 329.8              |
| Gold and gold loans                               | –                | 9.0               | –                  | –                 | –                 | –                | 36,628.2          | –                | 36,637.2           |
| Treasury bills                                    | –                | 2,304.0           | 29,737.0           | 397.2             | 36,796.9          | 5,337.0          | –                 | 2,360.0          | 76,932.1           |
| Securities purchased under resale agreements      | –                | 394.8             | 37,559.5           | 7,799.6           | 5,710.0           | –                | –                 | 0.1              | 51,464.0           |
| Loans and advances                                | 171.7            | 8,460.0           | 10,937.4           | 1,368.1           | 1,062.4           | 544.4            | –                 | 1,626.4          | 24,170.4           |
| Government and other securities                   | –                | 29,061.1          | 21,378.5           | 3,769.8           | 1,209.5           | 35.3             | –                 | 1,533.7          | 56,987.9           |
| Derivative financial instruments                  | (36.5)           | 23,335.2          | 8,337.9            | (408.9)           | (26,700.9)        | 327.2            | (247.0)           | 1,183.3          | 5,790.3            |
| Accounts receivable                               | 0.1              | 6,969.2           | 684.9              | 426.6             | –                 | 8.0              | –                 | 527.5            | 8,616.3            |
| Land, buildings and equipment                     | 189.7            | –                 | –                  | –                 | –                 | 1.1              | –                 | –                | 190.8              |
| <b>Total assets</b>                               | <b>325.0</b>     | <b>70,545.9</b>   | <b>108,786.5</b>   | <b>13,360.4</b>   | <b>18,077.9</b>   | <b>6,404.3</b>   | <b>36,381.2</b>   | <b>7,237.6</b>   | <b>261,118.8</b>   |
| <b>Liabilities</b>                                |                  |                   |                    |                   |                   |                  |                   |                  |                    |
| Currency deposits                                 | (7,691.5)        | (140,478.2)       | (38,882.7)         | (10,083.1)        | (4,667.5)         | (680.8)          | –                 | (4,601.8)        | (207,085.6)        |
| Gold deposits                                     | –                | (5.6)             | –                  | –                 | –                 | –                | (21,264.3)        | –                | (21,269.9)         |
| Derivative financial instruments                  | 4,221.7          | 79,073.2          | (59,048.3)         | 126.6             | (11,840.3)        | (5,452.7)        | (11,666.5)        | (2,373.2)        | (6,959.5)          |
| Accounts payable                                  | –                | (1,964.2)         | (4,761.1)          | (1,491.8)         | –                 | (275.6)          | –                 | (265.4)          | (8,758.1)          |
| Other liabilities                                 | –                | (66.6)            | (2.8)              | –                 | –                 | (305.3)          | –                 | (0.7)            | (375.4)            |
| <b>Total liabilities</b>                          | <b>(3,469.8)</b> | <b>(63,441.4)</b> | <b>(102,694.9)</b> | <b>(11,448.3)</b> | <b>(16,507.8)</b> | <b>(6,714.4)</b> | <b>(32,930.8)</b> | <b>(7,241.1)</b> | <b>(244,448.5)</b> |
| <b>Net currency and gold position</b>             | <b>(3,144.8)</b> | <b>7,104.5</b>    | <b>6,091.6</b>     | <b>1,912.1</b>    | <b>1,570.1</b>    | <b>(310.1)</b>   | <b>3,450.4</b>    | <b>(3.5)</b>     | <b>16,670.3</b>    |
| Adjustment for gold investment assets             | –                | –                 | –                  | –                 | –                 | –                | (3,450.4)         | –                | (3,450.4)          |
| <b>Net currency position</b>                      | <b>(3,144.8)</b> | <b>7,104.5</b>    | <b>6,091.6</b>     | <b>1,912.1</b>    | <b>1,570.1</b>    | <b>(310.1)</b>   | <b>–</b>          | <b>(3.5)</b>     | <b>13,219.9</b>    |
| SDR-neutral position                              | 3,144.8          | (6,818.8)         | (6,196.9)          | (1,840.6)         | (1,508.4)         | –                | –                 | –                | (13,219.9)         |
| <b>Net currency exposure on SDR-neutral basis</b> | <b>–</b>         | <b>285.7</b>      | <b>(105.3)</b>     | <b>71.5</b>       | <b>61.7</b>       | <b>(310.1)</b>   | <b>–</b>          | <b>(3.5)</b>     | <b>–</b>           |

