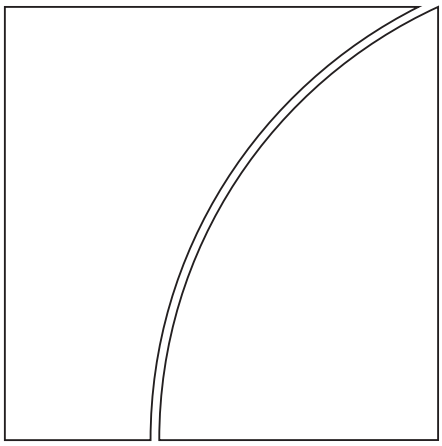
BANK FOR INTERNATIONAL SETTLEMENTS



83rd Annual Report

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The chapters of this Report went to press on 13–14 June 2013.

Conventions used in this Report

lhs, rhs	left-hand scale, right-hand scale
billion	thousand million
sa	seasonally adjusted
ppt	percentage point(s)
…	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.

83rd Annual Report

submitted to the Annual General Meeting
of the Bank for International Settlements
held in Basel on 23 June 2013

Ladies and Gentlemen,

It is my pleasure to submit to you the 83rd Annual Report of the Bank for International Settlements for the financial year which ended on 31 March 2013.

The net profit for the year amounted to SDR 898.2 million, compared with SDR 758.9 million for the preceding year. Details of the results for the financial year 2012/13 may be found on pages 120–3 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 apply the sum of SDR 175.8 million in payment of a dividend of SDR 315 per share, payable in any constituent currency of the SDR, or in Swiss francs.

The Board further recommends that SDR 36.1 million be transferred to the general reserve fund, SDR 6.0 million to the special dividend reserve fund and the remainder – amounting to SDR 680.3 million – to the free reserve fund.

With effect from 1 April 2013, the Bank has changed its accounting policy for post-employment benefit obligations to reflect developments in global financial standards. The change, which will be applied in the 2013/14 financial statements, requires statutory reserves to be reduced by SDR 89.7 million, representing the cumulative change in profit recognition as a result of applying the revised accounting policy. To this end, the Board proposes to deduct the aforementioned amount from the free reserve fund. Further details on the revised accounting policy can be found in note 3 to the financial statements.

If these proposals are approved, the Bank's dividend for the financial year 2012/13 will be payable to shareholders on 28 June 2013.

Basel, 14 June 2013

JAIME CARUANA
General Manager

Overview of the economic chapters

I. Making the most of borrowed time

Originally forged to describe central banks' actions to prevent financial collapse, "whatever it takes" has become a rallying cry for them to continue their extraordinary policies. But we are past the height of the crisis, and the goal of policy today is to return to strong and sustainable growth. Authorities need to hasten structural reforms so that economic resources can more easily be used in the most productive manner. Households and firms have to complete the repair of their balance sheets. Governments must redouble their efforts to ensure the sustainability of their finances. And regulators have to adapt the rules to an increasingly interconnected and complex financial system and ensure that banks set aside sufficient capital to match the associated risks. Only forceful efforts at such repair and reform can return economies to strong and sustainable real growth.

II. The year in retrospect

During the past year, the global economic recovery continued to lose momentum. The moderation in growth reflected three broad trends: overall weaker but still solid output growth in emerging market economies; a continued tepid expansion of the US economy; and recession in the euro area. Central banks injected additional stimulus into the economy by cutting interest rates and by introducing policy innovations to further ease monetary conditions. These actions reduced downside risks and boosted financial markets. However, bank credit conditions continued to vary across countries, with strong credit growth in emerging market economies, easing credit conditions in the United States and tightening lending standards in the euro area. Although some economies have made progress in reducing private non-financial sector debt, incomplete balance sheet repair continues to slow growth and make economies vulnerable.

III. Removing the roadblocks to growth

Productivity gains and employment in the major advanced economies have sagged in recent years, especially where pre-crisis growth was severely unbalanced. Before they can return to sustainable growth, these countries will need to reallocate labour and capital across sectors. Structural rigidities that hamper this process are likely to hold back the economy's productive potential. Both productivity and employment tend to be weaker in economies with rigid product markets than in ones with more flexible ones. Similarly, employment rates tend to be lower where labour markets are more rigid. Conversely, countries with flexible labour markets recover more quickly from severely imbalanced downturns. They also create more jobs. Reforms that enhance the flexibility of labour and product markets could be swiftly rewarded with improved growth and employment.

IV. Fiscal sustainability: where do we stand?

Despite progress in reducing deficits, public finances in many advanced economies remain unsustainable. Beyond the burden created by age-related expenditure, a potential rise in long-term interest rates from their ultra-low levels poses a risk to public finances in several countries. Many advanced economies therefore still need to increase their primary balances significantly to put debt on a safer, downward trajectory. Measures to curb future increases in pension and health care spending are key to the success of these efforts. Public finances in emerging market economies are in a relatively better position, but securing them for the future will require prudence.

V. The road to a more resilient banking sector

Banks are making gradual progress in recovering from the crisis. Further solidifying the resilience of financial institutions requires that they maintain ample, high-quality capital buffers to absorb losses plus well managed liquidity buffers that will protect them against sudden collapses in market confidence. And it requires improvements in resolution regimes that will allow systemically important institutions to fail in an orderly way.

However, measuring and managing the risks of the increasingly international and intricate financial system continues to challenge the prudential framework. Here, the use of risk-sensitive metrics together with simple balance sheet gauges can play a key role in controlling financial system risk. In combination, these two types of measures are mutually reinforcing and thus generate more information on the riskiness of a bank than does either of them alone. Policies to structurally separate bank functions may also help reduce complexity at the level of the firm, but their impact on systemic stability and efficiency is an open question.

VI. Monetary policy at the crossroads

With monetary policies remaining very accommodative globally, central banks continue to borrow time for others to act. But the cost-benefit balance is inexorably becoming less and less favourable. Furthermore, the postponement of the inevitable exit from these policies poses increasing challenges for central banks. They must re-emphasise their stability-oriented framework for monetary policy, although in a way that takes greater account of both financial stability concerns and global policy spillovers.

I. Making the most of borrowed time

Six years ago, in mid-2007, cracks started to appear in the financial system. Little more than a year later, Lehman Brothers failed, bringing advanced economies to the verge of collapse. Throughout the ensuing half-decade of recession and slow recovery, central banks in these economies have been forced to look for ways to increase their degree of accommodation. First they lowered the policy rate to essentially zero, where it has been ever since in the United States, United Kingdom and euro area. (And where it has stood in Japan since the mid-1990s!) Next, these central banks began expanding their balance sheets, which are now collectively at roughly three times their pre-crisis level – and rising.

Originally forged as a description of central bank actions to prevent financial collapse, the phrase "whatever it takes" has become a rallying cry for central banks to continue their extraordinary actions. But we are past the height of the crisis, and the goal of policy has changed – to return still-sluggish economies to strong and sustainable growth. Can central banks now really do "whatever it takes" to achieve that goal? As each day goes by, it seems less and less likely. Central banks cannot repair the balance sheets of households and financial institutions. Central banks cannot ensure the sustainability of fiscal finances. And, most of all, central banks cannot enact the structural economic and financial reforms needed to return economies to the real growth paths authorities and their publics both want and expect.

What central bank accommodation has done during the recovery is to borrow time – time for balance sheet repair, time for fiscal consolidation, and time for reforms to restore productivity growth. But the time has not been well used, as continued low interest rates and unconventional policies have made it easy for the private sector to postpone deleveraging, easy for the government to finance deficits, and easy for the authorities to delay needed reforms in the real economy and in the financial system. After all, cheap money makes it easier to borrow than to save, easier to spend than to tax, easier to remain the same than to change.

Yes, in some countries the household sector has made headway with the gruelling task of deleveraging. Some financial institutions are better capitalised. Some fiscal authorities have begun painful but essential consolidation. And yes, much of the difficult work of financial reform has been completed. But overall, progress has been slow, halting and uneven across countries. Households and firms continue to hope that if they wait, asset values and revenues will rise and their balance sheets improve. Governments hope that if they wait, the economy will grow, driving down the ratio of debt to GDP. And politicians hope that if they wait, incomes and profits will start to grow again, making the reform of labour and product markets less urgent. But waiting will not make things any easier, particularly as public support and patience erode.

Alas, central banks cannot do more without compounding the risks they have already created. Instead, they must re-emphasise their traditional focus – albeit expanded to include financial stability – and thereby encourage needed adjustments rather than retard them with near-zero interest rates and purchases of ever larger quantities of government securities. And they must urge authorities to speed up reforms in labour and product markets, reforms that will enhance productivity and encourage employment growth rather than provide the false comfort that it will be easier later.

After a review of the past year in Chapter II, this Report discusses these issues in Chapters III to VI, which are summarised here. Our message is simple: authorities

need to hasten labour and product market reforms to boost productivity and unlock growth; the private sector must deleverage and the public sector needs to ensure fiscal sustainability; risks in the financial system need to be managed; and the expectation that monetary policy can solve these problems is a recipe for failure.

Enhancing flexibility: a key to growth

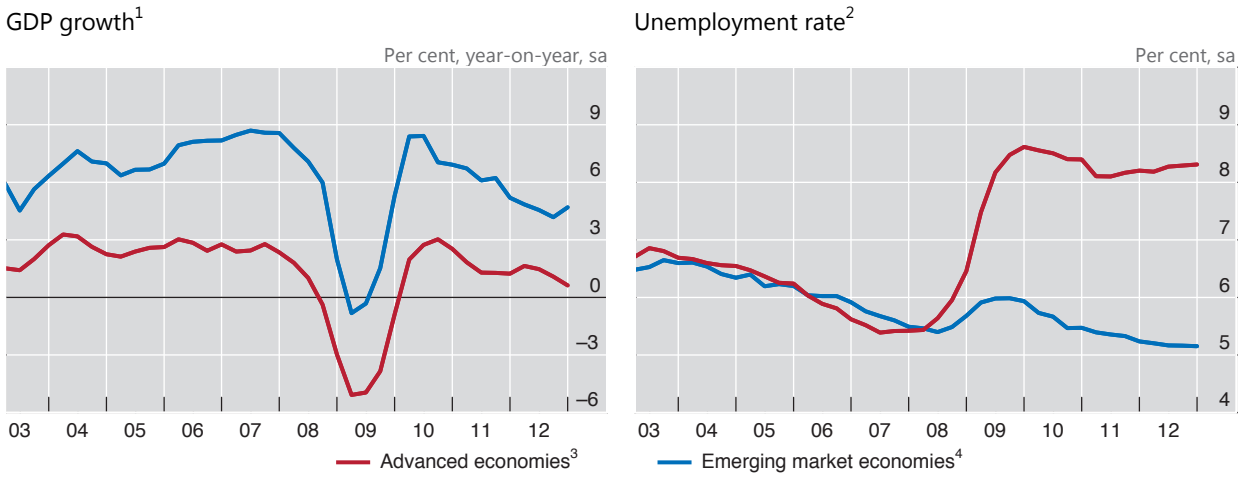
Sustained and balanced growth remains elusive in the global economy. In many advanced economies, growth rates have only partially recovered, and unemployment remains stubbornly high (Graph I.1). As discussed in Chapter III, rigidities in labour and product markets are among the most important obstacles standing in the way of long-term economic health. The financial crisis and its aftermath showed that such structural problems are exacerbated when the cycle turns and the boom becomes a bust. As a result, the recovery has been disappointing in many economies.

When a housing sector boom turns into a bust, as it did in a number of countries, rigidities limit the mobility of people across sectors. As Chapter III argues, tight employment protections slow the recovery and the growth of employment in economies that go into recessions with significant sectoral imbalances. The implication is obvious: countries stand to reap substantial benefits from moving towards less regulated and more growth-friendly labour and product markets.

Measures that make labour and product markets more flexible allow resources to flow more easily from low- to high-productivity sectors, with obvious gains for growth. In parallel, such reforms help foster entrepreneurship, paving the way for firms to boost productivity, grow and hire more workers. This means that simplifying regulations and reducing the power of special interests that are impeding productivity enhancements are essential for raising sustainable growth. To be sure, basic worker and consumer protections must be preserved, and the extent of desirable regulation will vary from country to country. But the costs of overly regulated labour and product markets are clear: they reduce flexibility to the point where long-run growth will suffer.

Global economic activity

Graph I.1



[1] Weighted averages based on 2005 GDP and PPP exchange rates. [2] Weighted averages based on labour force; definitions across countries may vary. [3] Australia, Canada, Denmark, the euro area, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States. [4] Argentina, Brazil, Chile, China, Chinese Taipei, Colombia, the Czech Republic, Hong Kong SAR, Hungary, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey.

Sources: IMF, *International Financial Statistics* and *World Economic Outlook*; Datastream; national data.

Given the evidence that structural rigidities are particularly harmful in the aftermath of a crisis, there is a strong case for undertaking reforms in good times instead of under pressure. Although such cases of pre-emptive reform are rare, countries that came through the financial crisis relatively unscathed have every reason to address labour and product market flexibility sooner rather than later.

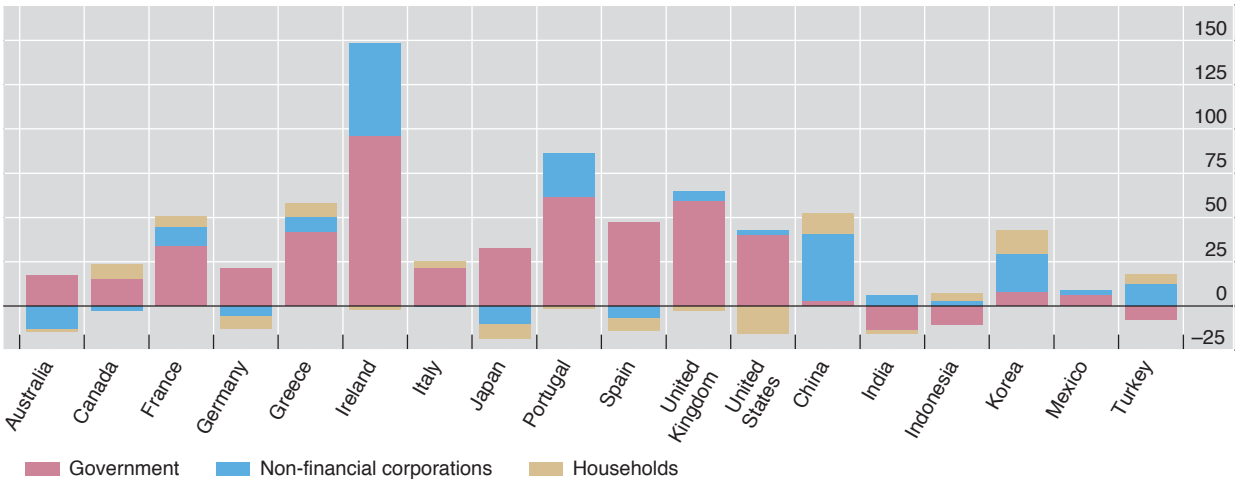
Fiscal policy: threats remain

As governments responded to the financial crisis with bank bailouts and fiscal stimulus, their indebtedness rose to new highs. And in countries that experienced a housing bubble in the run-up to the crisis, households had already accumulated large debts. In the half-decade since the peak of the crisis, the hope was that significant progress would be made in the necessary deleveraging process, thereby enabling a self-sustaining recovery.

Instead, the debt of households, non-financial corporations and government *increased* as a share of GDP in most large advanced and emerging market economies from 2007 to 2012 (Graph I.2). For the countries in Graph I.2 taken together, this debt has risen by $33 trillion, or by about 20 percentage points of GDP. And over the same period, some countries, including a number of emerging market economies, have seen their total debt ratios rise even faster. Clearly, this is unsustainable. Overindebtedness is one of the major barriers on the path to growth after a financial crisis. Borrowing more year after year is not the cure.[1]

Change in debt, 2007–12

In percentage points of GDP — Graph I.2



Sources: IMF, *World Economic Outlook*; OECD; BIS; national data.

[1] Some research finds that, after a financial crisis, private sector deleveraging during the downturn is positively and significantly correlated with the strength of the subsequent recovery. See M Bech, L Gambacorta and E Kharroubi, "Monetary policy, leverage and the business cycle", *BIS Working Papers*, no 388, September 2012.

Households in the United States, and to a lesser extent in Spain and the United Kingdom, have made inroads on their debt. But as a share of GDP, the decline has been far less than the approximately 40 percentage point drop for private non-financial sector debt that, on average, has followed past financial crises. See G Tang and C Upper, "Debt reduction after crises", *BIS Quarterly Review*, September 2010, pp 25–38.

In a majority of the countries shown in Graph I.2, public debt is principally responsible for the increase. Although countercyclical fiscal policy was needed to combat the threat of depression at the height of the financial crisis, the situation is different today. As Chapter IV notes, studies have repeatedly shown that as government debt surpasses about 80% of GDP, it starts to become a drag on growth.[2] With public debt now above 100% of GDP in most advanced economies, and the prospect of large increases in age-related spending, finding the way to medium- and long-term fiscal sustainability remains a key challenge.

Ultimately, outsize public debt reduces sovereign creditworthiness and erodes confidence. By putting their fiscal house in order, governments can help restore the virtuous cycle between the financial system and the real economy. And, with low levels of debt, governments will again have the capacity to respond when the next financial or economic crisis inevitably hits.

Although the need for fiscal consolidation has become more and more pressing, as Chapter IV shows, tangible results have been meagre. In a number of countries, the cheap financing made available by low short- and long-term interest rates has taken the pressure off governments to make fiscal adjustments.[3] But the relief is temporary and not without risks. To see why, recall that in the two decades preceding the crisis, long-term interest rates in many advanced economies averaged about 6% (Graph I.3, left-hand panel). Today, long-term bond yields in major advanced economies are around 2% – in Japan, they are well below. When interest rates and bond yields start to rise, investors holding government bonds stand to lose huge amounts of money.

Consider what would happen to holders of US Treasury securities (excluding the Federal Reserve) if yields were to rise by 3 percentage points across the maturity spectrum: they would lose more than $1 trillion, or almost 8% of US GDP (Graph I.3, right-hand panel). The losses for holders of debt issued by France, Italy, Japan and the United Kingdom would range from about 15 to 35% of GDP of the respective countries. Yields are not likely to jump by 300 basis points overnight; but the experience from 1994, when long-term bond yields in a number of advanced economies rose by around 200 basis points in the course of a year, shows that a big upward move can happen relatively fast.

And while sophisticated hedging strategies can protect individual investors, someone must ultimately hold the interest rate risk. Indeed, the potential loss in relation to GDP is at a record high in most advanced economies. As foreign and domestic banks would be among those experiencing the losses, interest rate increases pose risks to the stability of the financial system if not executed with great care. Clear central bank communication well in advance of any moves to tighten will be critical in this regard.

Governments must redouble their efforts to ensure that their fiscal trajectories are sustainable. Growth will simply not be high enough for fiscal consolidation to happen on its own; that is, the denominator of the debt-to-GDP ratio will not grow faster than the numerator. Postponing the pain carries the risk of forcing

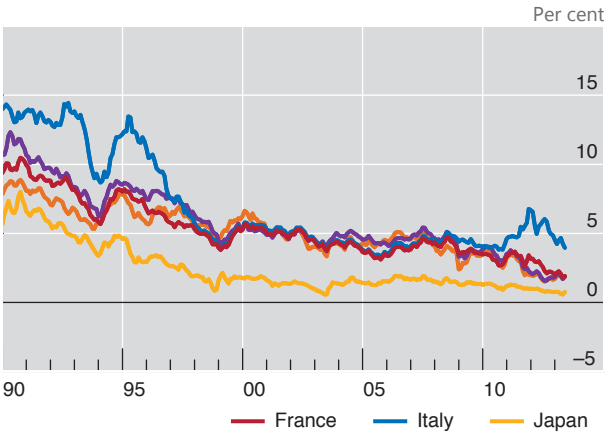
[2] Other types of debt have similar effects: corporate debt beyond 90% of GDP and household debt above about 85% have been found to become a drag on growth; see S Cecchetti, M Mohanty and F Zampolli, "The real effects of debt", in *Achieving maximum long-run growth*, proceedings of the Federal Reserve Bank of Kansas City Jackson Hole symposium, August 2011, pp 145–96.

[3] Extraordinarily low yields reflect a combination of factors, including a continued weak economic outlook, safe haven flows from other economies, regulation-driven demand for safe and liquid assets, and large-scale central bank interventions.