#### **D. Economic capital for market risk**

The Bank measures market risk based on a VaR methodology using a Monte Carlo simulation technique taking correlations between risk factors into account. Economic capital for market risk is also calculated following this methodology measured to the 99.995% confidence interval and assuming a one-year holding period. The Bank measures its gold price risk relative to changes in the USD value of gold. The foreign exchange risk component, resulting from changes in the USD exchange rate versus the SDR, is included in the measurement of foreign exchange risk. The table below shows the key figures of the Bank's exposure to market risk in terms of economic capital utilisation over the past two financial years.

| For the financial year<br><i>SDR millions</i>       | 2012    |         |         |                | 2011    |         |         |             |
|---|---------|---------|---------|----------------|---------|---------|---------|-------------|
|   | Average | High    | Low     | At 31 March    | Average | High    | Low     | At 31 March |
| <b>Economic capital utilisation for market risk</b> | 3,232.7 | 3,716.0 | 2,734.0 | <b>3,287.9</b> | 2,884.2 | 3,069.2 | 2,684.0 | 2,836.5     |

The table below provides further analysis of the Bank's market risk exposure by category of risk.

| For the financial year<br><i>SDR millions</i> | 2012      |           |           |                  | 2011      |           |           |             |
|---|-----------|-----------|-----------|------------------|-----------|-----------|-----------|-------------|
|   | Average   | High      | Low       | At 31 March      | Average   | High      | Low       | At 31 March |
| Gold price risk                               | 2,345.6   | 2,741.6   | 1,835.5   | <b>2,501.3</b>   | 1,956.7   | 2,121.0   | 1,830.6   | 1,909.8     |
| Interest rate risk                            | 1,565.2   | 1,660.6   | 1,463.6   | <b>1,560.4</b>   | 1,617.7   | 1,760.7   | 1,456.1   | 1,542.2     |
| Foreign exchange risk                         | 923.0     | 1,095.7   | 788.9     | <b>894.2</b>     | 797.0     | 874.6     | 666.3     | 814.6       |
| Diversification effects                       | (1,601.1) | (1,809.2) | (1,403.8) | <b>(1,668.0)</b> | (1,487.1) | (1,711.4) | (1,352.4) | (1,430.1)   |

#### **E. Minimum capital requirements for market risk**

For the calculation of minimum capital requirements for market risk under the Basel II Framework, the Bank has adopted a banking book approach consistent with the scope and nature of its business activities. Consequently, market risk-weighted assets are determined for gold price risk and foreign exchange risk, but not interest rate risk. The related minimum capital requirement is derived using the VaR-based internal models method. Under this method, VaR calculations are performed using the Bank's VaR methodology, assuming a 99% confidence interval, a 10-day holding period and a one-year historical observation period.

The actual minimum capital requirement is derived as the higher of the VaR on the calculation date and the average of the daily VaR measures on each of the preceding 60 business days (including the calculation date) subject to a multiplication factor of three plus a potential add-on depending on backtesting results. For the period under consideration, the number of backtesting outliers observed remained within the range where no add-on is required. The table below summarises the market risk development relevant to the calculation of minimum capital requirements and the related risk-weighted assets over the reporting period.

| As at 31 March<br><i>SDR millions</i>            | 2012  |                          |                                 | 2011  |                          |                                 |
|--|-------|--------------------------|---------------------------------|-------|--------------------------|---------------------------------|
|  | VaR   | Risk-weighted assets (A) | Minimum capital requirement (B) | VaR   | Risk-weighted assets (A) | Minimum capital requirement (B) |
| Market risk,<br>where (A) is derived as (B) / 8% | 426.8 | 16,005.8                 | <b>1,280.5</b>                  | 288.2 | 10,806.2                 | 864.5                           |

## **5. Liquidity risk**

Liquidity risk arises when the Bank may not be able to meet expected or unexpected current or future cash flows and collateral needs without affecting its daily operations or its financial condition.