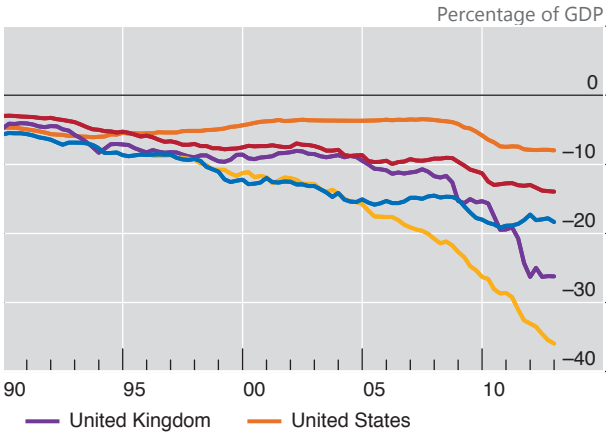
Bond yields and interest rate risk

Graph I.3

Ten-year government bond yields[1]



Change in debt values after a rise in yields[2]



[1] Monthly averages. [2] For each country, estimated change in the value of outstanding negotiable central government debt as a percentage of GDP at each point in time following a hypothetical 3 percentage point increase in yields across the term structure. Based on estimated negotiable outstanding amounts and average maturities excluding holdings of the domestic central bank for Japan, the United Kingdom and the United States and estimated negotiable outstanding amounts and average maturities for France and Italy. For France, Italy, Japan and the United Kingdom, data on estimated negotiable debt and average maturities are from the OECD, national sources and the BIS. For the United States, data on marketable debt and average maturities are from national sources.

Sources: OECD; Bloomberg; Datastream; Global Financial Data; national data; BIS; BIS calculations.

consolidation under stress – which is the current situation in a number of countries in southern Europe. Structural fiscal problems have to be tackled early. Doing so means avoiding much more pain later.

At the same time, as also argued in Chapter IV, the quality of fiscal adjustment is as important as the quantity. Waiting has not paid dividends. Some laggard countries have been forced to make drastic, indiscriminate cuts, slicing away at productive public investment and raising growth-unfriendly taxes. Those that still have the wherewithal to do so should focus their efforts on cutting expenditures by reducing government consumption and transfers. In countries where tax rates are still low, revenue increases should also play a role.

Importantly, many countries need to do more now to reduce future age-related spending. While long-term in nature, these measures will bring immediate positive effects as they strengthen perceptions of fiscal sustainability.

Public finances in many emerging market economies have remained well in hand, partly because those regions were not at the centre of the crisis. But the fiscal positions of some, while currently bright, have been buoyed by revenues from rising asset and commodity prices. Unlikely to be sustainable, these situations call for caution. In other cases, weakening global demand has reduced revenue and induced higher spending, driving up public debt levels. These early threats to fiscal sustainability, along with the possibility of age-related increases in public spending, will require policymakers in emerging market economies to remain vigilant.

The financial system: increasing resilience

The complexity of the financial system presents a continuing challenge for the prudential framework. Ensuring systemic stability requires adequate capital,

liquidity and resolution regimes. All financial institutions must have ample, high-quality capital buffers to protect against losses and sufficient liquidity buffers to protect them from sudden collapses in market confidence. And we need resolution regimes to make it possible for large, complex institutions to fail in an orderly way.

Still, finding the best way to manage the risks arising from an increasingly global and intricate financial system remains a challenge for the world's policymakers. Chapter V argues that focusing on the measurement and management of these risks is central to creating a safer prudential framework.

An important example of the benefits of a prudential framework that embraces the evolving intricacies of the financial system is detailed in Chapter V. A simple rule, such as a leverage ratio, and a more complex risk-weighted metric each have their advantages and limitations as a barometer of bank strength. But they are complementary. Used in combination, the two reinforce each other, generating more information on the riskiness of a bank than does either of them alone. On top of that, manipulating these measures is much more difficult when they are used simultaneously. The policy response to the recent debate on the complexity of regulation should therefore rest on the mutually reinforcing ability of risk-sensitive metrics and simple balance sheet rules to monitor and mitigate financial system risk.

Limiting the permissible range of banking activities may help reduce systemic risk, but that is not likely to be a silver bullet. The limits will do little to reduce the complexity of banks, and even if they simplify the firm-level organisation of banks, their impact on system-wide risk is ambiguous.

The evolving standards governing the global financial system must be based on simple principles: internalise systemic risks; require enough capital and liquidity to align private incentives with the public interest; set risk sensitivity to reduce shifts into high-risk assets; extend prudential reach to keep risks within view of supervisors (and managers); and allow the regulatory system to evolve along with the financial system. But what is simple in principle will usually be complicated in fact. This means that the success of financial reforms hinges on long and complex definitions and processes. And the reason for that is a simple, practical one: details are enforceable, principles are not.

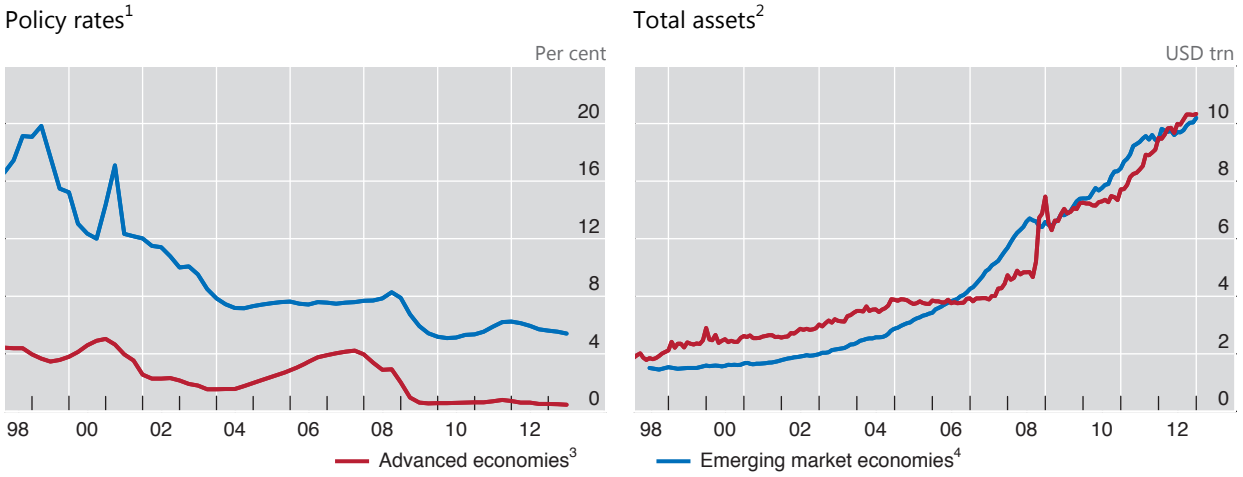
Monetary policy: borrowing time

Since the outbreak of the financial crisis, central banks have found themselves pushing deeper into unconventional territory. Having hit the lower bound for interest rates, central banks in major advanced economies turned to amassing assets, which now stand at 25% of their countries' collective GDP. Meanwhile, central banks in emerging market economies have also expanded their balance sheets, and now hold assets worth more than 40% of GDP. Combined, central bank assets across advanced and emerging market economies have risen from $10.4 trillion in 2007 to more than $20.5 trillion today, and central banks remain pressured to do even more (Graph I.4).

But despite all the monetary accommodation, economic growth remains lacklustre, and job creation has yet to gain firm traction. Moreover, the low interest rates in advanced economies create international spillovers. These include capital flows to fast-growing emerging market economies and to some small advanced economies. The resulting upward pressure on the value of the currencies in those economies has hampered the domestic stabilisation efforts of their central banks.

Policy rates and central bank total assets

Graph I.4



[1] Policy rates or closest alternative; for target ranges, the midpoint of the range; weighted average of the economies listed based on 2005 GDP and PPP exchange rates. [2] Total of the economies listed. [3] Australia, Canada, Denmark, the euro area, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States. [4] Argentina, Brazil, Chile, China, Chinese Taipei, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey.

Sources: IMF, *International Financial Statistics*; Bloomberg; Datastream; Global Financial Data; national data.

Delivering further extraordinary monetary stimulus is becoming increasingly perilous, as the balance between its benefits and costs is shifting. Chapter VI argues that policy frameworks anchored to price stability remain the foundation for growth. Without price stability, you have nothing. But, as the crisis has taught us, narrow near-term price stability is not enough: financial stability is also essential for long-term macroeconomic stability. The challenge is to modify traditional monetary policy frameworks to include financial stability considerations effectively and symmetrically.

All of this puts monetary policymakers in the largest advanced economies in a delicate position. How can central banks encourage those responsible for structural adjustment to implement reforms? How can they avoid making the economy too dependent on monetary stimulus? When is the right time for them to pull back from their expansionary policies? And in pulling back, how can they avoid sparking a sharp rise in bond yields? It is time for monetary policy to begin answering these questions.

Summing up

Six years have passed since the eruption of the global financial crisis, yet robust, self-sustaining, well balanced growth still eludes the global economy. If there were an easy path to that goal, we would have found it by now. Monetary stimulus alone cannot provide the answer because the roots of the problem are not monetary. Hence, central banks must manage a return to their stabilisation role, allowing others to do the hard but essential work of adjustment.

Authorities need to hasten labour and product market reforms so that economic resources can shift more easily to high-productivity sectors. Households and firms have to complete the difficult job of repairing their balance sheets, and governments must intensify their efforts to ensure the sustainability of their

finances. Regulators have to adapt the rules to a financial system that is becoming increasingly interconnected and complex and ensure that banks have sufficient capital and liquidity buffers to match the associated risks. Each country needs to tailor the reform agenda to maximise its chances of success without endangering the ongoing economic recovery. But, in the end, only a forceful programme of repair and reform will return economies to strong and sustainable real growth.

II. The year in retrospect

During the past year, growth in the major advanced economies faltered. Concerns about sovereign risk, bank soundness and business prospects resurfaced and pushed the euro area into recession. Investment was weak in Japan and the United Kingdom, while uncertainty about short-term fiscal policy in the United States weighed on economic activity. Output growth in emerging market economies (EMEs) decreased against the backdrop of a deteriorating external environment, but in some countries robust domestic demand helped offset the reduction in exports.

Globally, central banks responded by cutting policy rates where they still had the scope to do so, while those that could not introduced further innovations to ease monetary policy: changing targets, modifying communication strategies, increasing and altering the structure of asset purchases, and targeting specific channels of the monetary transmission mechanism. The resulting fall in perceived downside risk and expectations of an extended period of low policy rates buoyed financial markets and encouraged flows into EMEs with higher-yielding assets, putting upward pressure on their currencies.

At the time of writing, the signs point to an uneven recovery. Credit growth has been strong in EMEs, and credit conditions have eased in the United States, Japan and the United Kingdom. However, lending standards remain tight in the euro area, and private credit demand to finance investment and consumption has fallen drastically. High-frequency indicators of business activity corroborate the picture of an uneven recovery. Data in 2013 so far indicate that the recovery is likely to be slow and bumpy, with financial markets going through both calm and volatile periods as they price in sometimes conflicting news.

Both as a legacy of the pre-crisis financial boom and as a result of accommodative monetary policies in response to the crisis, the level of private non-financial sector debt remains high globally. Despite some progress in reducing debt, especially in those advanced economies that experienced a significant accumulation during the boom, balance sheet repair remains incomplete and is acting as a drag on growth. At the same time, increased leverage in other advanced economies and in EMEs suggests the potential build-up of vulnerabilities in some regions.

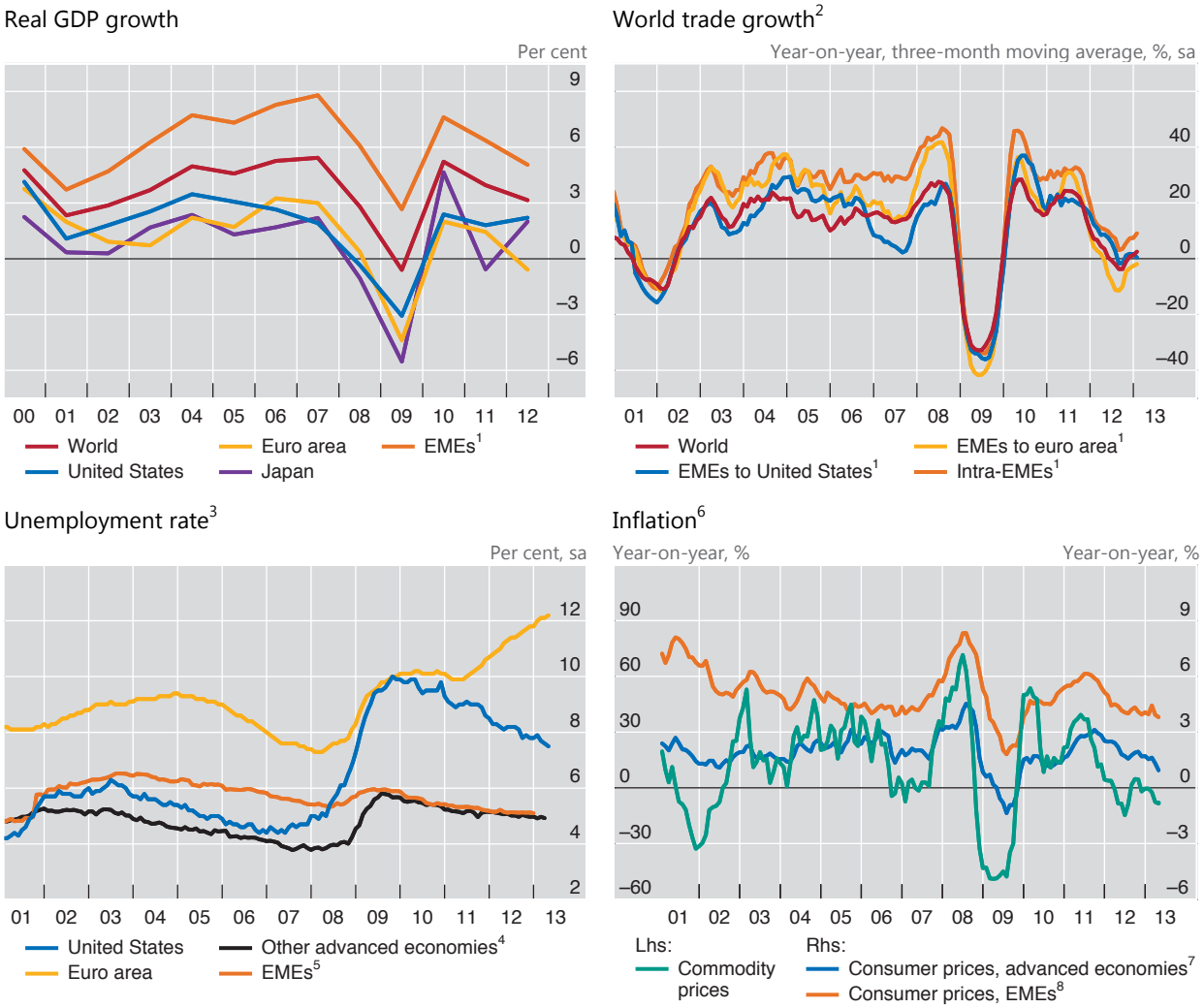
Weak global growth persisted in 2012–13

During the past year, the economic recovery lost momentum. Global growth declined to 3.2%, more than 2 percentage points below the peak reached in 2010. As shown in the top left-hand panel of Graph II.1, this global moderation of growth reflects three broad trends: output growth that is lower overall but still solid in EMEs; a continued expansion of the US economy; and recession in the euro area. Growth in Japan has been volatile, following the temporary boost from reconstruction after the 2011 earthquake and more recent changes in economic policy.

The global economy faced major headwinds from the euro area crisis and growing uncertainty about fiscal policy in advanced economies more broadly. The euro area crisis intensified again in the first half of 2012 as concerns about the link between sovereign and banking sector risk resurfaced. These concerns were

Global economic activity

Graph II.1



[1] Based on IMF aggregate. [2] In terms of total exports. [3] Definitions may vary across countries. [4] Weighted average based on the labour force of Australia, Canada, Denmark, Japan, New Zealand, Norway, Sweden and the United Kingdom. [5] Weighted average based on the labour force of Brazil (from October 2001), Chile, China, Chinese Taipei, Colombia, the Czech Republic, Hong Kong SAR, Hungary, Indonesia, Korea, Malaysia, Mexico, Peru (from March 2001), the Philippines, Poland, Russia, Singapore, South Africa, Thailand and Turkey. [6] Weighted average of the economies listed based on 2005 GDP and PPP exchange rates. Consumer prices measured by CPI, except for India (wholesale prices); for commodity prices, S&P GSCI commodity spot. [7] The euro area, Japan, the United Kingdom and the United States. [8] The economies listed in footnote 5 plus India.

Sources: IMF, *Direction of Trade Statistics*, *International Financial Statistics* and *World Economic Outlook*; Datastream; national data; BIS calculations.

reflected in a sharp increase in Spanish and Italian government bond yields. In Spain, the yield on 10-year government bonds increased to 7.6% in July 2012 following the government's request for financing to recapitalise the banking system, while in Italy government bond yields rose to 6.6%. The intensification of the euro area crisis in 2012 also contributed to higher risk premia in global financial markets. At the same time, yields on safe haven bonds decreased, with yields on German and US 10-year bonds falling by around 50 basis points.

In 2012, the deepening euro area crisis also had an impact on global activity through trade linkages. The top right-hand panel of Graph II.1 shows that EME exports to the euro area contracted significantly more than those to the United States. In contrast, the relative strength of emerging market economies saw intra-EME

exports grow by around 10%. The net effect of these different patterns was a stagnation in world trade.

Domestic demand in advanced economies remained lacklustre, with uncertainty about fiscal policy weighing on sentiment. In Europe, the recession complicated the task of meeting budget deficit targets. In the United States, the combination of expiring tax cuts and across-the-board government spending cuts (the fiscal cliff) was avoided, but at the time of writing uncertainty persists about the impact of other automatic budget cuts. Although consumption and investment grew relatively strongly, they were not sufficient to make a significant dent in the unemployment rate, which decreased only gradually to around 7.5%. Unemployment continued to rise in the euro zone, reaching a new high of 12%, and remained broadly unchanged elsewhere (Graph II.1, bottom left-hand panel).

In connection with the weakness of global economic activity, commodity prices have decreased since last November, contributing to a reduction in global inflationary pressures (Graph II.1, bottom right-hand panel). Average inflation in advanced and emerging economies decreased to below 2% and 4%, respectively. The reduction in inflationary pressures provided central banks with some space to increase the degree of monetary stimulus.

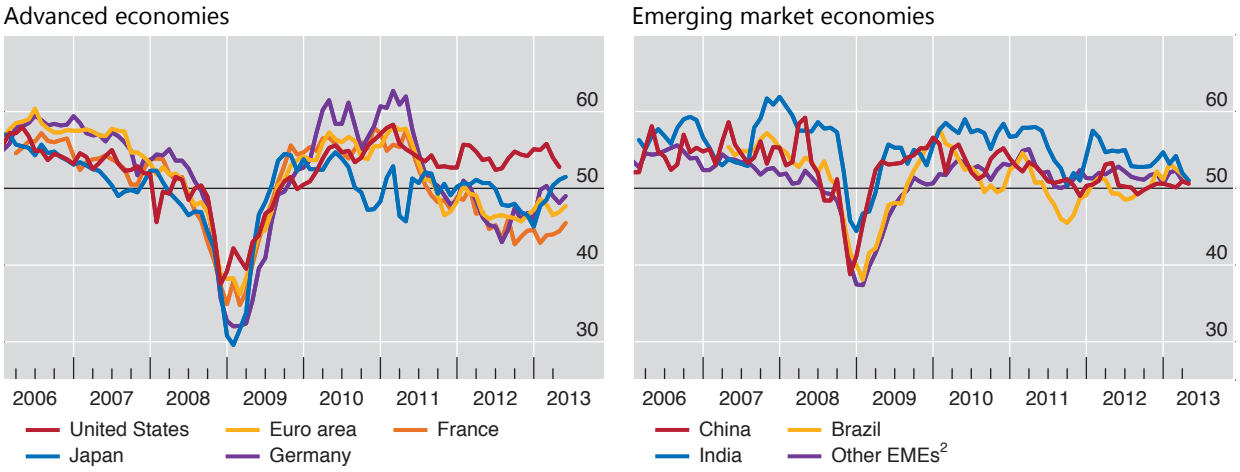
In emerging economies, GDP growth decreased to 5% in 2012 (Graph II.1, top left-hand panel). Nevertheless, economic performance varied across countries. In some, including Indonesia, Peru and the Philippines, GDP growth remained solid, driven by strong fixed investment and consumption, while in others domestic demand was constrained by the delayed impact of monetary policy tightening in 2011 to cool both inflationary pressures and domestic real estate market conditions. In China, GDP growth decreased to 7.8% from 9.3% in 2011 as investment in the manufacturing sector slowed. In Brazil, output grew by less than 1%, with gross fixed capital formation particularly weak in 2012. In India, growth was affected by a significant slowdown in consumption and fixed investment.

High-frequency indicators of business activity point to an uneven recovery in the first part of 2013. The purchasing managers' index (PMI) in the United States improved from mid-2012 into February 2013 (Graph II.2, left-hand panel). In Japan, the PMI increased in early 2013. There are also limited signs of improvement in business activity in EMEs (Graph II.2, right-hand panel). The PMI in China has improved slightly since the middle of 2012. In the euro area, the worsening slump in business activity appears to have been mitigated by policy action, and there are some encouraging signs, especially in Germany (Graph II.2, left-hand panel). However, the index for the euro area as a whole has still not risen back above 50, which would indicate improving business conditions.