Outstanding balances in the currency and gold deposits from central banks, international organisations and other public institutions are the key drivers of the size of the Bank's balance sheet. The Bank has undertaken to repurchase at fair value certain of its currency deposit instruments at one or two business days' notice. The Bank has developed a liquidity management framework based on a statistical model underpinned by conservative assumptions with regard to cash inflows and the liquidity of liabilities. Within this framework, the Board of Directors has set a limit for the Bank's liquidity ratio which requires liquid assets to be at least 100% of the potential liquidity requirement. In addition, liquidity stress tests assuming extreme withdrawal scenarios are performed. These stress tests specify additional liquidity requirements to be met by holdings of liquid assets. The Bank's liquidity has consistently been materially above its minimum liquidity ratio and the requirements of its stress tests.

The Bank's currency and gold deposits, principally from central banks and international institutions, comprise 91% (2011: 93%) of its total liabilities. At 31 March 2012 currency and gold deposits originated from 172 depositors (2011: 171). Within these deposits, there are significant individual customer concentrations, with five customers each contributing in excess of 5% of the total on a settlement date basis (2011: four customers).

The following tables show the maturity profile of cash flows for assets and liabilities. The amounts disclosed are the undiscounted cash flows to which the Bank is committed.

**As at 31 March 2012**

| <i>SDR millions</i>                               | <b>Up to 1 month</b> | <b>1 to 3 months</b> | <b>3 to 6 months</b> | <b>6 to 12 months</b> | <b>1 to 2 years</b> | <b>2 to 5 years</b> | <b>5 to 10 years</b> | <b>Over 10 years</b> | <b>Total</b>       |
|---|----------------------|----------------------|----------------------|-----------------------|---------------------|---------------------|----------------------|----------------------|--------------------|
| <b>Assets</b>                                     |                      |                      |                      |                       |                     |                     |                      |                      |                    |
| Cash and sight accounts with banks                | 4,077.8              | –                    | –                    | –                     | –                   | –                   | –                    | –                    | 4,077.8            |
| Gold and gold loans                               | 35,353.6             | 137.9                | 139.5                | –                     | –                   | 284.4               | –                    | –                    | 35,915.4           |
| Treasury bills                                    | 10,035.9             | 30,652.9             | 8,256.7              | 3,576.1               | –                   | –                   | –                    | –                    | 52,521.6           |
| Securities purchased under resale agreements      | 27,593.1             | 4,686.9              | –                    | –                     | –                   | –                   | –                    | –                    | 32,280.0           |
| Loans and advances                                | 12,204.2             | 8,127.7              | 1,142.4              | –                     | –                   | –                   | –                    | –                    | 21,474.3           |
| Government and other securities                   | 3,475.1              | 8,892.3              | 9,786.2              | 20,647.0              | 10,137.1            | 22,703.1            | 3,470.0              | 983.5                | 80,094.3           |
| <b>Total assets</b>                               | <b>92,739.7</b>      | <b>52,497.7</b>      | <b>19,324.8</b>      | <b>24,223.1</b>       | <b>10,137.1</b>     | <b>22,987.5</b>     | <b>3,470.0</b>       | <b>983.5</b>         | <b>226,363.4</b>   |
| <b>Liabilities</b>                                |                      |                      |                      |                       |                     |                     |                      |                      |                    |
| Currency deposits                                 |                      |                      |                      |                       |                     |                     |                      |                      |                    |
| Deposit instruments repayable at 1–2 days' notice | (3,531.3)            | (24,460.6)           | (17,340.6)           | (15,139.2)            | (14,964.6)          | (23,677.2)          | (202.9)              | –                    | (99,316.4)         |
| Other currency deposits                           | (56,016.8)           | (21,657.6)           | (9,272.2)            | (2,984.0)             | –                   | –                   | –                    | –                    | (89,930.6)         |
| Gold deposits                                     | (19,204.8)           | –                    | (138.5)              | –                     | –                   | (282.9)             | –                    | –                    | (19,626.2)         |
| Securities sold short                             | 61.2                 | 8.0                  | (0.8)                | (1.6)                 | (3.1)               | (9.3)               | (15.5)               | (124.3)              | (85.4)             |
| <b>Total liabilities</b>                          | <b>(78,691.7)</b>    | <b>(46,110.2)</b>    | <b>(26,752.1)</b>    | <b>(18,124.8)</b>     | <b>(14,967.7)</b>   | <b>(23,969.4)</b>   | <b>(218.4)</b>       | <b>(124.3)</b>       | <b>(208,958.6)</b> |
| <b>Derivatives</b>                                |                      |                      |                      |                       |                     |                     |                      |                      |                    |
| <i>Net settled</i>                                |                      |                      |                      |                       |                     |                     |                      |                      |                    |
| Interest rate contracts                           | 20.1                 | 179.9                | 313.3                | 333.4                 | 391.9               | 240.9               | (31.8)               | –                    | 1,447.7            |
| <i>Gross settled</i>                              |                      |                      |                      |                       |                     |                     |                      |                      |                    |
| Exchange rate and gold price contracts            |                      |                      |                      |                       |                     |                     |                      |                      |                    |
| Inflows   | 41,207.3             | 52,261.0             | 19,830.5             | 10,073.7              | –                   | –                   | –                    | –                    | 123,372.5          |
| Outflows  | (40,756.6)           | (51,444.4)           | (19,642.6)           | (10,008.9)            | –                   | –                   | –                    | –                    | (121,852.5)        |
| <b>Subtotal</b>                                   | <b>450.7</b>         | <b>816.6</b>         | <b>187.9</b>         | <b>64.8</b>           | <b>–</b>            | <b>–</b>            | <b>–</b>             | <b>–</b>             | <b>1,520.0</b>     |
| Interest rate contracts                           |                      |                      |                      |                       |                     |                     |                      |                      |                    |
| Inflows   | 1.1                  | 13.5                 | 2.0                  | 270.7                 | 245.7               | 788.6               | –                    | –                    | 1,321.6            |
| Outflows  | (0.3)                | (23.4)               | (8.5)                | (361.3)               | (310.3)             | (896.0)             | –                    | –                    | (1,599.8)          |
| <b>Subtotal</b>                                   | <b>0.8</b>           | <b>(9.9)</b>         | <b>(6.5)</b>         | <b>(90.6)</b>         | <b>(64.6)</b>       | <b>(107.4)</b>      | <b>–</b>             | <b>–</b>             | <b>(278.2)</b>     |
| <b>Total derivatives</b>                          | <b>471.6</b>         | <b>986.6</b>         | <b>494.7</b>         | <b>307.6</b>          | <b>327.3</b>        | <b>133.5</b>        | <b>(31.8)</b>        | <b>–</b>             | <b>2,689.5</b>     |
| <b>Total future undiscounted cash flows</b>       | <b>14,519.6</b>      | <b>7,374.1</b>       | <b>(6,932.6)</b>     | <b>6,405.9</b>        | <b>(4,503.2)</b>    | <b>(848.4)</b>      | <b>3,219.8</b>       | <b>859.2</b>         | <b>20,094.3</b>    |