Euro area banking sector stresses resurfaced in March 2013 in Cyprus. This resulted in the restructuring of the largest Cypriot bank and resolution of the second largest (causing significant losses for uninsured depositors), the imposition of temporary capital controls and the provision of €10 billion in official financial assistance. Broader contagion from the Cypriot bank bail-in was limited, however, and liquidity conditions remained stable across markets. Several factors may have contributed to this somewhat muted market reaction. The first was a perception among market participants that the crisis in Cyprus, and the nature of its bank bail-in, were unique and small in scale. At the same time, tail risk was contained by continued monetary accommodation and backstop measures adopted by the ECB.[1]

[1] For more details, see the analysis in "Market reactions to the banking crisis in Cyprus", *BIS Quarterly Review*, June 2013, p 9.

Business activity[1] Graph II.2



[1] Manufacturing purchasing managers' indices (PMIs); for the United States and euro area, composite PMIs. [2] Weighted average based on the 2005 GDP and PPP exchange rates of Hungary, Mexico, Russia, Singapore, South Africa and (from August 2006) Turkey.

Source: Bloomberg.

Central bank actions boosted financial markets

Against the backdrop of weaker growth and receding inflationary pressures in 2012, central banks in both advanced and emerging economies injected further stimulus into the economy. A number of central banks cut policy rates to counteract the impact from the fall in aggregate demand (Graph II.3). The ECB lowered its main refinancing rate to 0.50% and reduced the deposit facility rate to zero (Graph II.3, left-hand panel). Policy rates were also lowered in other advanced economies (including Australia and Sweden).

In emerging economies, the monetary policy tightening that had started with the global recovery in 2010 came to an end. The Reserve Bank of India eased its monetary policy stance, cutting both the repo rate and the cash reserve ratio by 125 and 200 basis points, respectively, from the beginning of 2012. The People's Bank of China lowered its benchmark deposit and lending rates by 50 basis points while differentiating credit policies applied to the real estate sector. The Central Bank of Brazil reduced rates by 500 basis points starting in August 2011, although domestic inflationary pressures have more recently forced a partial reversal. Policy rates were also cut in the Czech Republic, Hungary, Mexico and Poland, among others.

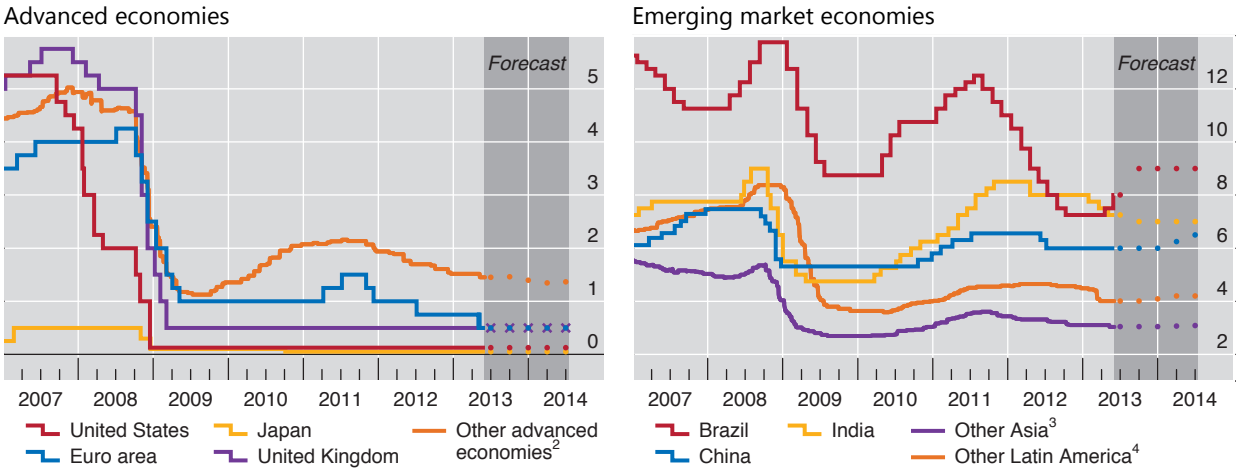
Other central banks with policy rates already at the effective zero lower bound used an increasing variety of policy innovations to further ease monetary policy. In the United States, the Federal Reserve changed its communication policy of forward guidance in December 2012, committing to keep the federal funds rate below 0.25% for at least as long as unemployment remains above 6.5%, provided inflation expectations stay well anchored. In January 2013, the Bank of Japan introduced a 2% inflation target.

There have also been a number of changes to large-scale government bond purchase policies over the past year. In contrast to previous rounds of asset purchases, the Federal Reserve made its asset purchase programmes open-ended, purchasing initially $45 billion of US Treasuries a month, and stating that it would continue purchases until the labour market outlook had substantially improved. The

Policy rates[1]

In per cent

Graph II.3



[1] Policy rate or closest alternative; for target ranges, the midpoint of the range. The dots and crosses show the JPMorgan Chase forecast as of 31 May 2013 for the policy rates in June 2013, September 2013, December 2013, March 2014 and June 2014. Median forecast from Bloomberg as of 31 May 2013 for Norway, Sweden and Switzerland. Aggregates are weighted averages based on 2005 GDP and PPP exchange rates. [2] Australia, Canada, New Zealand, Norway, Sweden and Switzerland. [3] Chinese Taipei, Hong Kong SAR, Indonesia, Korea, Malaysia, the Philippines and Thailand. [4] Chile, Colombia, Mexico and Peru.

Sources: Bloomberg; Datastream; JPMorgan Chase; national data.

Bank of Japan's Quantitative and Qualitative Monetary Easing aims to double the monetary base, increasing the amount of Japanese government bond holdings at an annual rate of ¥50 trillion, and to extend the average maturity of its government bond purchases to around seven years.

The ECB introduced facilities to conduct Outright Monetary Transactions (OMTs), a backstop that allows unlimited sovereign bond purchases when a member country submits to a macroeconomic adjustment programme. OMTs are designed to address severe distortions in the pricing of sovereign debt in some euro area countries. At the time of writing, they had remained unused.

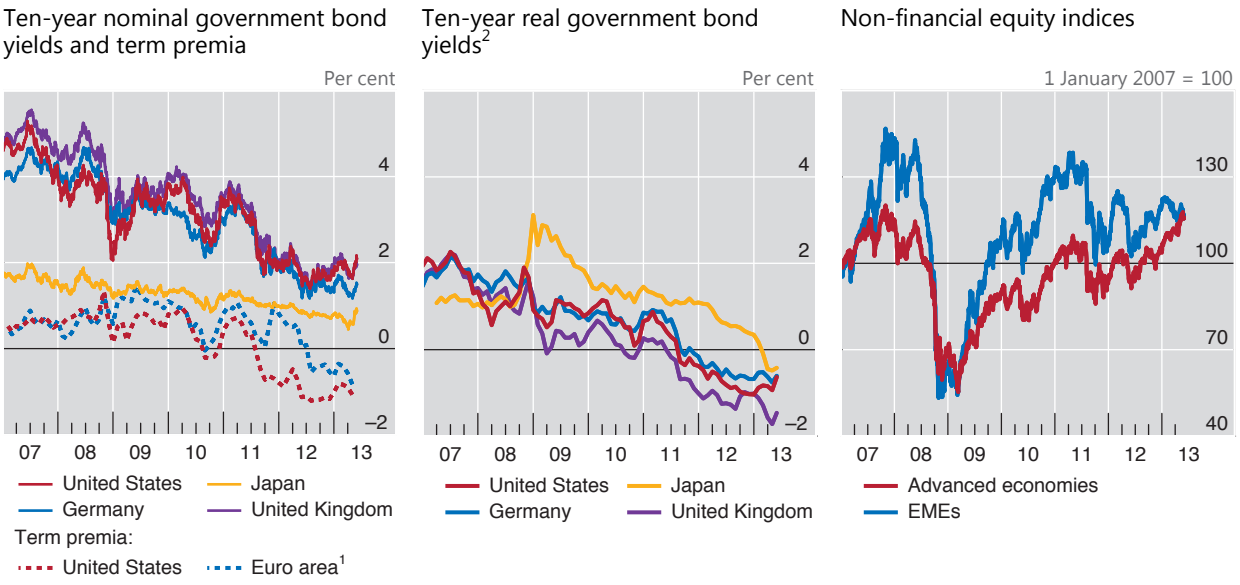
The Federal Reserve, Bank of Japan and Bank of England also used policy instruments to target specific parts of the monetary transmission mechanism. The Federal Reserve resumed its purchases of mortgage-backed securities, while the Bank of Japan announced plans to purchase exchange-traded funds and Japanese real estate investment trusts. The Bank of England and Bank of Japan introduced the Funding for Lending Scheme and the Loan Support Program, respectively. These schemes provide incentives to increase the supply of loans by linking cheaper bank funding to lending activity.

Policy supported financial markets

Expectations of low policy rates over the near future (Graph II.3, left-hand panel) and the effects of the new rounds of large-scale asset purchases initially kept nominal 10-year government bond yields below 2% in the United States, Germany and the United Kingdom (Graph II.4, left-hand panel). More recently, however, yields started to increase. In the United States, this may have been related to improvements in labour market conditions and concerns about the path of future asset purchases. In Japan, nominal government bond yields initially fell below 1%

Government bond yields and equity prices

Graph II.4



[1] Calculated from a basket of French and German government bonds. [2] Government bond yields less inflation swaps (for Germany, euro inflation swap).

Sources: Bloomberg; Datastream; BIS calculations.

but later displayed increased volatility. Real long-term yields remained in negative territory in the United States, Germany and the United Kingdom (Graph II.4, centre panel). In Japan, following the announcement of the inflation target, real long-term yields became negative in early 2013. An important factor behind the drop in bond yields was a significant reduction in term premia, which compensate investors for the risks of inflation and movements in real rates. For example, the term premium on US Treasuries turned negative in 2011 and continued to decrease in 2012, reaching its lowest level for at least 25 years (Graph II.4, left-hand panel); in the euro area, the premium turned negative in mid-2012.

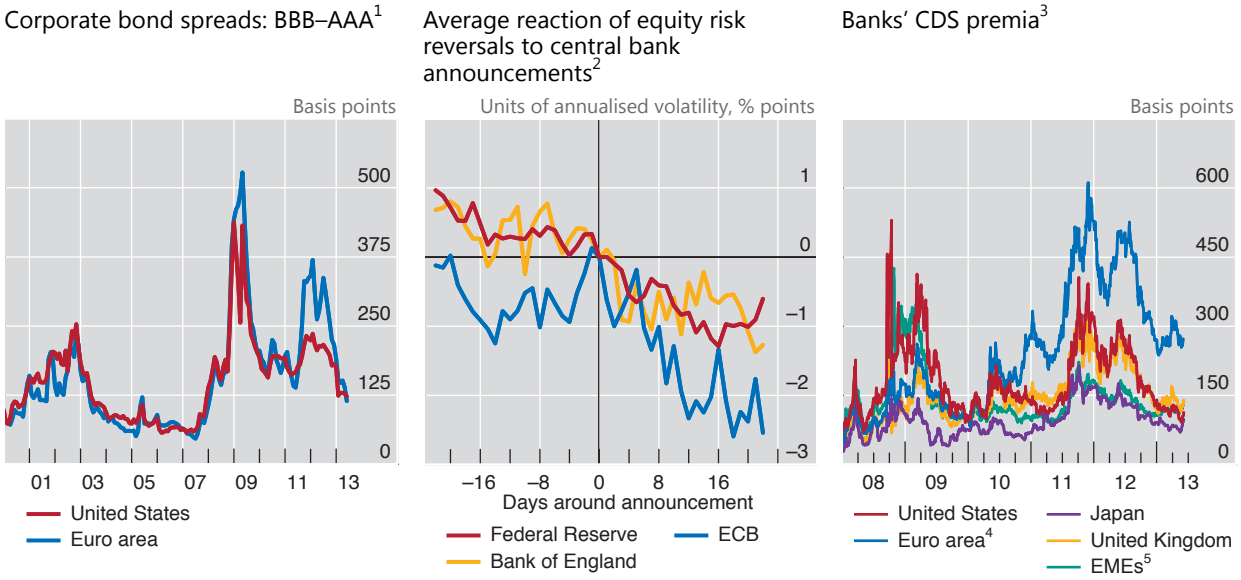
The extensive policy support during the second half of 2012 reduced downside risk and infused financial market participants with renewed optimism. The difference between the interest rate paid on bonds by firms rated BBB and AAA, a proxy for the spread on risky relative to less risky borrowers, decreased by around 100 and 200 basis points in the United States and euro area, respectively, from the peak reached in 2012 and recently stood around levels that had prevailed prior to the Lehman Brothers bankruptcy (Graph II.5, left-hand panel).

Equity risk reversals, an option-based measure of downside risk, declined substantially in response to central bank actions in the United States, euro area and United Kingdom. The centre panel of Graph II.5 compares their level across an event window of several days before and after the key announcement date (normalised to zero).[2] While more sluggish, the reaction to the ECB's three-year longer-term refinancing operation (LTRO) and OMT announcements had a very strong impact in reducing the perceived risk of a large equity market fall. In the second half of 2012, the introduction of OMT facilities also led to a sizeable decrease in bank

[2] For more details, see "Tail risk perceptions around unconventional monetary policy announcements", *BIS Quarterly Review*, March 2013, pp 4–5.

Selected indicators of risk premia

Graph II.5



[1] Difference between the corporate bond rates paid by firms rated BBB and AAA. [2] Normalising the 25 delta risk reversal to 0 on the announcement dates by taking differences between days before and after the announcements and the day of the announcement. For the Federal Reserve, the S&P 500 risk reversal; for the Bank of England, the FTSE 100 risk reversal; for the ECB, the DJ EURO STOXX 50 risk reversal. Announcements and related speeches: for the Federal Reserve, 25 November 2008, 1 December 2008, 16 December 2008, 28 January 2009, 18 March 2009, 10 August 2010, 27 August 2010, 21 September 2010, 15 October 2010, 3 November 2010, 9 August 2011, 21 September 2011, 25 January 2012, 20 June 2012, 1 August 2012, 31 August 2012, 13 September 2012 and 12 December 2012; for the Bank of England, 19 January 2009, 11 February 2009, 5 March 2009, 7 May 2009, 6 August 2009, 5 November 2009, 4 February 2010, 6 October 2011, 9 February 2012 and 5 July 2012; for the ECB, 8 December 2011, 21 December 2011, 29 February 2012, 26 July 2012 and 6 September 2012. [3] Five-year on-the-run credit default swap (CDS) spreads in US dollars; simple average across selected banks. [4] Belgium, France, Germany, Italy, the Netherlands, Portugal and Spain. [5] Brazil, China and Singapore.

Sources: Bank of America Merrill Lynch; Bloomberg; Markit; BIS calculations.

credit default swap (CDS) premia not only in the euro area but also more globally (Graph II.5, right-hand panel). As with the ECB announcements, the reaction of equity risk reversals to the Bank of Japan's new price stability target and Quantitative and Qualitative Monetary Easing programme also had a sizeable impact. Benefiting from both the further easing of monetary policy and the reduction in perceived risks, equity markets in advanced and emerging economies gained around 25% and 10%, respectively, from their trough in 2012 (Graph II.4, right-hand panel). However, recent equity market volatility highlights the fragility of market sentiment while the recovery of the real economy is still in doubt.

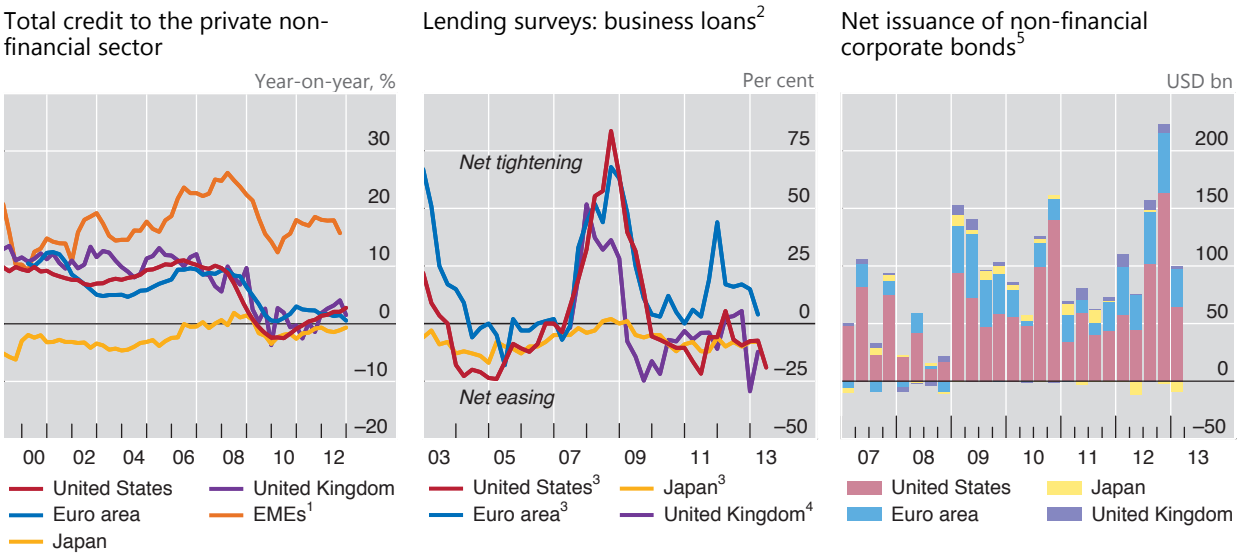
Credit conditions remained different across countries

Credit conditions varied greatly across countries. Graph II.6 (left-hand panel) shows that, in the context of lower interest rates and stronger domestic demand, total credit (bank loans and bonds) to the private non-financial sector grew in 2012 at a rate above 15% in EMEs. Among major advanced economies, credit grew at a moderate pace in the United States and United Kingdom, while it slackened further in the euro area and declined slightly in Japan.

In the United States, the Senior Loan Officer Opinion Survey on Bank Lending Practices indicated a net easing of banks' standards on commercial and industrial loans to firms (Graph II.6, centre panel) and a reduction in the spread of loan rates over bank funding costs. In the United Kingdom, following a period of tightening,

Credit conditions

Graph II.6



[1] Weighted average based on the 2005 GDP and PPP exchange rates of Argentina, Brazil, China, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey. [2] For the United States, loans to large and middle-sized businesses; for the United Kingdom, loans to all businesses; for the euro area and Japan, loans to large businesses. [3] Fraction of banks that reported having tightened standards ("tightened considerably" or "tightened somewhat") minus the fraction of banks that reported having eased standards ("eased considerably" or "eased somewhat"). A positive net balance indicates a net tightening in credit standards. [4] Weighted percentage of banks reporting tightened credit conditions minus weighted percentage of those reporting eased credit conditions (weights are based on relevant market share). A positive weighted net balance indicates a net tightening in credit standards. [5] Net issuance defined as completed issues minus repayments.

Sources: ECB; Federal Reserve; Datastream; Dealogic; BIS estimates.

banks started to ease credit supply conditions for firms after the introduction of the Funding for Lending Scheme in the second half of 2012. However, the increased availability of credit to the UK corporate sector came mainly from non-bank financing. Net non-financial corporate bond issuance almost doubled in 2012 relative to the average of the previous five years (Graph II.6, right-hand panel).

The reduction of credit growth in the euro area reflected not only the weakness of demand, but also relatively tight bank supply conditions. The responses to the euro area bank lending survey indicated a tightening of lending standards on loans to firms (Graph II.6, centre panel). In the second half of 2012, the tightening was mostly attributed to pessimism regarding the economic outlook, which particularly affected banks in the euro area periphery. In contrast to the continued tightening of bank credit conditions, the easing of the tensions in sovereign debt markets and the reduction of perceived risk had a positive impact on the net issuance of corporate bonds (Graph II.6, right-hand panel).

In Japan, although credit supply conditions remained accommodative, total credit to the private non-financial sector declined slightly in 2012 (and stagnated in real terms). However, figures for the first quarter of 2013 indicate an increase in bank credit, mainly related to stronger demand from firms for working capital and financing for mergers and acquisitions.

Global financial spillovers

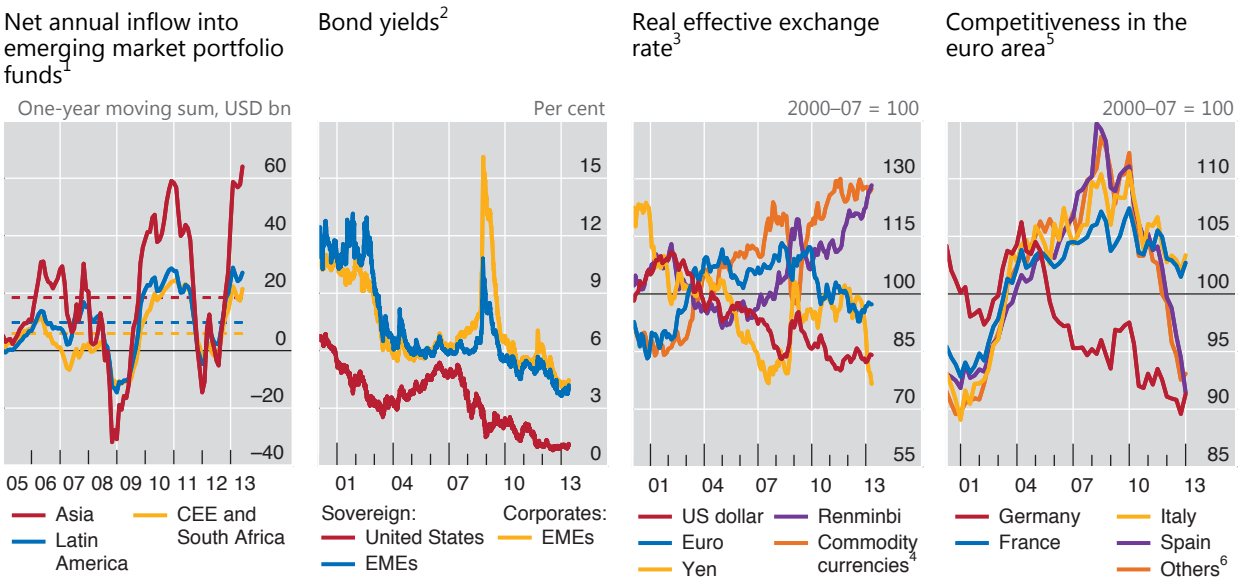
While monetary policy easing has helped to sustain economic activity in advanced economies, it may also have had significant financial effects on other

countries.[3] The substantial fall in government bond yields in many advanced economies is likely to have encouraged capital flows to fast-growing EMEs and smaller advanced economies and put upward pressure on their currencies. Since the beginning of 2013, net capital inflows have increased sharply, especially in emerging Asia (Graph II.7, first panel), equalling the previous peak of late 2010. With increasing demand for emerging market bonds, their spread over US Treasuries decreased by more than 1 percentage point during the past year (Graph II.7, second panel).

With highly accommodative monetary policy in advanced economies, a weak external demand environment and the return of significant capital flows, the past months have seen increased concern about movements in exchange rates. Between September 2012 and May 2013, the Japanese real effective exchange rate depreciated by more than 20%, returning to its 2007 level. Evaluated over the last decade, the depreciation of the Japanese real effective exchange rate is similar to that experienced by the United States (Graph II.7, third panel). In contrast, the real effective exchange rates of China and commodity-producing countries such as Australia and Canada appreciated by around 25% compared with the pre-crisis

Global spillovers: transmission channels

Graph II.7



[1] Sums across equity and bond markets in major economies in each region. Data cover net portfolio flows (adjusted for exchange rate changes) to dedicated funds for individual EMEs and to EME funds for which a country or at least a regional decomposition is available. The dashed lines represent the average over the period shown. CEE = central and eastern Europe. [2] Bank of America Merrill Lynch indices: for EME government bonds, Emerging Markets External Debt Sovereign Index; for US government bonds, US Treasury Master Index; for EME corporate bonds, Emerging Markets Corporate Plus Index. [3] In terms of relative consumer prices; an increase indicates an appreciation against a broad basket of currencies. [4] Simple average of the Australian dollar and the Canadian dollar. [5] ECB real harmonised competitiveness indicator based on the effective exchange rate vis-à-vis major trading partners and other euro area members, deflated by unit labour costs. An increase indicates a decrease in cost competitiveness. [6] Simple average of Greece, Ireland and Portugal.

Sources: ECB; Bank of America Merrill Lynch; EPFR; BIS.

[3] See J Caruana, "International monetary policy interactions: challenges and prospects", speech at the CEMLA-SEACEN conference on "The role of central banks in macroeconomic and financial stability: the challenges in an uncertain and volatile world", Punta del Este, Uruguay, 16 November 2012.

Annual changes in foreign exchange reserves

In billions of US dollars — Table II.1

	At current exchange rates						*Memo: Amounts outstanding (Dec 2012)*
	2007	2008	2009	2010	2011	2012	
World	1,451	642	819	1,100	940	746	*10,950*
Advanced economies[1]	99	61	83	194	269	195	*2,232*
United States	5	4	1	2	–0	–2	*50*
Euro area	19	–1	–8	13	1	12	*220*
Japan	73	55	–7	39	185	–28	*1,194*
Switzerland	7	0	47	126	54	197	*468*
Asia	695	410	715	651	424	239	*5,351*
China	462	418	453	448	334	130	*3,312*
Chinese Taipei	4	21	56	34	4	18	*403*
Hong Kong SAR	19	30	73	13	17	32	*317*
India	96	–20	12	9	–5	–1	*262*
Indonesia	14	–5	11	29	14	2	*106*
Korea	23	–61	65	22	11	19	*317*
Malaysia	19	–10	2	9	27	6	*135*
Philippines	10	3	4	16	12	6	*72*
Singapore	27	11	12	38	12	21	*257*
Thailand	20	23	25	32	–0	6	*171*
Latin America[2]	127	42	25	81	97	51	*694*
Argentina	14	0	–1	4	–7	–3	*37*
Brazil	94	13	39	49	63	19	*362*
Chile	–3	6	1	2	14	–0	*40*
Mexico	11	8	0	21	23	16	*153*
Venezuela	–5	9	–15	–8	–3	–0	*6*
CEE[3]	42	6	13	14	3	15	*275*
Middle East[4]	108	150	–29	50	88	151	*817*
Russia	171	–56	–5	27	8	32	*473*
Memo: Net oil exporters[5]	*331*	*144*	*–62*	*107*	*141*	*222*	*1,785*

[1] Countries shown plus Australia, Canada, Denmark, Iceland, New Zealand, Sweden and the United Kingdom. [2] Countries shown plus Colombia and Peru. [3] Central and eastern Europe: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia. [4] Kuwait, Libya, Qatar and Saudi Arabia. [5] Algeria, Angola, Kazakhstan, Mexico, Nigeria, Norway, Russia, Venezuela and the Middle East.

Sources: IMF, *International Financial Statistics*; Datastream; national data.

average (2000–07). Against this backdrop of large movements in exchange rates, the G20 finance ministers and central bank Governors affirmed their commitment not to target exchange rates for competitive purposes.[4]

[4] See the communiqué of 16 February 2013: http://www.g20.org/load/781209773.

The euro area real effective exchange rate is around its pre-crisis average. Within the single currency area, real exchange rates based on unit labour costs indicate that Germany still shows a large gain in competitiveness compared with the pre-crisis average, although Greece, Ireland, Portugal and Spain have substantially narrowed the gap vis-à-vis Germany since 2008 (Graph II.7, last panel). In contrast, France and Italy have not experienced any improvement in competitiveness relative to Germany since the financial crisis.

For some countries, official intervention in currency markets can be an important instrument to lean against upward exchange rate pressures and to offset the impact of capital flows. In 2012, global foreign reserves amounted to more than $10 trillion, an all-time high (Table II.1). Economies with fixed exchange rate regimes (eg Hong Kong SAR and Middle East oil-exporting economies) continued to accumulate reserves at a rapid pace. Other countries – including Korea, Mexico and, in particular, Switzerland – also added significantly to their reserves.

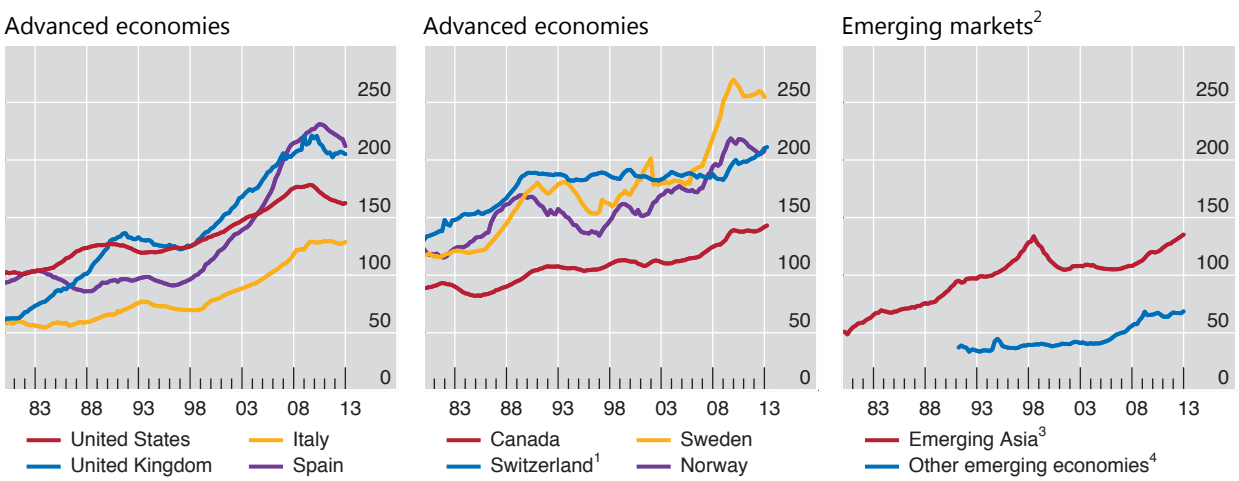
In addition to direct intervention, countries have used indirect measures to manage spillovers from low interest rates in advanced economies.[5] In particular, over the past few years some EMEs have taken actions which can be considered as both macroprudential (ie addressing systemic risk in the financial sector) and capital flow management measures (ie affecting capital inflows and thereby the exchange rate).

Private non-financial sector debt is still high

Both as a legacy of the pre-crisis financial boom and as a result of low global interest rates since, the debt of the private non-financial sector (households and

Private non-financial sector debt

As a percentage of GDP — Graph II.8



[1] From Q1 2011, total private non-financial sector debt is approximated using bank debt of the private non-financial sector. [2] Simple averages. [3] China (from Q4 1987), Hong Kong SAR, India, Indonesia, Korea, Malaysia (from Q4 1991), Singapore (from Q1 1991) and Thailand. [4] Argentina, Brazil (from Q4 1994), the Czech Republic (from Q3 1994), Hungary, Mexico, Poland (from Q1 1992), Russia (from Q2 1995), South Africa and Turkey.

Sources: IMF, *International Financial Statistics*; OECD; Datastream; national data; BIS calculations.

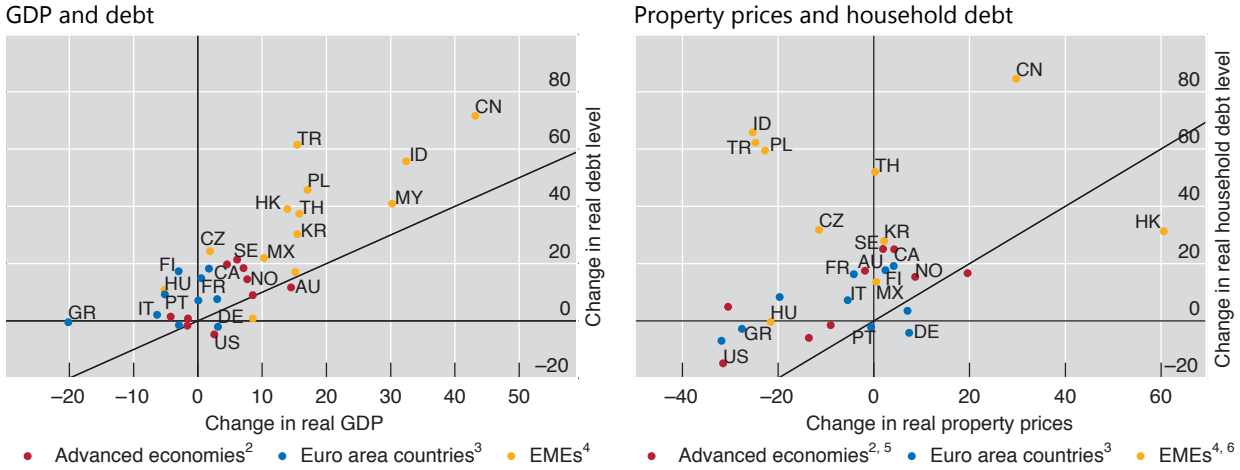
[5] See "The influence of external factors on monetary policy frameworks and operations", *BIS Papers*, no 57, October 2011.

non-financial firms) remains at a high level.[6] Some advanced economies experienced a significant accumulation of debt and misallocation of resources in the boom. In these countries, private non-financial sector debt-to-GDP ratios remain close to historically high levels (Graph II.8, left-hand panel), as weak growth has impeded the repair of private sector balance sheets.[7] In other advanced economies less affected by the crisis, low global interest rates following the crisis have encouraged a significant build-up in private debt-to-GDP ratios (Graph II.8, centre panel). In emerging Asia, on average, private debt in relation to GDP remains below the levels in advanced economies, but it is trending towards the peak reached before the Asian financial crisis of the late 1990s (Graph II.8, right-hand panel).

The differences across countries can also be seen in the left-hand panel of Graph II.9, which plots the growth of GDP against that of debt in real terms over the period 2007–12 for 33 advanced and emerging market economies. The 45° line divides the countries into two groups: the vast majority (27) are located above the line and have experienced an increase in their private debt-to-GDP ratio since the global financial crisis. Within this group, a significant number of countries – predominantly in the euro area – are located towards the left of the vertical axis and are characterised by an increase in their private debt-to-GDP ratio that is at

Private non-financial sector debt, GDP and property prices[1]

Percentage changes, 2007–12 — Graph II.9



AU = Australia; CA = Canada; CN = China; CZ = Czech Republic; DE = Germany; FI = Finland; FR = France; GR = Greece; HK = Hong Kong SAR; HU = Hungary; ID = Indonesia; IT = Italy; KR = Korea; MX = Mexico; MY = Malaysia; NO = Norway; PL = Poland; PT = Portugal; SE = Sweden; TH = Thailand; TR = Turkey; US = United States.

[1] The solid line represents the 45° line. The data are deflated using the GDP deflator. For Switzerland from Q1 2011, total private non-financial sector and household debt is approximated using bank debt of the private non-financial sector. [2] Australia, Canada, Denmark, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States. [3] Austria, Belgium, Finland, France, Germany, Greece, Italy, the Netherlands, Portugal and Spain. [4] China, the Czech Republic, Hong Kong SAR, Hungary, Indonesia, Korea, Malaysia, Mexico, Poland, Russia, South Africa, Thailand and Turkey. [5] Excludes New Zealand. [6] Excludes Malaysia, Russia and South Africa.

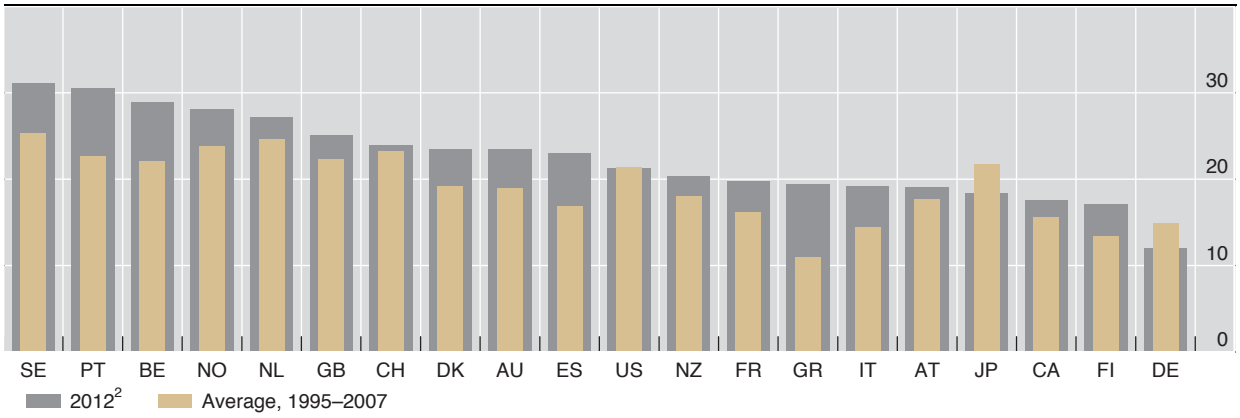
Sources: ECB; IMF, *International Financial Statistics*; OECD; Datastream; national data; BIS calculations.

[6] For an analysis of government debt and fiscal sustainability, see Chapter IV.

[7] See J Caruana, "Central banking in a balance sheet recession", panel remarks at the Board of Governors of the Federal Reserve System conference on "Central banking: before, during and after the crisis", Washington, 23–24 March 2012.

Private non-financial sector debt service ratios[1]

As a percentage of GDP — Graph II.10



AT = Austria; AU = Australia; BE = Belgium; CA = Canada; CH = Switzerland; DE = Germany; DK = Denmark; ES = Spain; FI = Finland; FR = France; GB = United Kingdom; GR = Greece; IT = Italy; JP = Japan; NL = Netherlands; NO = Norway; NZ = New Zealand; PT = Portugal; SE = Sweden; US = United States.

[1] Defined as interest payments plus amortisation divided by GDP. [2] End-of-year or latest available.

Sources: Reserve Bank of Australia; ECB; Federal Reserve; IMF, *International Financial Statistics*; OECD; Datastream; national data; BIS calculations.

least partly due to a drop in economic activity. At the other end of the spectrum are countries – mostly emerging market economies, but also some smaller advanced economies – that were not affected so significantly by the crisis and have accumulated debt at a faster pace than the increase in GDP.

Studies have shown that a deviation of the debt-to-GDP ratio from its trend can create vulnerabilities, especially if combined with large increases in asset prices.[8] The right-hand panel of Graph II.9 plots the change in real residential property prices against the change in household real debt across countries in the period 2007–12. Most of the countries lie above the 45° line: household debt has increased at a faster rate than property prices, and in some countries, such as Indonesia, Poland and Turkey, property prices have decreased alongside strong household debt growth.

While a large change in the debt-to-GDP ratio can indicate either a debt overhang or a build-up of financial risks, this does not take monetary policy conditions into account to evaluate debt sustainability. Therefore, it is helpful to analyse the debt service ratio, defined as interest payments and amortisations divided by GDP. The deviation of the debt service ratio from its historical average has been found to perform well as a predictor of the severity of recessions and as an early warning signal for banking crises.[9]

The grey bars in Graph II.10 plot the private debt service ratio at the end of 2012. For the majority of the economies shown (17 out of 20), debt service ratios are above their 1995–2007 averages (brown bars). Sweden has the highest debt

[8] See eg C Borio and P Lowe, "Asset prices, financial and monetary stability: exploring the nexus", *BIS Working Papers*, no 114, July 2002.

[9] See M Drehmann and M Juselius, "Do debt service costs affect macroeconomic and financial stability?", *BIS Quarterly Review*, September 2012, pp 21–35. We exclude EMEs from the analysis because of their different stages of financial development.

service ratio among advanced economies, which is 6 percentage points above its long-run average. Euro area periphery countries have also experienced large increases in debt service ratios. For example, the estimates suggest that – given *current* interest rates – debt service ratios in Greece and Portugal are roughly 8 percentage points above their historical averages. At the other extreme, the debt service ratio in Japan is around 3 percentage points below its long-run average. In the United States, partly due to the significant reduction in household debt (see Graph II.9, right-hand panel), the ratio is close to its historical average.

The deviations of debt service ratios in 2012 from their 1995–2007 averages – as depicted by the difference between the grey and the brown bars – are conditional on *current* interest rate levels. However, these are well below their historical levels in most countries. This may mask an additional need to reduce debt and suggest that many countries have a long way to go before their deleveraging journey is complete.

Summing up

Despite the further easing of monetary policy during the past year and improving financial market conditions, at the time of writing the signs of recovery are still uneven. In the presence of weak growth and insufficient structural reforms, there remain risks of a sudden deterioration in market sentiment. More generally, the need for balance sheet repair continues to slow growth and render many advanced economies vulnerable. With persistent low interest rates in advanced economies, there are also risks that financial imbalances will build in emerging economies over the medium term. In this environment, there are likely to be limits to how far monetary policy can further stimulate demand. Chapter III analyses the role of structural reform in restarting economic growth.

III. Removing the roadblocks to growth

The pace of recovery in the large advanced economies has been, at best, disappointing. Emerging economies have generally performed better, but recently they too have lost their vigour. What can be done to restore sustainable growth? The sluggishness of the advanced economies continues to reflect pre-crisis excesses, at least in part. Formerly bloated construction and financial sectors have shrunk significantly, undermining both growth and employment. This economic fallout highlights the extent to which resources were misallocated during the boom.

Returning to strong and sustainable growth will be difficult unless this misallocation is corrected. Structural rigidities slow growth, both current and future, by blocking innovation and creative destruction. Countries should therefore use the time provided by expansionary macroeconomic policy to remove the product and labour market barriers on the road to growth.