As at 31 March 2011

| SDR millions                                      | Up to 1 month     | 1 to 3 months     | 3 to 6 months     | 6 to 12 months    | 1 to 2 years      | 2 to 5 years      | 5 to 10 years    | Over 10 years | Total              |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|---------------|--------------------|
| <b>Assets</b>                                     |                   |                   |                   |                   |                   |                   |                  |               |                    |
| Cash and sight accounts with banks                | 329.8             | –                 | –                 | –                 | –                 | –                 | –                | –             | 329.8              |
| Gold and gold loans                               | 35,402.2          | 0.2               | 116.9             | 235.6             | 675.2             | 241.4             | –                | –             | 36,671.5           |
| Treasury bills                                    | 20,560.7          | 34,860.3          | 9,809.3           | 11,493.0          | –                 | –                 | –                | –             | 76,723.3           |
| Securities purchased under resale agreements      | 37,247.3          | 6,508.0           | 1,922.6           | –                 | –                 | –                 | –                | –             | 45,677.9           |
| Loans and advances                                | 10,979.7          | 11,508.3          | 1,159.4           | –                 | –                 | –                 | –                | –             | 23,647.4           |
| Government and other securities                   | 2,714.6           | 3,182.7           | 4,433.6           | 11,945.4          | 12,101.3          | 20,634.4          | 5,019.1          | 608.1         | 60,639.2           |
| <b>Total assets</b>                               | <b>107,234.3</b>  | <b>56,059.5</b>   | <b>17,441.8</b>   | <b>23,674.0</b>   | <b>12,776.5</b>   | <b>20,875.8</b>   | <b>5,019.1</b>   | <b>608.1</b>  | <b>243,689.1</b>   |
| <b>Liabilities</b>                                |                   |                   |                   |                   |                   |                   |                  |               |                    |
| Currency deposits                                 |                   |                   |                   |                   |                   |                   |                  |               |                    |
| Deposit instruments repayable at 1–2 days' notice | (7,108.9)         | (15,075.9)        | (17,684.3)        | (16,343.5)        | (18,205.4)        | (21,450.7)        | (2,331.1)        | –             | (98,199.8)         |
| Other currency deposits                           | (63,470.8)        | (21,510.5)        | (12,675.9)        | (7,303.5)         | (3.2)             | –                 | –                | –             | (104,963.9)        |
| Gold deposits                                     | (20,714.5)        | –                 | –                 | (82.4)            | (236.3)           | (239.9)           | –                | –             | (21,273.1)         |
| Securities sold short                             | (0.4)             | (0.7)             | (1.1)             | (2.1)             | (4.2)             | (12.7)            | (21.4)           | (71.3)        | (113.9)            |
| <b>Total liabilities</b>                          | <b>(91,294.6)</b> | <b>(36,587.1)</b> | <b>(30,361.3)</b> | <b>(23,731.5)</b> | <b>(18,449.1)</b> | <b>(21,703.3)</b> | <b>(2,352.5)</b> | <b>(71.3)</b> | <b>(224,550.7)</b> |
| <b>Derivatives</b>                                |                   |                   |                   |                   |                   |                   |                  |               |                    |
| <i>Net settled</i>                                |                   |                   |                   |                   |                   |                   |                  |               |                    |
| Interest rate contracts                           | 99.2              | 243.4             | 410.3             | 447.1             | 634.0             | 318.3             | 4.5              | –             | 2,156.8            |
| <i>Gross settled</i>                              |                   |                   |                   |                   |                   |                   |                  |               |                    |
| Exchange rate and gold price contracts            |                   |                   |                   |                   |                   |                   |                  |               |                    |
| Inflows   | 42,049.4          | 52,875.9          | 21,374.8          | 11,771.3          | –                 | –                 | –                | –             | 128,071.4          |
| Outflows  | (42,703.7)        | (54,108.8)        | (21,993.1)        | (12,287.9)        | –                 | –                 | –                | –             | (131,093.5)        |
| Subtotal  | (654.3)           | (1,232.9)         | (618.3)           | (516.6)           | –                 | –                 | –                | –             | (3,022.1)          |
| Interest rate contracts                           |                   |                   |                   |                   |                   |                   |                  |               |                    |
| Inflows   | 0.8               | 50.4              | 1.4               | 39.1              | 289.4             | 1,023.5           | 25.1             | –             | 1,429.7            |
| Outflows  | –                 | (54.5)            | (9.9)             | (76.8)            | (400.7)           | (1,215.6)         | (34.7)           | –             | (1,792.2)          |
| Subtotal  | 0.8               | (4.1)             | (8.5)             | (37.7)            | (111.3)           | (192.1)           | (9.6)            | –             | (362.5)            |
| <b>Total derivatives</b>                          | <b>(554.3)</b>    | <b>(993.6)</b>    | <b>(216.5)</b>    | <b>(107.2)</b>    | <b>522.7</b>      | <b>126.2</b>      | <b>(5.1)</b>     | <b>–</b>      | <b>(1,227.8)</b>   |
| <b>Total future undiscounted cash flows</b>       | <b>15,385.4</b>   | <b>18,478.8</b>   | <b>(13,136.0)</b> | <b>(164.7)</b>    | <b>(5,149.9)</b>  | <b>(701.3)</b>    | <b>2,661.5</b>   | <b>536.8</b>  | <b>17,910.6</b>    |