Productivity and employment after the Great Recession

Economic growth in almost all the major advanced economies has slowed significantly compared with the pre-crisis years. Between 2010 and 2012, real GDP in the advanced economies expanded by an annual average of only 1.3%, compared with 2.3% between 2001 and 2007 (Graph III.1) and 2.7% between 1979 and 2007. The only major exception is Germany, which bounced back from a period of stagnation in the early 2000s. In the emerging market economies (EMEs), GDP growth slowed to an annual average of 5.6% in 2010–12, down from 7.5% between 2001 and 2007, and 6.3% between 1979 and 2007.

This lacklustre growth reflects sagging employment combined with lower productivity growth, relative to the pre-crisis period. The ratio of employment to total working-age population[1] has fallen significantly in most advanced economies, the main exceptions being Germany and Switzerland (Graph III.2, left-hand panel). Employment retreated particularly sharply in Greece, Ireland and Spain. In Greece, just over half of the working-age population was employed at the end of 2012. The corresponding figure for Spain is 55%. In the United States, the employment rate fell by 5 percentage points, and now stands at 67% of the working-age population.

Meanwhile, from 1.8% per year between 1980 and 2000,[2] output per hour growth in the advanced economies declined to 1.3% per annum between 2001 and 2007, and just 0.7% between 2010 and 2012. In emerging market economies, the growth in output per worker fell from 6.1% between 2001 and 2007 to 3.9% between 2010 and 2012.[3] The small group of countries experiencing higher productivity

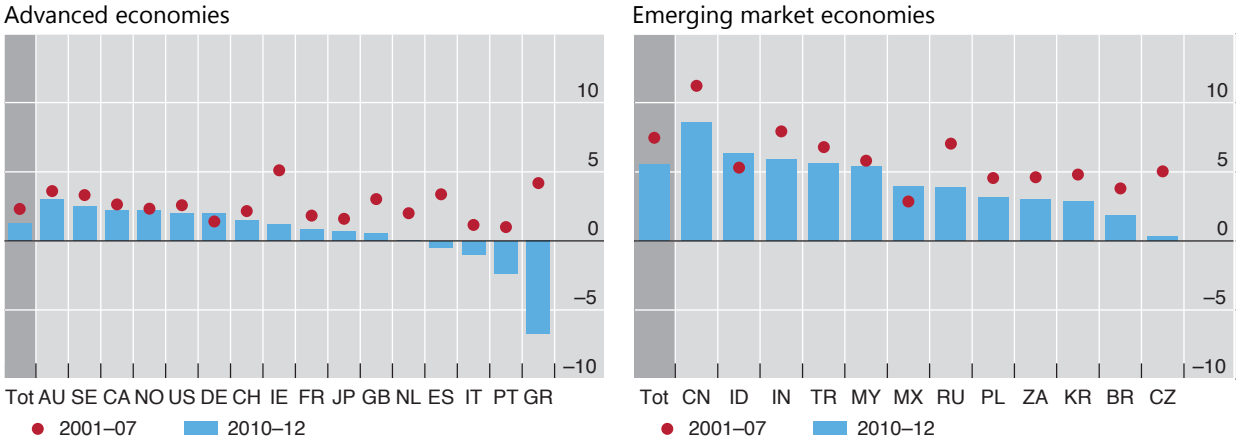
[1] Measured as the ratio of employment to the population aged 15 to 64 years, whether or not people are available for work.

[2] Weighted averages of the economies shown in Graph III.2, based on 2005 GDP and PPP exchange rates.

[3] Weighted averages of the economies shown in the right-hand panel of Graph III.1 (except India), based on 2005 GDP and PPP exchange rates.

Economic growth[1]

In per cent — Graph III.1



AU = Australia; BR = Brazil; CA = Canada; CH = Switzerland; CN = China; CZ = Czech Republic; DE = Germany; ES = Spain; FR = France; GB = United Kingdom; GR = Greece; ID = Indonesia; IE = Ireland; IN = India; IT = Italy; JP = Japan; KR = Korea; MX = Mexico; MY = Malaysia; NL = Netherlands; NO = Norway; PL = Poland; PT = Portugal; RU = Russia; SE = Sweden; TR = Turkey; US = United States; ZA = South Africa.

[1] Average annual real GDP growth. Regional totals are weighted averages based on 2005 GDP and PPP exchange rates.

Source: IMF, *World Economic Outlook*.

growth includes Ireland and Spain (Graph III.2, right-hand panel).[4] Labour productivity in these countries increased rapidly as the less productive sectors aggressively shed workers. Given their membership in a currency union, Ireland and Spain could only regain competitiveness by significantly reducing unit labour costs, which they did by cutting their workforce. Between 2010 and 2012, unit labour costs in Spain fell by 2% per annum, and by 4.4% relative to the average unit labour costs of its trading partners. This compared with an average increase of 2.9% per year between 2000 and 2008.[5]

Why employment and productivity growth weakened so markedly across a large number of countries is not yet well understood. It may be that both trend GDP and productivity growth had started to falter even before the crisis. In the main advanced economies, long-run real GDP and labour productivity growth started to fall many years before the crisis struck in 2007–08 (Graph III.3), suggesting that at least part of the slowdown in economic activity may have taken place for reasons other than the financial crisis. From that point of view, the crisis aggravated the slowdown, but it was not the only cause. This view is supported by more detailed studies. For instance, a pullback in corporate investment in information and communications technology came along with the decline in US productivity

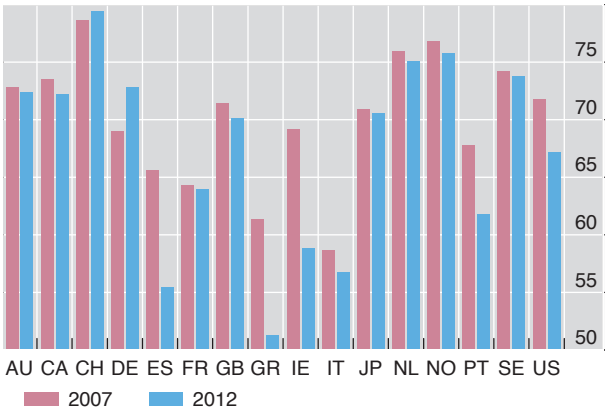
[4] In the case of Spain, labour productivity actually fell in the pre-crisis period. See J Mora-Sanguinetti and A Fuentes, "An analysis of productivity performance in Spain before and during the crisis: exploring the role of institutions", OECD, *Economics Department Working Papers*, no 973, July 2012, who show that the low productivity growth was not primarily driven by the shift of workers to the construction sector. They attribute the poor productivity growth across sectors to rigidities in the labour market and in regulations affecting business.

[5] Source: OECD.

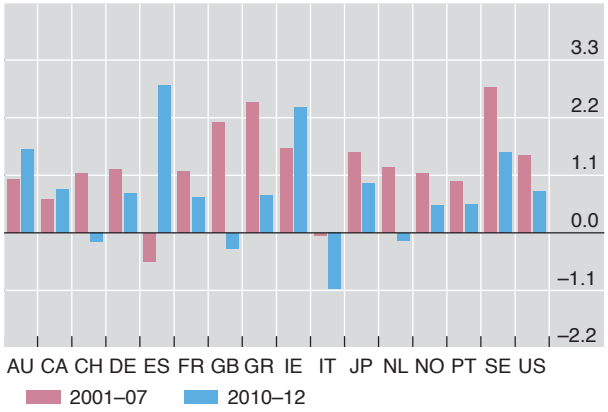
Productivity and employment

In per cent — Graph III.2

Employment as a share of population aged 15–64



Labour productivity growth[1]



AU = Australia; CA = Canada; CH = Switzerland; DE = Germany; ES = Spain; FR = France; GB = United Kingdom; GR = Greece; IE = Ireland; IT = Italy; JP = Japan; NL = Netherlands; NO = Norway; PT = Portugal; SE = Sweden; US = United States.

[1] Average annual growth of real GDP per employee.

Sources: IMF, *World Economic Outlook*; Datastream.

growth during the first half of the 2000s.[6] The US employment rate likewise peaked around the turn of the century and has since been steadily falling, for reasons still being debated.[7] Structural factors have also been blamed for the energy sector's declining productivity growth.[8]

But technological and similar structural factors are not the whole story. In many economies, slowing growth proceeds directly from the pre-crisis boom in the construction, finance and real estate sectors. When boom turned to bust, it was these bloated sectors that shrank most sharply.[9] Such sectoral imbalances may be hard to spot as they build up, but they tend to make themselves known when times turn bad. Indeed, a good measure for such distortions is the concentration of job losses in specific industries during the bust.[10] For instance, post-crisis job losses in Ireland and Spain were much more concentrated in specific sectors than were those in Germany or Japan – countries that did not experience housing and construction

6 See J Fernald, "Productivity and potential output before, during, and after the Great Recession", *Federal Reserve Bank of San Francisco Working Paper Series*, no 18, September 2012.

7 See R Moffitt, "The reversal of the employment-population ratio in the 2000s: facts and explanations", *Brookings Papers on Economic Activity*, Fall 2012, pp 201–50.

8 See A Hughes and J Saleheen, "UK labour productivity since the onset of the crisis – an international and historical perspective", *Bank of England Quarterly Bulletin*, vol 52, Q2, June 2012, pp 138–46.

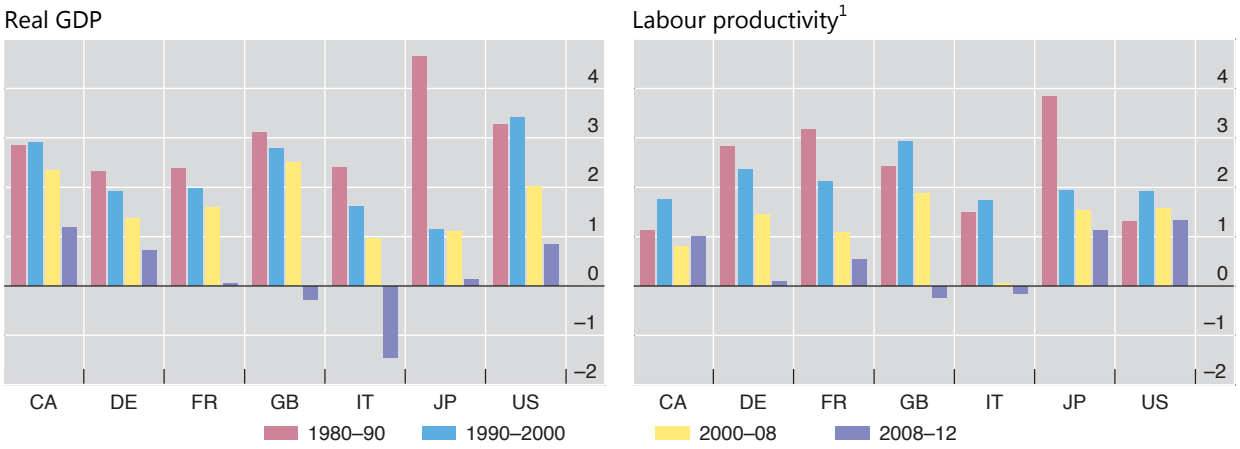
9 See the discussion in BIS, *81st Annual Report*, June 2011, p 22.

10 We measure the degree of sectoral imbalances as the average absolute change in sectoral employment share between the beginning and the end of the Great Recession, ie between 2007 and 2009. We consider nine industries to compute this index: agriculture; mining; manufacturing; construction; electricity; trade; transport; finance, insurance and real estate services; and other services. See BIS, *82nd Annual Report*, June 2012, Chapter III.

Average annual real GDP and labour productivity growth

In per cent

Graph III.3



CA = Canada; DE = Germany; FR = France; GB = United Kingdom; IT = Italy; JP = Japan; US = United States.

[1] Real GDP per hour worked.

Sources: IMF, *World Economic Outlook*; OECD.

busts but imported the crisis through trade and financial channels. It turns out that growth slowed more in countries with high sectoral imbalances (Graph III.4, left-hand panel) than in countries where the downturn was more balanced.

The sectoral breakdown of GDP growth confirms the importance of sectoral imbalances when accounting for the slowdown. The construction sector in countries with high sectoral imbalances grew by 6% annually between 2001 and 2007, only to shrink by almost 5% per year between 2009 and 2011 (bars in Graph III.4, right-hand panel).[11] Given that this sector represented on average around 7% of output in 2009, its shrinkage directly accounts for 0.8 percentage points of the GDP slowdown in these countries. But the boom's legacy does not stop with construction, which was a relatively small part of the economy even at the peak of the housing boom. Output in the service sector also slowed significantly. For instance, growth in the finance, insurance and real estate services sector dropped by almost 3 percentage points. Since this sector accounts on average for 20% of the economy in countries with high sectoral imbalances, its slowdown together with the shrinkage of construction directly explains around 1.4 percentage points of the 2.1 percentage point drop in aggregate growth. Allowing for indirect effects, through the drop in demand for building materials and other inputs, increases this number even further.[12] Although output in both these sectors also slowed in countries with more moderate sectoral imbalances, the deceleration was much milder there.

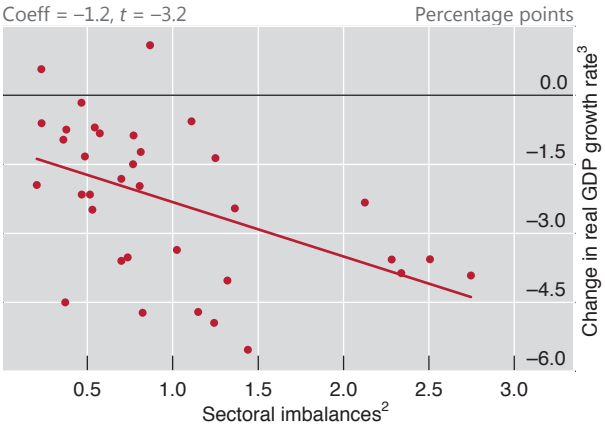
[11] Based on our estimates, we classify the following countries as having relatively large sectoral imbalances: the Czech Republic, Denmark, Estonia, Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Romania, Slovakia, Spain, Turkey and the United States. Countries with moderate sectoral imbalances are Austria, Belgium, Finland, France, Germany, Greece, Italy, Japan, Luxembourg, the Netherlands, Sweden and Switzerland.

[12] See M Boldrin, C Garriga, A Peralta-Alva and J Sánchez, "Reconstructing the Great Recession", Federal Reserve Bank of St Louis, *Working Paper Series*, no 006A, February 2013.

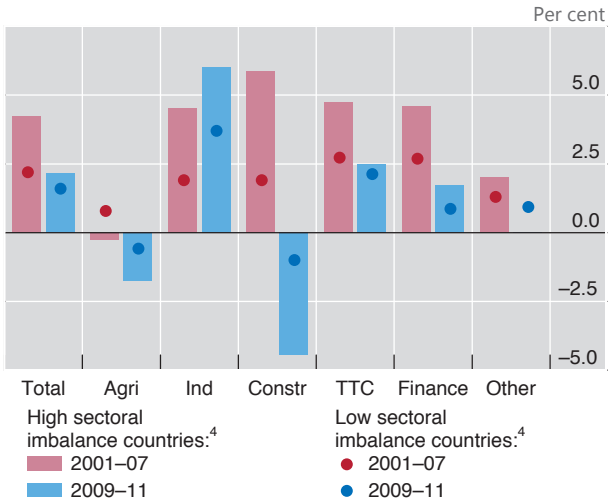
GDP growth and sectoral imbalances

Graph III.4

Change in GDP growth vs sectoral imbalances[1]



Average annual growth, by sector



Agri = agriculture; Ind = industry excluding construction; Constr = construction; TTC = trade, transport and communication; Other = other services.

[1] The scatter plot represents a number of advanced and emerging market economies, but does not include Greece, which had a change in GDP growth of –11% and a sectoral imbalance index of 0.3. The regression coefficient becomes –0.8, t = –1.4 with Greece included in the sample. [2] Defined as average absolute changes in the sectoral employment share between the beginning and end of the Great Recession, ie from 2007 to 2009. [3] Average annual growth rate between 2010 and 2012 minus average annual growth rate between 2001 and 2007. [4] For the list of countries, see footnote 11 in the main text.

Sources: IMF, *World Economic Outlook*; European Commission; BIS calculations.

To revive growth, workers and capital will need to shift from industries that over-expanded during the boom to more productive sectors. This transfer of resources is facilitated by reforms that increase the incentives for firms to invest, enter new markets and hire new staff.

But overcoming the legacy of the boom-bust cycle will not be enough, especially in countries such as Italy that did not see a housing or credit boom of their own but are still experiencing lower productivity and employment growth. These countries too need a genuine increase in productivity growth. So far, across OECD economies, half of the productivity gain in manufacturing, the only sector where productivity grew faster after the crisis than before, is due to lower employment. But in the longer run, growth tends to come from new goods and services as well as innovative ways of producing and delivering them. Regulations that obstruct innovation and change will therefore slow growth.

Structural rigidities and growth

By hindering the reallocation of capital and workers across sectors, structural rigidities put the brakes on the economic engine of creative destruction. This nexus is illustrated by the scatter plots in Graph III.5. These show how rigidities in product and labour markets go hand in hand with lower labour productivity and employment.

Rigid product markets, for instance, are frequently accompanied by lower labour productivity and employment rates (Graph III.5, left-hand and centre panels). Such rigidities can arise from a wide range of policies, such as price

Structural rigidities, productivity and employment in advanced and major emerging market economies

Graph III.5

[1] The OECD indicator of product market regulation (PMR) measures how far policies promote or inhibit competition in areas of the product market where competition is viable. The scale ranges from 0 (least stringent) to 6 (most restricted). The PMR for each country covers formal regulations in the following areas: state control of business enterprises; legal and administrative barriers to entrepreneurship; and barriers to international trade and investment. The most recent observation is for 2008. [2] Defined as GDP per employee in thousands of US dollars, current PPPs, in 2012. [3] In the population aged 15–64, in 2012. [4] The OECD indicator of employment protection reflects the strictness of regulation of dismissals and the use of temporary contracts. It is calculated as a weighted average of protection of permanent workers against (individual) dismissal, regulation of temporary forms of employment and specific requirements for collective dismissal. The scale ranges from 0 (least stringent) to 6 (most restricted). The most recent observation is for 2008.

Sources: OECD; BIS calculations.

controls, exemptions from competition law for public enterprises, barriers to entry in services such as retail trade and professional services, or restrictions on acquisitions by foreign entities.[13] While most advanced economies have undertaken significant reforms to remove such rigidities, pockets of high regulation remain. This is particularly true for parts of the service sector.[14] Taken at face value, the correlation between employment rates and the OECD product market indicators in a large sample of advanced and emerging market economies suggests that further liberalisation of product markets would allow countries in continental Europe (Austria, Belgium, France, Germany and Italy) to raise their employment rates by about 3 percentage points.[15] In EMEs, the scope for reducing product market rigidities is even greater. Reforms in this area could thus give a further boost to growth and help EMEs to catch up with the advanced economies at a faster pace.

[13] The OECD indicator of product market regulation (PMR) for each country covers formal regulations in the following areas: state control of business enterprises; legal and administrative barriers to entrepreneurship; and barriers to international trade and investment.

[14] See A Wölfl, I Wanner, T Kozluk and G Nicoletti, "Ten years of product market reform in OECD countries – insights from a revised PMR indicator", OECD, *Economics Department Working Papers*, no 695, April 2009.

[15] All these correlations are robust to outliers and continue to hold in multivariate regressions. The bivariate relationships are weaker for a sample of advanced economies only, especially if Greece is ignored, owing to the limited variation in the two rigidity indicators.

Reforms in labour markets could yield even greater benefits than liberalising product markets. High employment protection is associated with lower employment (Graph III.5, right-hand panel). The estimated correlation suggests that, in countries with rigid labour markets such as France, Greece and Spain, a reduction in the index to the sample mean could boost employment rates by roughly 4 percentage points. The correlations in Graph III.5 are confirmed by studies that control for other factors affecting growth and for the direction of causality.[16] At the firm level, higher employment protection lowers productivity growth by holding back firms that operate in an environment of technological change. Similarly, there is evidence that tight regulation which reduces competition in the service sector can slow growth in sectors that rely heavily on service inputs. These include the information and communications technology sector, which grows more sluggishly in countries with less market-friendly regulation.[17]

That said, one should not expect reforms to product and labour markets to produce miracles. First, while different methodologies point towards a statistically significant negative relationship between structural rigidities and growth and employment, the size of this relationship varies across studies. Second, it is unclear whether reforms will permanently lift growth rates or merely generate a one-time upward shift in the level of GDP. Finally, the benefits of removing structural rigidities will not materialise overnight, as it can take many years for some reforms to gain traction. The transfer of workers and capital across sectors tends to be difficult, costly and time-consuming. The skills required in the growth sectors may be very different from those offered by workers laid off during the downturn. By the same token, some of the machinery used to build homes and shopping centres will be difficult to deploy elsewhere. This will be a particular challenge for economies with an overextended building sector which used to attract significant investment and employ large numbers of semi-skilled labourers.

Structural rigidities and the recovery

Economies with large sectoral imbalances recovering from a downturn have a particularly acute need to reallocate resources from one sector to another. By hindering this adjustment, rigid product or labour markets slow the pace of recovery.

This intuition is supported by econometric evidence. Graph III.6 shows that, when an economy is coming out of a recession that featured large sectoral imbalances, lower output growth and larger increases in unemployment are often associated with high readings of the employment protection index (red dots and

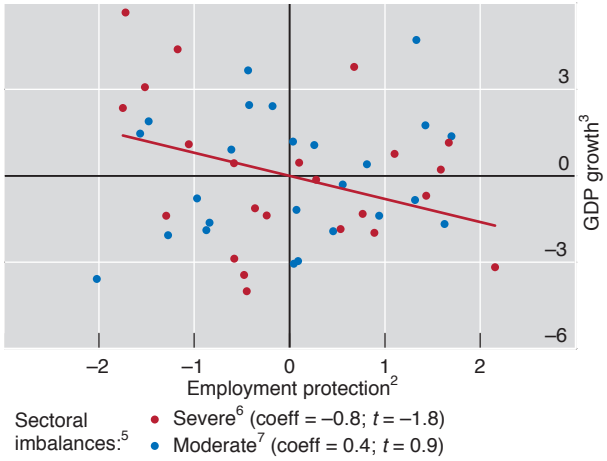
[16] A number of studies using the OECD PMR indicators and similar measures find that higher rigidities tend to be associated with lower productivity growth, especially because they inhibit competition. For a review, see N Crafts, "Regulation and productivity performance", *Oxford Review of Economic Policy*, vol 22, no 2, 2006, pp 186–202; and R Bouis and R Duval, "Raising potential growth after the crisis: a quantitative assessment of the potential gain from various structural reforms in the OECD area and beyond", OECD, *Economics Department Working Papers*, no 835, January 2011.

[17] See J Arnold, G Nicoletti and S Scarpetta, "Regulation, allocative efficiency and productivity in OECD countries: industry and firm-level evidence", OECD, *Economics Department Working Papers*, no 616, June 2008.

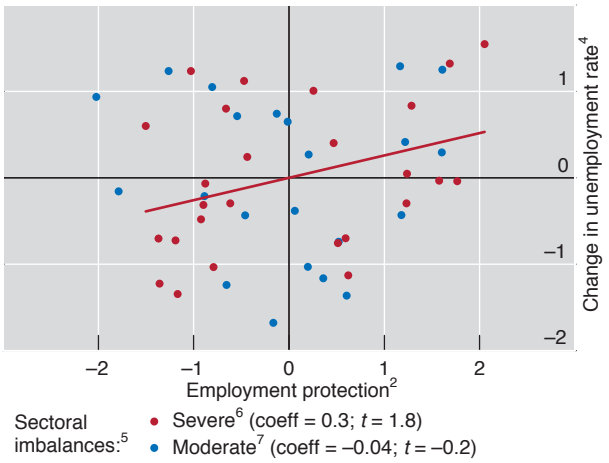
Employment protection and the speed of recovery[1]

Partial correlations — Graph III.6

Employment protection and GDP growth during recoveries



Employment protection and unemployment rate change during recoveries



[1] Based on a sample of 24 advanced OECD economies starting in 1970. Recessions are defined as periods of negative GDP growth and recoveries as the two-year windows after GDP fell to its trough. [2] See footnote 4 in Graph III.5. [3] Partial correlations from regressing GDP growth during recovery periods on GDP growth during recession periods, employment protection and sectoral imbalances. [4] Partial correlations from regressing the change in the unemployment rate during recovery periods on GDP growth during recovery periods, employment protection and sectoral imbalances. [5] Defined as average absolute changes in the sectoral employment share during recession periods. [6] Recoveries for which the average absolute change in sectoral employment shares during the preceding recession period is above the sample median. [7] Recoveries for which the average absolute change in sectoral employment shares during the preceding recession period is below the sample median.

Sources: OECD; BIS calculations.

regression line).[18, 19] By contrast, in countries that emerge from recessions without sizeable sectoral imbalances (blue dots), there is no statistically significant relationship between the pace of recovery or the change in unemployment on the one hand, and the degree of employment protection on the other. The inference is that labour market rigidities do the most damage when the need for labour reallocation across sectors is greatest. Roadblocks to the reallocation process reinforce the misuse of resources and are especially damaging for potential growth. A similar conclusion comes from looking at employment growth. That is, in countries with higher employment protection, employment usually grows more slowly during recoveries from a recession with severe imbalances. Conversely, no significant relationship emerges in the full sample.

[18] The analysis is based on a sample of 24 advanced OECD economies starting in 1970. We define recessions as periods of negative GDP growth and recoveries as the two-year windows after GDP fell to its trough. We then ask to what extent output and employment growth developments during recoveries vary according to the degree of labour market regulation and the extent of sectoral imbalances in an economy. Our evidence is in line with that in J Haltiwanger, S Scarpetta and H Schweiger, "Assessing job flows across countries: the role of industry, firm size and regulations", Institute for the Study of Labor (IZA), *Discussion Paper*, no 2450, November 2006, who find that strict labour protection raises labour adjustment costs and thus slows down the reallocation process. Moreover, the results are robust to controlling for monetary and fiscal policies.

[19] Note that the evidence presented for changes in unemployment is actually obtained after controlling for the effect of GDP growth. Higher employment protection therefore raises unemployment for a given growth in GDP.

Overall, these results suggest that flexible labour markets allow economies with large sectoral imbalances to recover more quickly from downturns. To get a sense of how large these benefits can be, consider the following experiment: what would be the effect of cutting the index for laying off workers with regular contracts to the lowest level observed in the OECD? Our estimates suggest that, in a country with large sectoral imbalances, cutting dismissal costs for workers on regular contracts to the minimum could raise GDP growth by 0.25 percentage points annually. This figure compares with an average annual growth rate in GDP of just 3%. And the unemployment rate two years after the trough would be 0.4 percentage points lower than without the reform. Importantly, such benefits appear to accrue quite quickly once the reforms are in place.

The current state of structural rigidities

Removing structural rigidities that hinder the reallocation of capital and workers across sectors can boost growth. But the nature of these rigidities varies from country to country. Further, the various types of regulation may interact in complex ways. This means that the measures that need to be taken also differ from country to country. For instance, product markets in the most advanced economies tend to be much less regulated than those in many emerging market economies (Graph III.7, top panels).

The degree of employment protection also varies greatly across countries (Graph III.7, bottom panels). Labour markets in the English-speaking advanced economies tend to be much less regulated than those in most euro area countries, where the need for reform is greater. Similarly, some countries tend to regulate permanent contracts relatively strictly, but temporary contracts less so, resulting in a two-track labour market. Here a relaxation of the regulations covering open-ended contracts could help workers on temporary contracts to find permanent positions.

Moreover, labour and product market reforms are only one part of a larger set of structural measures that need to be taken. To return to a path of strong and sustainable growth, countries should also address flaws in their education systems and make their tax systems more growth-friendly, to mention just a few of the challenges. While all these measures are important, the benefits of some will take longer to materialise than those of others. Although the effects of product and labour market reforms are generally not immediate, they tend to feed through more quickly than the dividends of, say, improving the education system.[20]

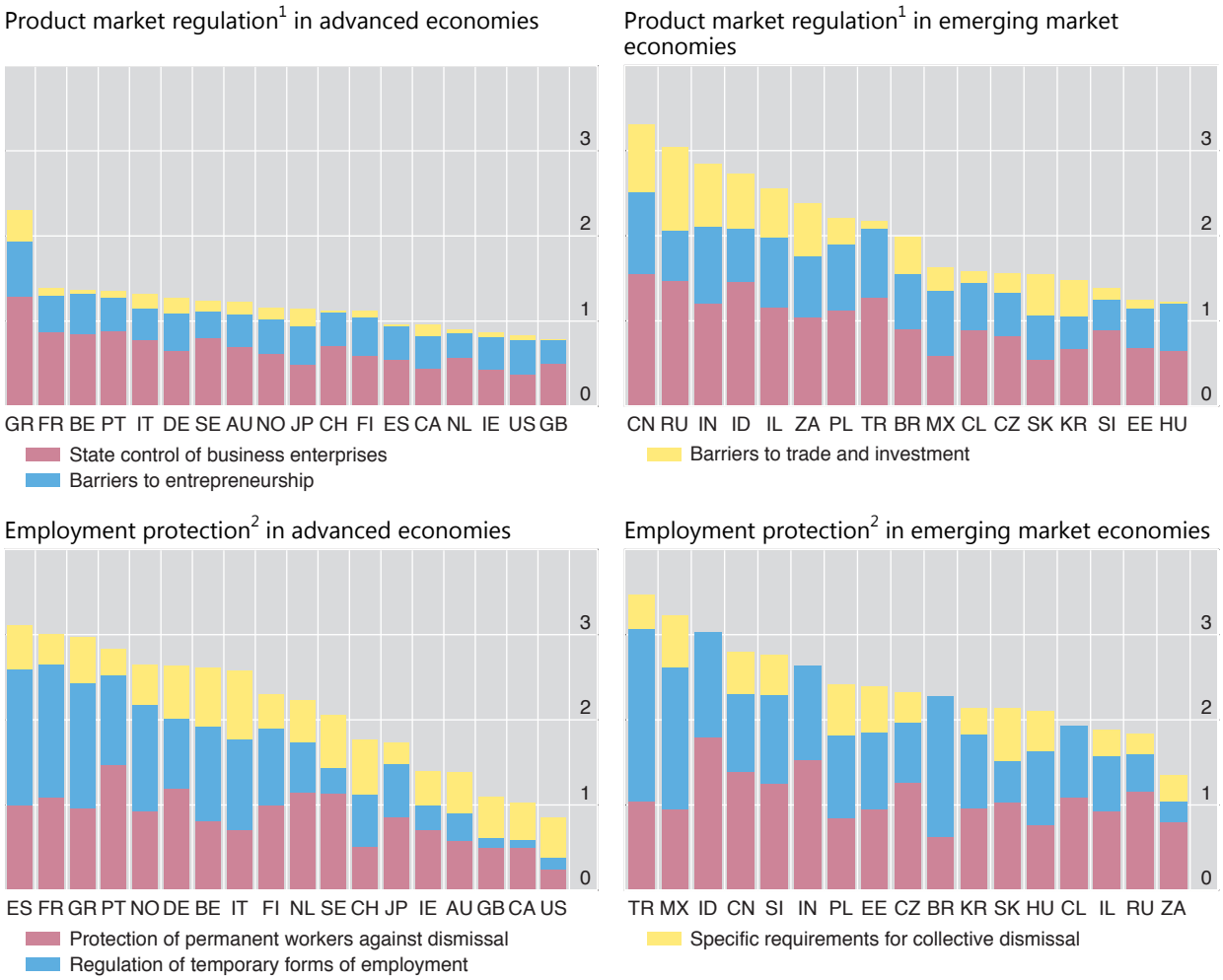
Conclusions

Given the evident benefits of liberalising product and labour markets, why are such rigidities still in place? One answer is that reforms produce losers as well as winners. Indeed, members of a small group may have more to lose than those of a larger one stand to gain from, say, lower prices. Another objection is that reforms could make things worse in the short run, particularly if undertaken in bad times. Ideally, the argument goes, reforms should be carried out in good times. Relaxing

[20] R Bouis, O Causa, L Demmou, R Duval and A Zdzienicka, "The short-term effects of structural reforms: an empirical analysis", OECD, *Economics Department Working Papers*, no 949, March 2012, find that some structural reforms can raise the level of GDP or employment in a matter of a few years.

Structural rigidities

Graph III.7



AU = Australia; BE = Belgium; BR = Brazil; CA = Canada; CH = Switzerland; CL = Chile; CN = China; CZ = Czech Republic; DE = Germany; EE = Estonia; ES = Spain; FI = Finland; FR = France; GB = United Kingdom; GR = Greece; HU = Hungary; ID = Indonesia; IE = Ireland; IL = Israel; IN = India; IT = Italy; JP = Japan; KR = Korea; MX = Mexico; NL = Netherlands; NO = Norway; PL = Poland; PT = Portugal; RU = Russia; SE = Sweden; SI = Slovenia; SK = Slovakia; TR = Turkey; US = United States, ZA = South Africa.

[1] See footnote 1 in Graph III.5. [2] See footnote 4 in Graph III.5.

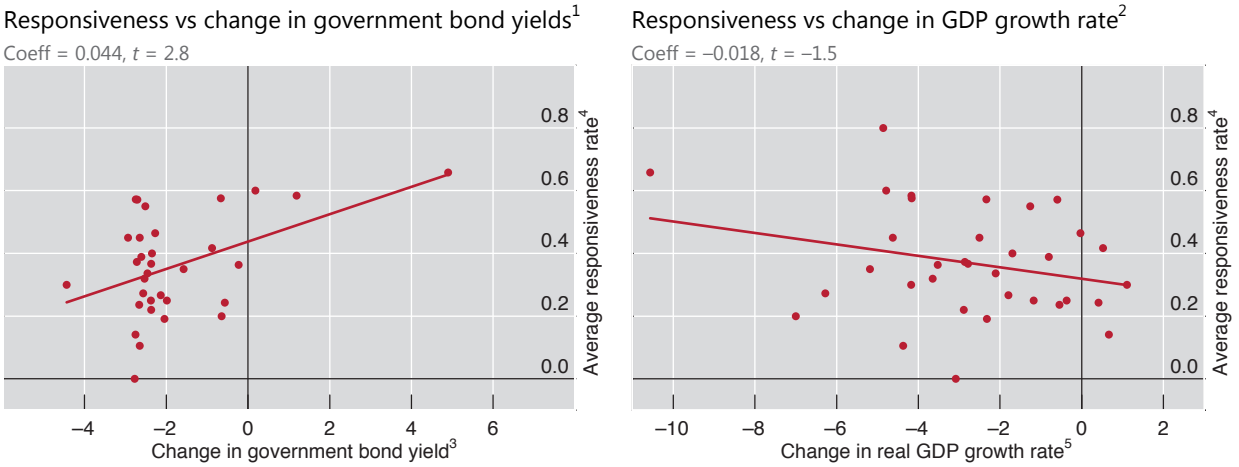
Source: OECD.

employment regulations when growth is slow, for instance, could lead to further job losses in the short term. Yet there are reasons to believe that such an argument does not always hold. First, when an economy faces the need for adjustment, maintaining labour market protection may not prevent massive layoffs.[21] Second, this argument does not apply to product market reform. Product market liberalisation can be a useful tool in propelling growth, especially in bad times. Liberalising entry into regulated sectors, for instance, can be a significant source of investment and job creation. All this suggests that it is critical to implement labour and product market reforms without delay.

[21] A similar analysis to that presented above suggests that, when sectoral imbalances are large, any relationship between employment protection and the increase in unemployment during a downturn is dissolved. This may sound surprising, but the intuition is clear: when firms go bankrupt, regulations that protect jobs become moot.

Market pressure and reform intensity in OECD economies

Graph III.8



[1] The regression coefficient becomes 0.042, t = 1.8 without Greece in the sample. [2] The regression coefficient becomes –0.01, t = –0.7 without Greece in the sample. [3] Difference in the 10-year government bond yield between the 2001–07 average and the latest observation (31 May 2013), in percentage points. [4] Average rate of responsiveness to recommendations in the 2009–10 and 2011–12 issues of the OECD *Going for Growth* report. The reform responsiveness rate indicator is based on a scoring system in which recommendations set in the previous issue of the report take a value of one if "significant" action has been taken and zero if not. [5] Annual growth rate between 2011 and 2012 minus average annual growth rate between 2001 and 2007, in percentage points.

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

But such arguments rarely get much of a hearing. Rather, it seems, policymakers act only when their hand is forced. Taking as a rough gauge for reforms the number of measures implemented in response to the two latest OECD *Going for Growth* assessments, it was the countries that faced the most intense market pressures that pushed through the most reforms.[22] For instance, countries that benefited less from the decline in yields (or where yields went up) in recent years have usually implemented more reforms than countries facing less pressure (Graph III.8, left-hand panel).[23] Similarly, countries experiencing a sharper slowdown in economic activity reformed more than those where growth held up better (right-hand panel), although here the correlation is weaker.

That countries tend to start liberalising only when compelled to is unfortunate. Although some reforms may take effect relatively quickly, others require time and additional measures to smooth their path. Reforms are therefore best undertaken sooner rather than later. For instance, as our analysis indicates, the countries that went through a housing and credit boom would surely have been better off today if they had taken a bolder, swifter approach to labour and product market reforms.

[22] In its assessments, the OECD uses a combination of quantitative indicators and judgment to identify the five areas with the greatest need for action.

[23] The correlation remains statistically significant if we exclude the main outlier (Greece).

IV. Fiscal sustainability: where do we stand?

Six years after the onset of the global financial crisis, public debt in most advanced economies has reached levels unprecedented in peacetime. And, worryingly, it continues to rise. But the crisis has only made an already bad situation worse. In 2007, public debt was already at historical highs in many advanced economies, having trended upwards more or less continuously since the mid-1970s. Even worse, official debt statistics understate the true scale of the fiscal problems faced by many economies, as governments have made promises that imply major increases in pension and health care spending over the coming decades.

Since 2010, there has been uneven progress in consolidating public finances. In economies facing heavy market pressure, fiscal consolidation efforts have been substantial and have helped to stabilise financial conditions. In others, especially those that have continued to enjoy very low interest rates, progress in closing current deficits as well as in tackling unfunded liabilities has been slower. In these economies, the needed fiscal adjustment remains large and could swell further if long-term interest rates rise from their current ultra-low levels.

Most emerging market economies (EMEs) are in better shape than advanced economies. A stronger recovery has helped them to reduce their deficits. Yet their fiscal situations may appear rosier than they actually are. In several cases, budget positions may have benefited from strong credit growth as well as surging asset and commodity prices. Furthermore, public spending on pensions and health care is expected to rise substantially in some economies. Governments in emerging market economies therefore need to remain fiscally prudent and ensure the funding of future age-related liabilities.

In this chapter, we take stock of the progress that advanced and emerging market economies have made in consolidating their public finances. After reviewing the changes in deficits and debt that have occurred since 2009, we discuss how much consolidation is still needed to ensure fiscal sustainability. Then we assess the potential impact that a rise in interest rates could have on public debt trajectories in several economies that are currently experiencing low long-term interest rates. Following this, we discuss whether calls for slower or more back-loaded fiscal adjustment are justified. Finally, we stress the crucial importance of the quality, or composition, of fiscal adjustment in enhancing long-term growth.

Progress to date

In 2010, advanced economies began to shrink their deficits, which had risen sharply soon after the onset of the financial crisis. For most countries, headline deficits peaked in 2009 at between 5 and 16% of GDP. They have narrowed since, and by the end of 2013 are expected to be roughly 2 to 12 percentage points below their peaks.

The underlying primary balance (the cyclically adjusted balance net of interest expenses and one-offs) may provide a more accurate picture of fiscal progress than do headline deficits.[1] In the short term, fiscal tightening lessens output growth. At

[1] The underlying primary balance is still an imperfect measure, as it is based on an estimate of the output gap, which is inevitably unreliable. While the short-run negative impact of fiscal consolidation on growth will fade out over time, part of what is judged to be cyclical may turn out to be more persistent or structural. If the belief is that the size of negative output gaps is overestimated, then true fiscal progress would be overestimated too.

the same time, the level of interest payments may not immediately reflect improvements brought about by fiscal consolidation. Based on the underlying primary balance as a measure and using 2009 as a baseline, advanced economies are expected to have improved their balances by an average of almost 4 percentage points (1 point per year) by end-2013.

But progress has not been uniform across advanced economies. The largest adjustment has taken place in economies facing financial market pressures. Among the countries under EU-IMF financial support programmes, Greece is expected to have improved its underlying primary balance by almost 17 percentage points of potential GDP by the end of 2013, while Ireland and Portugal are expected to have improved theirs by 7.3 and 6.8 points, respectively. As for countries whose governments still enjoy financial market access, Spain's underlying primary balance will have improved by 8.3 percentage points and Italy's by 5.1 points (Table IV.1). By contrast, the pace of adjustment has been slower in those countries where market pressures have been less intense. Within the euro area, France will have raised its underlying primary balance by 4.9 percentage points, while the figures for the Netherlands, Austria and Belgium are 3.5, 2.4 and 2.3 points, respectively.

Progress has also been slower in countries where interest rates are currently below historical averages – due in large part to central bank bond purchases and safe haven capital inflows. By end-2013, the United Kingdom and the United States will have improved their underlying primary balances by 3.3 and 4.8 percentage points of potential GDP, respectively, since 2009. Only Japan has experienced a deterioration of its underlying primary balance, partly due to post-earthquake rebuilding efforts. In view of a projected 2013 headline deficit that exceeds 10% of GDP, restoring Japan's fiscal health remains a huge challenge (Table IV.1).