The Bank writes options in the ordinary course of its banking business. The table below discloses the fair value of the written options analysed by exercise date:

| <b>Written options</b>     | <i>SDR millions</i> | Up to 1 month | 1 to 3 months | 3 to 6 months | 6 to 12 months | 1 to 2 years | 2 to 5 years | 5 to 10 years | Over 10 years | Total  |
|----------------------------|---------------------|---------------|---------------|---------------|----------------|--------------|--------------|---------------|---------------|--------|
| <b>As at 31 March 2012</b> |                     | (0.2)         | –             | –             | –              | (0.2)        | (2.8)        | –             | –             | (3.2)  |
| As at 31 March 2011        |                     | (38.6)        | (0.1)         | –             | (5.1)          | –            | (5.0)        | –             | –             | (48.8) |

The table below shows the contractual expiry date of the credit commitments as at the balance sheet date:

| <b>Contractual expiry date</b> | <i>SDR millions</i> | Up to 1 month | 1 to 3 months | 3 to 6 months | 6 to 12 months | 1 to 2 years | 2 to 5 years | 5 to 10 years | Maturity undefined | Total          |
|--------------------------------|---------------------|---------------|---------------|---------------|----------------|--------------|--------------|---------------|--------------------|----------------|
| <b>As at 31 March 2012</b>     |                     | –             | –             | –             | 193.8          | –            | –            | –             | 2,376.8            | <b>2,570.6</b> |
| As at 31 March 2011            |                     | –             | –             | –             | 368.4          | –            | –            | –             | 1,919.2            | 2,287.7        |

## 6. Operational risk

Operational risk is defined by the Bank as the risk of financial loss, or damage to the Bank's reputation, or both, resulting from one or more risk causes, as outlined below:

- Human factors: insufficient personnel, lack of requisite knowledge, skills or experience, inadequate training and development, inadequate supervision, loss of key personnel, inadequate succession planning, or lack of integrity or ethical standards.
- Failed or inadequate processes: a process is poorly designed or unsuitable, or is not properly documented, understood, implemented, followed or enforced.
- Failed or inadequate systems: a system is poorly designed, unsuitable or unavailable, or does not operate as intended.
- External events: the occurrence of an event having an adverse impact on the Bank but outside its control.

Operational risk includes legal risk, but excludes strategic risk.

The Bank's operational risk management framework, policies and procedures comprise the management and measurement of operational risk, including the determination of the relevant key parameters and inputs, business continuity planning and the monitoring of key risk indicators.

The Bank has established a procedure of immediate reporting for operational risk-related incidents. The Compliance and Operational Risk Unit develops action plans with the respective units and follows up on their implementation on a regular basis.

For the measurement of operational risk economic capital and operational risk-weighted assets, the Bank has adopted a VaR approach using a Monte Carlo simulation technique that is consistent with the advanced measurement approach proposed under the Basel II Framework. In line with the assumptions of the Basel II Framework, the quantification of operational risk does not take reputational risk into account. Internal and external loss data, scenario estimates and control self-assessments to reflect changes in the business and control environment of the Bank are key inputs in the calculations. In quantifying its operational risk, the Bank does not take potential protection it may obtain from insurance into account.

#### **A. Economic capital for operational risk**

Consistent with the parameters used in the calculation of economic capital for financial risk, the Bank measures economic capital for operational risk to the 99.995% confidence interval assuming a one-year holding period. The table below shows the key figures of the Bank's exposure to operational risk in terms of economic capital utilisation over the past two financial years.

| For the financial year<br><i>SDR millions</i>            | 2012    |       |       |              | 2011    |       |       |             |
|--|---------|-------|-------|--------------|---------|-------|-------|-------------|
|  | Average | High  | Low   | At 31 March  | Average | High  | Low   | At 31 March |
| <b>Economic capital utilisation for operational risk</b> | 700.0   | 700.0 | 700.0 | <b>700.0</b> | 643.8   | 700.0 | 475.0 | 700.0       |