In most advanced economies, the current episode resembles previous periods of large fiscal adjustment in terms of the pace of consolidation. In these past episodes, the median improvement in the underlying primary balance was roughly 1 percentage point per year.[2] Nevertheless, current efforts fall short in many countries considering the size of deficits and the scale of adjustment needed.

General government gross debt is expected to continue increasing in numerous advanced economies. In 2013, it is projected to be close to 230% of GDP in Japan; over 180% in Greece; over 140% in Italy and Portugal; close to 130% in Ireland; around 110% in the United States, the United Kingdom and France; and near 100% in Belgium and Spain. By contrast, it is projected to be below 90% and close to stabilising in Canada and Germany (Table IV.1).

Adjusting debt figures to account for government assets changes the picture in a few cases. Net government debt is much lower than gross government debt in Japan, but remains at 145% of GDP, while in Canada it is almost 50 percentage points lower. However, the difference is significantly smaller in most other economies. Moreover, due to the difficulty involved in determining the value of some financial assets held by the public sector (eg shares in government-controlled companies), net debt is a more uncertain measure than gross debt.

Current fiscal balances and government debt levels suggest that emerging market economies are in better fiscal shape than advanced economies. Many EMEs entered the most recent global recession with lower deficit and debt levels than in previous episodes. And thanks to a sharp rebound in output growth and favourable

[2] See eg H Blöchliger, D Song and D Sutherland, "Fiscal consolidation: part 4. Case studies of large fiscal consolidation episodes", OECD, *Economics Department Working Papers*, no 935, February 2012. See also BIS, *80th Annual Report*, June 2010, Table V.2.

Fiscal positions[1]

Table IV.1

	Overall balance[2]			Underlying government primary balance[3]			Gross debt[2]		
	2009	2013	Change	2009	2013	Change	2009	2013	Change
Advanced economies									
Austria	–4.1	–2.3	1.8	–1.4	1.1	2.4	74	87	12.6
Belgium	–5.6	–2.6	3.1	–0.9	1.4	2.3	100	105	4.9
Canada	–4.8	–2.9	1.9	–3.0	–2.0	0.9	82	85	3.6
France	–7.6	–4.0	3.6	–4.6	0.3	4.9	91	114	22.2
Germany	–3.1	–0.2	2.9	0.7	1.4	0.7	77	88	10.4
Greece	–15.6	–4.1	11.5	–11.4	5.5	16.9	138	184	45.4
Ireland	–13.9	–7.5	6.4	–7.7	–0.5	7.3	71	129	58.7
Italy	–5.4	–3.0	2.5	0.3	5.4	5.1	130	144	13.5
Japan	–8.8	–10.3	–1.4	–7.0	–8.5	–1.6	189	228	39.7
Netherlands	–5.6	–3.7	1.9	–3.5	–0.1	3.5	68	84	16.6
Portugal	–10.2	–6.4	3.8	–4.9	1.8	6.8	94	143	48.9
Spain	–11.2	–6.9	4.3	–8.1	0.3	8.3	63	98	34.9
Sweden	–1.0	–1.6	–0.6	1.9	–0.2	–2.1	52	53	0.5
United Kingdom	–10.8	–7.1	3.8	–7.6	–4.3	3.3	72	109	37.1
United States	–11.9	–5.4	6.6	–7.9	–3.1	4.8	89	109	20.3
Emerging market economies									
Brazil	–3.1	–1.2	1.9	2.8	3.3	0.4	67	67	0.2
China	–3.1	–2.1	0.9	–2.2	–0.3	1.9	18	21	3.6
India	–10.1	–8.3	1.8	–5.8	–4.3	1.5	75	66	–8.6
Indonesia	–1.8	–2.8	–1.1	–0.0	–1.4	–1.4	29	24	–5.0
Korea	–1.1	1.4	2.5	–1.0	0.8	1.8	34	35	1.5
Malaysia	–6.2	–4.0	2.1	–4.0	–2.1	1.9	53	56	3.2
Mexico	–4.7	–3.1	1.6	–1.2	–0.5	0.7	45	44	–1.0
South Africa	–5.5	–4.8	0.8	–2.8	–1.5	1.3	31	43	11.4
Thailand	–3.2	–2.7	0.5	–1.4	–2.5	–1.1	45	46	0.7

[1] For the general government. [2] As a percentage of GDP. OECD estimates for advanced economies and Korea, otherwise IMF. [3] As a percentage of potential GDP; excluding net interest payments. OECD estimates for advanced economies and Korea, otherwise IMF. OECD estimates are adjusted for the cycle and for one-off transactions, and IMF estimates are adjusted for the cycle.

Sources: IMF; OECD.

financing conditions, they saw their headline deficits shrink rapidly in the first two years of the recovery. Debt levels have already fallen in several economies, including India, Indonesia and Mexico (Table IV.1).

However, the adjustments in the fiscal deficits of some EMEs, including India, South Africa and Thailand, have slowed in response to weakening global demand. Debt is now forecast to rise in the next few years in South Africa and Thailand, and is expected to remain at over 66% of GDP in India – an already high level that leaves little margin for manoeuvre in case of unexpected adverse conditions.

Recent favourable developments in the public finances of most EMEs should not breed complacency. Headline budget balances have improved, but remain below pre-crisis levels in several EMEs. Furthermore, fiscal revenues in some EMEs may have benefited so far from an unsustainable boom in credit and asset prices. And some countries may face sizeable hidden liabilities – potential extra debt that would materialise if financial institutions, local governments or other state entities needed to be rescued. Finally, some economies face large increases in pension and health care expenditures over the coming decades.

What is still needed to ensure fiscal sustainability?

Despite recent fiscal consolidation efforts, substantial further improvements in underlying primary balances are needed to ensure sustainability in most advanced economies as well as in several EMEs.

To assess these needs, it is important to determine what level of debt is in fact sustainable. Simply stabilising debt is unlikely to be enough to ensure long-term solvency. With debt having already hit peacetime records in several advanced economies, any unanticipated major event (eg another financial crisis) could lead to a further sharp increase, quickly turning apparently sustainable fiscal positions into unsustainable ones.

Even in the absence of such developments, persistently elevated debt levels may be costly for a number of reasons. First, the higher probability of default or inflationary finance that could follow another large negative shock is likely to increase the risk premia that lenders demand from both sovereigns and the private sector. Second, high debt levels reduce the room for countercyclical policy, rendering the economy more volatile. Furthermore, they raise uncertainty about future taxes and public expenditure, which may make firms and households more reluctant to spend. Finally, persistently higher debt means larger interest payments that might have to be financed by raising distortionary taxes. All of these factors can be a drag on growth.

A number of empirical studies support this conclusion, showing that average growth tends to be lower when gross public debt exceeds about 80% of GDP (see box). Going over this threshold does not automatically reduce growth, but when debt persists above this level it brings an increasing risk of slower trend growth. Given that a buffer is needed to accommodate major shocks, debt targets should be well below that threshold. Although there is no hard and fast rule for selecting debt targets, the calculations that follow assume a safe debt target of 60% of GDP for advanced economies and 40% for EMEs.[3]

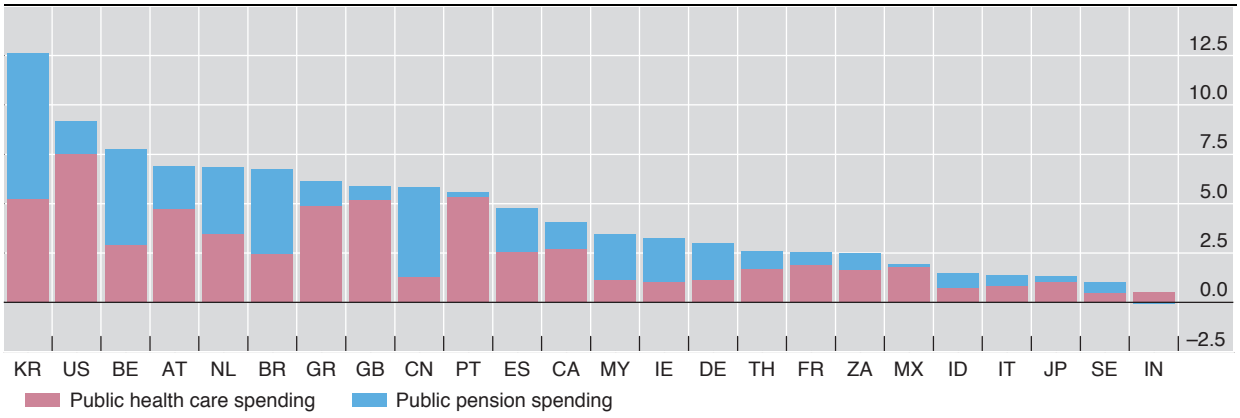
Existing commitments to future spending on pensions and health care that are not reflected in current measures of public debt add to fiscal adjustment needs. Graph IV.1 shows that age-related liabilities as a share of GDP are projected to rise considerably between 2013 and 2040 in a number of countries.[4] Among advanced economies, the greatest increase is anticipated in the United States (over 9 percentage points), with the bulk of that coming from rising health care expenditures. Austria, Belgium, Greece, the Netherlands, Portugal, Spain and the United Kingdom are also set to see large rises (approximately 5–8 percentage

[3] Japan's gross debt target is set at 200% of GDP.

[4] These projections do not take into account reforms enacted after December 2011, and are thus likely to overestimate the expected increases in age-related spending for countries which have legislated reforms since then.

Projected changes in age-related spending, 2013–40[1]

In percentage points of potential GDP — Graph IV.1



AT = Austria; BE = Belgium; BR = Brazil; CA = Canada; CN = China; DE = Germany; ES = Spain; FR = France; GB = United Kingdom; GR = Greece; ID = Indonesia; IE = Ireland; IN = India; IT = Italy; JP = Japan; KR = Korea; MX = Mexico; MY = Malaysia; NL = Netherlands; PT = Portugal; SE = Sweden; TH = Thailand; US = United States; ZA = South Africa.

[1] The 2013 levels of age-related spending represent a linear interpolation between (a) the actual 2010 levels of pension and health care spending and (b) the projected 2015 health care and 2020 pension spending levels.

Sources: B Clements, D Coady, F Eich, S Gupta, A Kangur, B Shang and M Soto, "The challenge of public pension reform in advanced and emerging market economies", IMF, *Occasional Papers*, no 275, January 2013; M Soto, B Shang and D Coady, "New projections of public health spending, 2010–50", in B Clements, D Coady and S Gupta (eds), *The economics of public health care reform in advanced and emerging economies*, April 2012; BIS calculations.

points). Substantial increases are also projected for several EMEs – in particular, Korea (over 12 percentage points), Brazil (about 7 points) and China (about 6 points) – owing mostly to pension expenditure.[5]

Table IV.2 presents estimates of the change in the underlying primary balance that would be needed to bring debt levels down to the above-mentioned targets by 2040. The calculation is based on the following assumptions. First, debt and deficits are projected from the values forecast for the end of 2013. Second, the underlying primary balance improves by 1 percentage point a year until debt is put on a steadily declining path. The required adjustment is then the difference between the 2013 primary balance and the highest required underlying primary surplus during 2014–40. Third, the calculation assumes that the output gap closes over the next five years so that the primary balance converges gradually towards the underlying primary balance over the same period of time. Finally, it is assumed that the debt level itself has no impact on either interest rates or economic growth.

The first column in Table IV.2 reports the required adjustment in the underlying primary balance assuming that age-related spending remains constant as a share of GDP. The second shows how much the underlying primary balance net of age-related spending would have to improve under the assumption that no measures are taken to stem the rise in age-related spending. The third and fourth columns report the same information assuming that the growth-adjusted interest rate gradually converges from current levels to 1% over a five-year period. The estimates presented in these two columns provide a more conservative assessment of the

[5] Fiscal sustainability also depends on liabilities that may materialise if a government needs to rescue private financial institutions or state entities. Unfortunately, scarcity of information makes assessing such liabilities subject to a high degree of uncertainty. Our calculations do not allow for them explicitly, but using conservative debt targets is a way of accounting for them.

Fiscal adjustment needs[1]

In percentage points of potential GDP

Table IV.2

	Growth-adjusted interest rate[2] = 2013 level		Growth-adjusted interest rate[2] = 2013 level converging to 1% over 5 years		*Memo: 2013 growth-adjusted interest rate (%)[2]*
	Excluding ARS[3]	Including ARS[4]	Excluding ARS[3]	Including ARS[4]	
Advanced economies					
Austria	1.0	7.7	0.9	7.6	*1.1*
Belgium	1.8	9.0	1.6	8.8	*1.3*
Canada	4.3	8.1	4.2	8.1	*1.1*
France	3.6	5.4	3.3	5.2	*1.3*
Germany	0.6	3.4	0.6	3.3	*1.1*
Italy	4.2	4.0	2.0	1.9	*4.1*
Japan	13.3	14.9	17.9	19.6	*0.2*
Netherlands	2.4	8.9	2.2	8.8	*1.2*
Spain	7.8	10.4	3.7	7.3	*4.7*
Sweden	0.2	1.3	0.6	1.7	*0.3*
United Kingdom	7.4	13.2	8.5	14.0	*0.2*
United States	4.8	14.1	6.9	16.1	*–1.0*
Emerging market economies					
Brazil	.	5.0	.	4.8	*1.4*
China	.	2.5	.	5.9	*–7.3*
India	3.3	3.7	6.4	6.6	*–5.0*
Indonesia	.	0.2	1.2	2.7	*–5.3*
Korea	.	11.9	.	12.0	*0.7*
Malaysia	2.2	5.6	3.5	6.8	*–1.7*
Mexico	0.1	2.3	1.1	3.2	*–1.2*
South Africa	0.9	3.3	2.1	4.6	*–1.9*
Thailand	1.3	3.9	3.3	5.8	*–3.5*

[1] Adjustment in the underlying primary balance (defined as the difference between the peak in the underlying primary balance during 2014–40 and its projected 2013 level) needed to bring the gross debt-to-GDP ratio to 60% for advanced economies (200% for Japan) and 40% for emerging market economies by 2040. The dots signify that the target debt-to-GDP ratio can be achieved without improvements in the underlying primary balance relative to its 2013 level. [2] Defined as $(1 + r) / (1 + g) - 1$, where r = nominal effective interest rate and g = nominal GDP growth. The nominal effective interest rate in each year is defined as the government interest expense for that year divided by the stock of government debt at the end of the previous year. [3] Not accounting for projected changes in age-related spending (ARS) as a share of GDP. [4] Accounting for projected changes in ARS as a share of GDP.

Sources: IMF; OECD; BIS calculations.

fiscal adjustment needs of countries that currently have low interest rates, and possibly a more realistic one for those that are currently experiencing very high interest rates and low output growth. If the countries in the latter group make progress in their consolidation, their borrowing costs can be expected to diminish somewhat and their growth may pick up over time.

The advanced economies require sizeable fiscal adjustments, especially when projected increases in age-related spending are taken into account. And some of the countries that have so far enjoyed very low long-term interest rates face the largest adjustment needs. In Japan, even under the most benign scenario of current

low growth-adjusted interest rates, and despite a high debt target, the required adjustment in the underlying primary balance is over 13 percentage points of potential GDP.

The United Kingdom needs to improve its underlying primary balance by 7.4 points, and the United States by nearly 5 points (column 1). If no measures are adopted to curb age-related spending (column 2), the United Kingdom and the United States will have to make massive adjustments to the non-age-related portion of their underlying primary budgets (13 and 14 percentage points of GDP, respectively). Given their huge size, it is unlikely that such adjustments will be made, as governments will probably focus on redesigning entitlements.

These adjustment needs are based on current growth-adjusted interest rates. If one assumes that current levels gradually converge to 1%, then the result is more conservative. The necessary adjustment increases by around 2.1 percentage points to 6.9 for the United States, and by over 1 point to 8.5 for the United Kingdom (column 3). If no measures to curtail age-related spending are adopted, the required adjustment would rise to 14.0 and 16.1 percentage points, respectively (column 4).

Significant adjustments are also required in Spain (7.8 percentage points), Canada (4.3 points), Italy (4.2 points) and France (3.6 points) (column 1). In the absence of entitlement reforms, adjustment needs would be a few percentage points higher in all of those countries except for Italy (column 2).[6] The required adjustment in Spain and Italy would be lower (column 3) if their high growth-adjusted interest rates of over 4% (column 5) were to decline.

Other advanced economies (Austria, Belgium and the Netherlands) have generally low adjustment needs if age-related spending is not taken into account. However, without measures to curb projected rises in age-related spending, much larger adjustments (8–9 points) would be necessary.

For many EMEs, low current fiscal deficits imply that a relatively small degree of adjustment is needed when age-related spending is not taken into account (column 1). One notable exception is India, which requires an improvement of over 3 percentage points of GDP. Besides low deficits, fiscal sustainability in many EMEs is facilitated by the fact that their effective interest rates are lower than GDP growth, due in part to less developed financial markets. However, this is unlikely to persist as financial markets develop and become more integrated internationally. Another factor in EMEs' low borrowing costs is the very low interest rates in advanced economies. That said, even under the more conservative assumption of gradual convergence towards a 1% growth-adjusted interest rate, fiscal consolidation requirements remain relatively small in most countries (column 3).

This benign assessment of fiscal conditions in EMEs changes when projected increases in age-related spending are factored in. In this case, Korea will have to improve its underlying primary balance by 12 percentage points, while the challenge for Brazil, China, Malaysia, South Africa and Thailand will be between 4 and 7 points (column 4). To ensure fiscal sustainability, these countries will need to either limit future age-related spending or make room for it by cutting other expenses or raising tax revenues.

[6] Italy's consolidation needs are slightly lower when the projected changes in age-related spending are included, because such spending (as a share of GDP) is forecast to decline at the start of the simulation period before edging upwards.

Is high public debt a drag on growth?

One would expect public debt to be a drag on long-term average GDP growth, for at least three reasons.

First, as debt rises, so do interest payments. And higher debt service means higher taxes and lower productive government expenditure. When a significant share of debt is held by foreigners, fewer resources are available for investment and domestic consumption. More damagingly, the higher tax rates needed to service the higher debt are distortionary, depressing economic activity, and possibly growth, even further.①

Second, as debt rises, so do sovereign risk premia. Economics and politics both put limits on how high tax rates can go. When rates beyond this maximum are required for debt sustainability, a country will be forced to default, either explicitly or through inflation. The probability of hitting such limits increases with the level of debt.② And with higher sovereign risk premia come higher borrowing costs, lower private investment and lower long-term growth.

Third, as debt rises, authorities lose the flexibility to employ countercyclical policies. This results in higher volatility, greater uncertainty and, again, lower growth.

Empirical research confirms this negative link between public debt and trend growth, starting with a contribution by Reinhart and Rogoff (2010).③ The studies fall into two groups: one that investigates the simple, bivariate correlation between debt and growth,④ and another that considers a more complex relationship taking into account differences in population growth, ageing, education, trade openness, financial depth and so on.

To reduce the impact of cyclical fluctuations and focus on the determinants of long-term trends, most of these studies start with multi-year averages of per capita growth rates. The results, summarised in Table IV.A, are consistent and unambiguous: a 10 percentage point increase in the debt-to-GDP ratio is associated with a 13–17 basis point decline in trend per capita GDP growth for debt levels above about 80%. The last study, by Baum et al (2012), covering only euro area countries and including the recent financial crisis, obtains much larger estimates, albeit for a somewhat higher threshold.⑤

Multivariate studies on the effects of debt on growth

Table IV.A

Study	Sample	Threshold	Effect of 10 ppt rise in the debt-to-GDP ratio
Kumar and Woo (2010)[1]	38 advanced and emerging market economies, 1970–2007	90%	–0.17 ppt
Caner, Grennes and Koehler-Geib (2010)[2]	79 advanced and developing economies, 1980–2008	77%	–0.17 ppt
Cecchetti, Mohanty and Zampolli (2011)[3]	18 OECD economies, 1980–2006	84%	–0.13 ppt
Baum, Checherita-Westphal and Rother (2012)[4]	12 euro area economies, 1990–2010	96%	–0.59 ppt

[1] M Kumar and J Woo, "Public debt and growth", *IMF Working Papers*, no WP/10/174, July 2010. [2] M Caner, T Grennes and F Koehler-Geib, "Finding the tipping point – when sovereign debt turns bad", World Bank, *Policy Research Working Papers*, no 5391, July 2010. [3] S Cecchetti, M Mohanty and F Zampolli, "The real effects of debt", in *Achieving maximum long-run growth*, proceedings of the Federal Reserve Bank of Kansas City Jackson Hole symposium, August 2011, pp 145–96. [4] A Baum, C Checherita-Westphal and P Rother, "Debt and growth: new evidence for the euro area", *ECB Working Paper Series*, no 1450, July 2012.