#### **B. Minimum capital requirements for operational risk**

In line with the key parameters of the Basel II Framework, the calculation of the minimum capital requirement for operational risk is determined assuming a 99.9% confidence interval and a one-year time horizon. The table below shows the minimum capital requirements for operational risk and related risk-weighted assets.

| As at 31 March<br><i>SDR millions</i>                         | 2012  |                          |                                 | 2011  |                          |                                 |
|---|-------|--------------------------|---------------------------------|-------|--------------------------|---------------------------------|
|   | VaR   | Risk-weighted assets (A) | Minimum capital requirement (B) | VaR   | Risk-weighted assets (A) | Minimum capital requirement (B) |
| <b>Operational risk,<br/>where (A) is derived as (B) / 8%</b> | 341.6 | 4,270.3                  | <b>341.6</b>                    | 300.8 | 3,760.4                  | 300.8                           |

# Independent auditor's report

to the Board of Directors and to the General Meeting  
of the Bank for International Settlements, Basel

We have audited the accompanying financial statements of the Bank for International Settlements, which comprise the balance sheet as at 31 March 2012, and the profit and loss account, the statement of cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

## *Management's Responsibility for the Financial Statements*

Management is responsible for the preparation and fair presentation of these financial statements in accordance with the Statutes and with the principles of valuation described under significant accounting policies in the notes, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

## *Auditor's Responsibility*

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with International Standards on Auditing. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

## *Opinion*

In our opinion, the financial statements give a true and fair view of the financial position of the Bank for International Settlements as at 31 March 2012 and of its financial performance and its cash flows for the year then ended in accordance with the accounting principles described in the notes to the financial statements and the Statutes of the Bank.

Deloitte AG

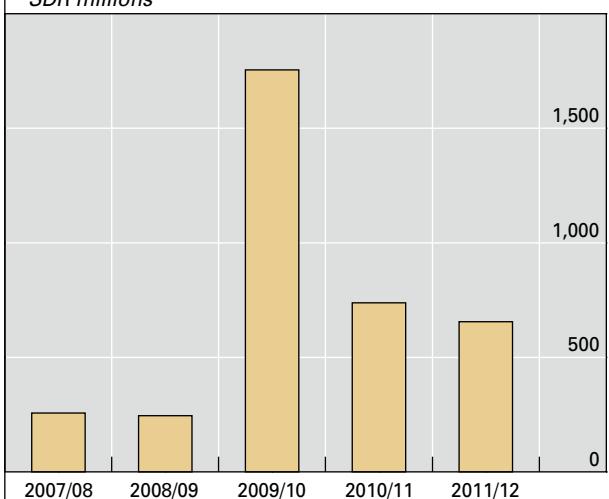
Mark D. Ward

Erich Schärli

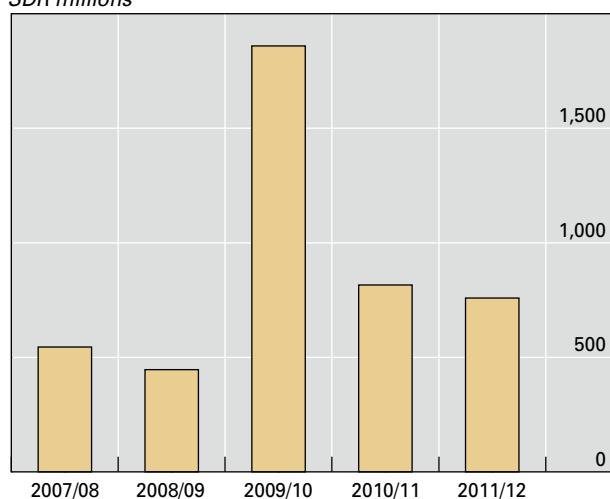
Zurich, 7 May 2012

## Five-year graphical summary

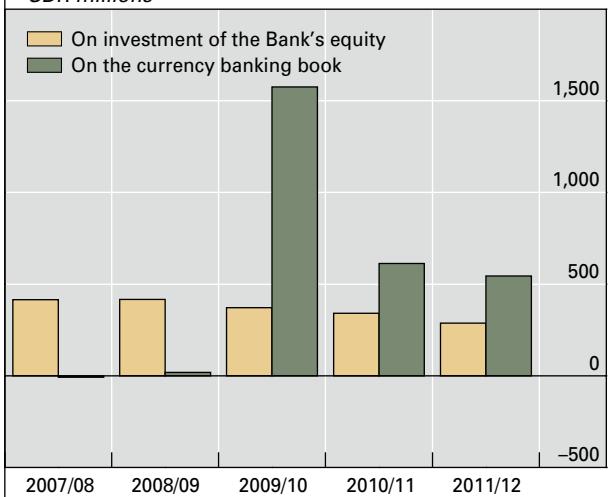
**Operating profit**  
SDR millions



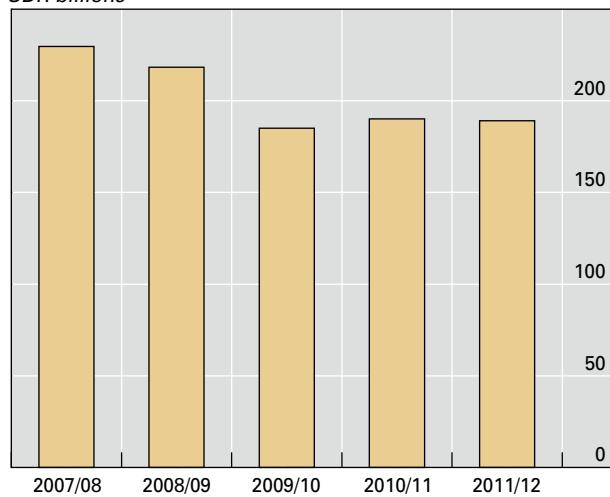
**Net profit**  
SDR millions



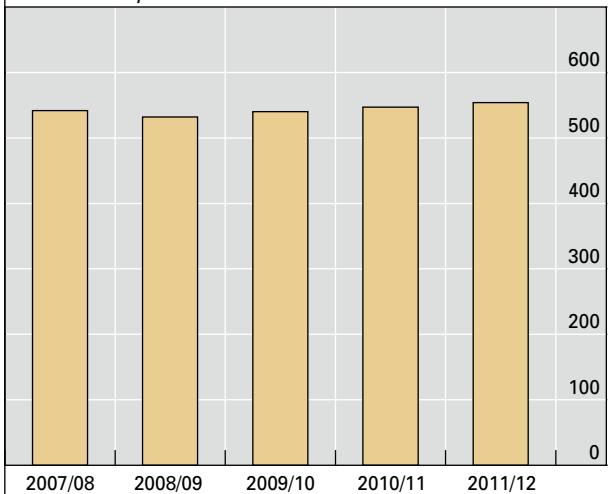
**Net interest earned on currency investments**  
SDR millions



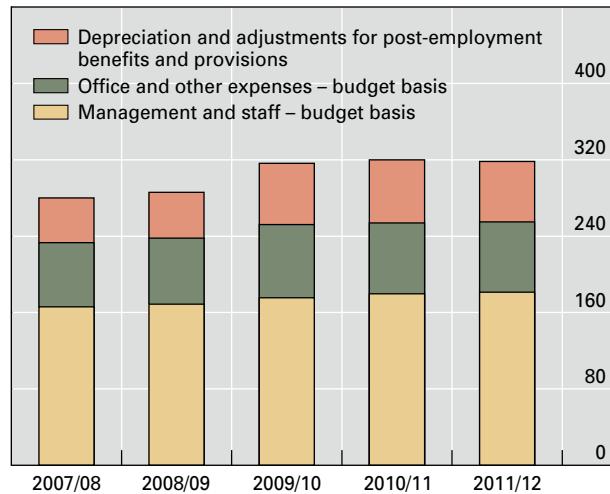
**Average currency deposits (settlement date basis)**  
SDR billions



**Average number of employees**  
Full-time equivalent



**Operating expense**  
CHF millions



The financial information in the top four panels has been restated to reflect a change in the accounting policy made in the previous years' accounts.