Furthermore, as documented by Reinhart et al (2012),③ public debt overhangs tend to last for many years. Over long stretches of time, rising debt levels cannot be regarded as the outcome of an unpredicted adverse effect such as a recession or a financial crisis. Rather, they must be the outcome of deliberate policy decisions. The question is therefore whether policies that allow debt to rise are sensible. Even if slow growth caused higher debt, this would not make higher debt less dangerous. If slow growth persists and its root causes (which critics would ascribe to factors other than debt itself) are not tackled, then increasing debt further can only be a temporary fix, and at a certain point it will push the economy close to its fiscal limits.

To sum up, there are strong theoretical and empirical reasons for believing that high public debt reduces future trend real growth. And the evidence shows that the impact is sizeable and begins to take hold at about 80% of GDP.

This means that to support strong, sustainable growth, advanced economies must aim for levels well below this threshold. In a number of cases, this means doing more than simply stabilising debt – it means reducing it.

① The effects of taxes on growth are probably non-linear, being larger when taxes are already high. See eg N Jaimovich and S Rebelo, "Non-linear effects of taxation on growth", *NBER Working Papers*, no 18473, October 2012. ② See H Bi and E Leeper, "Analyzing fiscal sustainability", April 2013. See also footnote 7 in the main text. ③ C Reinhart and K Rogoff, "Growth in a time of debt", *American Economic Review*, vol 100, no 2, May 2010, pp 573–78. The original version of this study contains a computation error and excludes data that were not available when the paper was written. However, these problems do not overturn the conclusion that growth is negatively related to debt. Before the problems became known, the paper had already been superseded by C Reinhart, V Reinhart and K Rogoff, "Public debt overhangs: advanced-economy episodes since 1800", *Journal of Economic Perspectives*, vol 26, no 3, June 2012. ④ See eg B Egert, "Public debt, economic growth and nonlinear effects: myth or reality?", OECD, *Economics Department Working Papers*, no 993, October 2012; A Minea and A Parent, "Is high public debt always harmful to economic growth? Reinhart and Rogoff and some complex non-linearities", Association Française de Cliométrie, *Working Papers*, no 8, February 2012. ⑤ See also U Panizza and A Presbitero, "Public debt and economic growth in advanced economies: a survey", *Money and Finance Research Group Working Papers*, no 78, January 2013, which acknowledges the negative relationship but asserts that it might be the result of reverse causation arising from the current high debt levels' being a consequence of expected low future growth.

Interest rates and sustainability

Governments in several major economies currently benefit from historically low funding costs. At the same time, rising debt levels have increased their exposure to higher interest rates. A rise in interest rates without an equal increase in the output growth rate will further undermine fiscal sustainability.[7]

Although predicting when and how a correction in long-term rates will unfold is difficult, it is possible to examine the potential impact on the sustainability of public finances. As the previous section has already shown, the consolidation needs of countries experiencing low interest rates would be greater if their growth-adjusted interest rates were to rise. To further illustrate the risks posed by a normalisation of long-term rates, Graph IV.2 shows the results of a number of simulations of debt-to-GDP ratios in Japan, the United Kingdom and the United States.

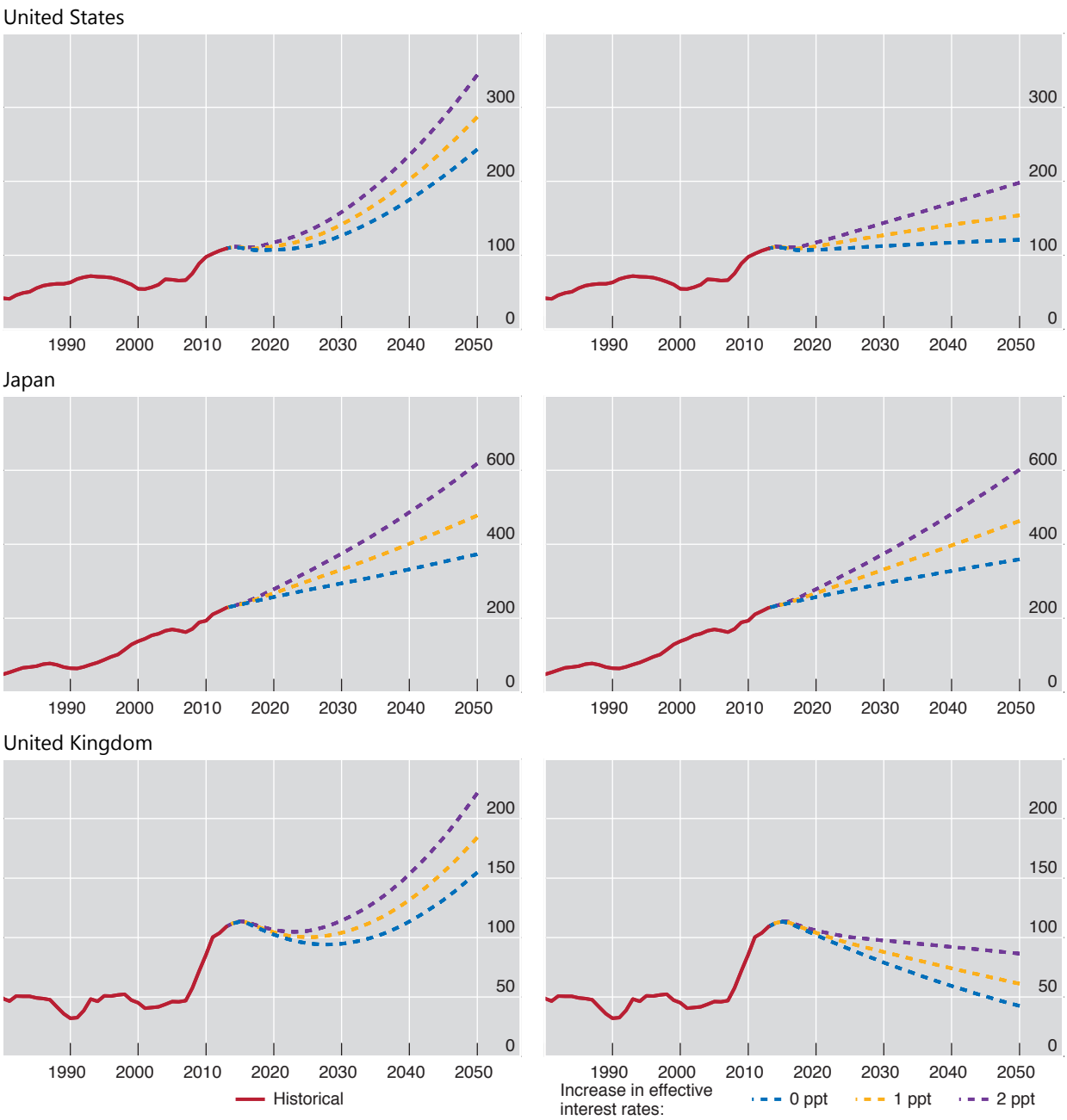
The simulations start with the current forecasts for 2013 debt and budget balance levels, and then make projections on the basis of the following main assumptions. First, the primary balance evolves in conformity with the latest projections by national authorities up to the last full calendar year for which they are available.[8] For subsequent years, the primary balance net of age-related spending remains constant as a share of GDP, so that the evolution of the overall primary balance depends on the projected changes in age-related spending. Second, any increase in interest rates occurs at the beginning of the period covered in the simulation and leads to a gradual increase in the effective interest rate paid on debt. This is because in any given year governments usually refinance only a fraction of their outstanding debt (in addition to any current deficit). For the sake

7 There is some evidence that countries facing public debt in excess of 80% of GDP and persistent current account deficits are vulnerable to adverse interest rate dynamics. See D Greenlaw, J Hamilton, P Hooper and F Mishkin, "Crunch time: fiscal crises and the role of monetary policy", paper prepared for the US Monetary Policy Forum, New York, February 2013.

8 Projections by the Congressional Budget Office (CBO) up to 2022 for the United States, the Cabinet Office up to 2022 for Japan and the Office for Budget Responsibility up to 2017 for the United Kingdom. The CBO reports the primary balance of the central government, whereas the primary balances used in the projections refer to general government. The latter are assumed to change by the same amount as the former in each year in which they are available.

General government debt projections under alternative scenarios

As a percentage of GDP — Graph IV.2



Primary balances are based on OECD projections (for 2013 and 2014) and national source projections (from 2015 to 2022 for the US and Japan and from 2015 to 2017 for the UK). For 2023–50 (for the US and Japan) and 2018–50 (for the UK), revenues and non-age-related spending are kept constant as a share of GDP, while age-related spending is based on projections from the sources cited in Graph IV.1 or held constant at 2022 levels (US and Japan) or 2017 levels (UK). Nominal GDP growth is based on projections from national sources up to 2022 (US and Japan) or 2017 (UK) and is assumed to remain at 2022 values (US and Japan) or 2017 values (UK) until 2050. Nominal effective interest rates from the OECD as defined in Table IV.2 are assumed to remain at their projected 2013 level between 2014 and 2050 or to increase gradually by 1 or 2 percentage points (at an annual rate equal to the inverse of the average remaining maturity of government debt).

Sources: IMF; OECD; Japanese Cabinet Office; UK Office for Budget Responsibility; US Congressional Budget Office; BIS calculations.

of simplicity, we make the crude assumption that the rise in the effective interest rate occurs over a number of years equal to the average maturity of debt outstanding at the start of the simulation period.[9]

The scenarios considered vary based on the size of the effective interest rate increase and on whether age-related spending keeps rising or remains constant (as a share of GDP). Graph IV.2 shows that for the United States a rise in the effective interest rate could have a significant impact on debt trajectories. Two points stand out. First, age-related spending will eventually put debt on an upward path regardless of the interest rate. However, a higher interest rate causes debt to go up much sooner. Second, even if age-related spending stays constant as a share of GDP, current adjustment plans will not stabilise debt under the higher interest rate scenarios.

The simulations show that, under current plans, Japan's debt ratio will also continue to rise. This is despite the fact that the increase in age-related spending is expected to be modest in Japan. Unsurprisingly, the higher the interest rate, the faster debt will increase.

Debt ratios for the United Kingdom are expected to peak in the middle of the decade. Since the outstanding debt has a very long average maturity of approximately 14 years, the three interest rate scenarios yield similar trajectories until the end of the decade. This factor effectively provides some insurance against sharp interest rate rises. That said, if left unchecked, age-related spending will put additional pressure on debt ratios further down the road.[10]

Costs and benefits of fiscal consolidation

Fiscal consolidation has undoubtedly been a drag on growth in the last few years. Moreover, the fact that growth has proved to be weaker than expected in many advanced economies has recently led to calls for a more gradual or back-loaded fiscal adjustment. Critics believe that policymakers have misjudged the adverse effects of consolidation on growth by underestimating the impact of credit constraints on households and firms, overestimating the effectiveness of monetary policy when policy rates are near zero, and failing to account for the synchronous nature of consolidation across countries. Critics also argue that less fiscal consolidation now would leave more time for economies to heal and adjust, and that consolidation will be less costly once growth is strong and self-sustaining.

There are reasons to be sceptical about all these arguments. First, even if the short-term adverse effects of fiscal policy on output (or fiscal multipliers) are somewhat greater than in the pre-crisis period, there is considerable uncertainty about their magnitude and no compelling evidence that they are large enough to render fiscal consolidation more difficult (or actually self-defeating). Instead, the size of the multipliers depends on the credibility and quality of fiscal adjustment (see next section), as well as on accompanying structural policies, including measures to repair the financial system.

[9] The simulations do not account for any feedback effects from debt to growth and interest rates, or for the possible different short- and long-term effects that different paces of consolidation could have on growth and interest rates.

[10] The hypothetical trajectories shown in Graph IV.2 are based on the average maturity of the (unconsolidated) outstanding general government debt. In reality, the average maturity of the consolidated government balance sheet (including both the liabilities issued by the fiscal authority and those issued by the central bank) is shorter on account of the very short maturities of central bank liabilities. Accounting for such shorter maturities would worsen debt trajectories somewhat for a given increase in interest rates.

Second, other factors almost surely contributed to unexpectedly weak growth. Especially in the euro area, investors' worries about fiscal sustainability and liquidity drove up sovereign bond yields, putting a strain on bank and sovereign balance sheets and leading to more restrictive credit conditions. Some countries lost market access and had to borrow from official sources. In these cases, large, front-loaded fiscal consolidation was a necessary remedy without which the loss of output would have been even greater.

Third, larger multipliers do not necessarily undermine the case for an early or relatively fast adjustment. The argument for back-loading or slowing the pace of fiscal consolidation relies on the expectation that fiscal multipliers will decrease in the future or that economic growth will rebound significantly. However, if these expectations do not materialise, shifting the bulk of fiscal consolidation to the future would mean greater debt and higher debt servicing costs, making future adjustment even more costly and prolonged.

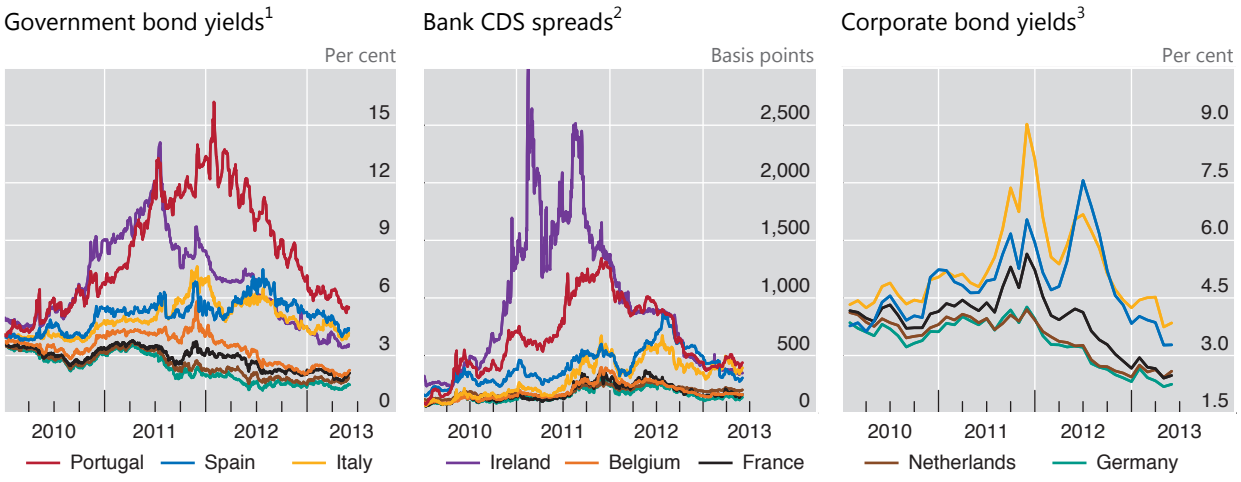
The case for back-loading fiscal adjustment also relies on the credibility of fiscal plans. Current governments will have to make commitments on behalf of future ones. Yet some existing institutional setups and fiscal rules may not be strong enough to effectively tie the hands of future elected policymakers. Furthermore, slower progress in reforming public finances could lead to reform fatigue – the belief that reforms are not delivering the expected results and should therefore be abandoned. Tackling problems early on might be more costly in the short run, but could help ensure that essential reforms are carried out.

Finally, the impact of fiscal consolidation on growth extends beyond the short run. By restoring sound financial conditions, eliminating the risks associated with high debt and reducing the resources needed to service the debt, consolidation will lead to higher sustainable economic growth. As a result, its long-term benefits will more than offset its short-term costs.

For countries that have implemented the largest adjustments, fiscal consolidation has already begun to pay off in the form of improved financial conditions. Within the euro area, Ireland, Italy, Portugal and Spain have seen their sovereign bond yields (Graph IV.3, left-hand panel) and credit default swap (CDS)

Financial conditions in the euro area

Graph IV.3



[1] Ten-year yields. [2] Simple average of senior five-year credit default swap (CDS) spreads for a sample of domestic financial institutions. [3] Market value-weighted average of corporate bond yields.

Sources: Barclays; Markit; national data.

spreads decline substantially over the past year. In Ireland, yields fell from a peak of roughly 14% in mid-2011 to less than 4% at end-May 2013, and the government has been able to return to the market by issuing bonds of various maturities. Portugal has also regained market access recently.

The private sector has also benefited. The CDS spreads of banks and other financial intermediaries have fallen substantially over the past year, leading to sizeable declines in banks' borrowing costs (Graph IV.3, centre panel). Likewise, non-financial corporate bond yields in Italy and Spain have come down considerably from their peaks (right-hand panel).

Certainly, the improvement in broad financial conditions reflects not only the reduction of fiscal deficits but also euro area-wide measures such as the ECB's three-year longer-term refinancing operations (LTROs) and the announcement of the Outright Monetary Transactions (OMTs) facility. Nevertheless, the long-run viability of these programmes ultimately hinges on countries' carrying out the necessary fiscal adjustment. They do not substitute for fiscal consolidation, but complement it.

The quality of fiscal adjustment

The composition of fiscal adjustment is critical for reducing its adverse short-term effects on growth, for enhancing economies' growth potential and for ensuring the ultimate success of large adjustments.

Existing evidence suggests that successful large consolidations generally focus on spending cuts, especially in government consumption and transfers, rather than on tax increases. Expenditures tend to have larger fiscal multipliers than taxes, but lowering them frees resources so that taxes can be cut over time. They also tend to be more difficult to reverse – so reducing them early on strengthens the credibility of overall fiscal plans. By contrast, revenue-based consolidations generally cost less in the short run, but lead to higher distortions and hence lower potential output in the future, unless tax increases start from a low base. Thus, in high-tax countries, tax-based stabilisations are less likely to lead to a lasting reduction of debt ratios.[11]

Levels of taxation and expenditure vary significantly across economies. Over the period 2008–12, the United States had one of the lowest tax burdens (the sum of direct and indirect taxes and social contributions) among the major advanced economies: at 25% of GDP on average, it was about the same as in the early 1960s. The country's latest public consumption figure is also little changed since that time – remaining at around 17%. Transfers, however, have tripled to 15%. Japan also has relatively low taxes, at 29% of GDP. But public consumption has risen from 12% to 21%, while transfers have climbed from 2% to 15%.

Elsewhere, especially in Europe, the tax burden has increased, hand in hand with public debt, government consumption and transfers. It currently stands at 33% in Spain, 36% in Portugal and 37% in the United Kingdom, and has reached roughly 40–46% in France, Germany and Italy. The countries in this last group have less room for further tax increases. While the level and composition of public spending depends on society's preferences, the narrower scope for raising taxes means that several economies would have to focus on cutting spending.[12]

[11] See eg IMF, "From stimulus to consolidation: revenue and expenditure policies in advanced and emerging economies", April 2010; and OECD, "Fiscal consolidation: how much, how fast, and by what means?", *OECD Economic Policy Papers*, no 1, April 2012.

[12] An attempt to estimate the maximum achievable tax rates suggests that some of these countries have little scope to raise taxes further. See M Trabandt and H Uhlig, "How do Laffer curves differ across countries?", *NBER Working Papers*, no 17862, February 2012.

Different items included within aggregate expenditure and revenue may be chosen to minimise the short-term costs of fiscal consolidation and to boost output potential. Property and indirect sales taxes tend to be less distortionary than taxes on labour and capital. Similarly, cuts to social transfers may hurt growth in the short run less than do reductions in public consumption.

Governments can also improve growth prospects through early and more incisive entitlement reform. These measures are meant to yield benefits over many years; but by immediately strengthening fiscal sustainability and market confidence, they may have a welcome effect on the rates of interest paid on debt.

Summing up

Public debt has reached record peacetime levels in many advanced economies. And it continues to rise. Greater debt represents a clear vulnerability for these countries. It leads to higher interest payments and hence higher taxes, and implies less room for countercyclical policy. It also makes investors fret about future inflation or default and hence demand higher risk premia. Fear of default leads to higher borrowing costs for financial institutions that hold government securities and less credit to firms and households.

While progress has been made towards reducing fiscal deficits, many economies still need to increase their primary balances significantly to put their debt on safer, downward trajectories. The success of these efforts relies crucially on measures to curb future increases in pension and health care spending.

Unlike those of advanced economies, debt levels in most emerging markets are stable or falling. Fiscal prudence and efforts to tackle rising age-related spending will ensure that public finances in EMEs remain sound.

V. The road to a more resilient banking sector

The financial system is gradually recovering from the crisis, and banks are moving forward in strengthening their balance sheets, albeit at an uneven pace across countries. The future stability of the system depends on banks' completing this process. It also depends on policymakers' completing the regulatory reform agenda and ensuring its consistent implementation across jurisdictions.

Although bank profits have generally recovered from the low levels of the crisis, earnings capacity is still weak and unreliable in a number of countries. In adapting their business models to the post-crisis environment, successful banks will be those that purge crisis-weakened assets, convincingly repair their balance sheets and establish a reliable earnings base.

The progress to date in regulatory reform is providing the foundations for a more resilient financial system. New standards address gaps identified in the crisis and more general weaknesses in the financial system. Success hinges on rapid implementation, however, and so international standard setters are paying increased attention to progress in individual jurisdictions.

In ensuring systemic stability, the prudential framework must address the increasingly intricate organisation of financial firms, and it must stay abreast of the growing complexities of financial transactions and risk assessment. Policies that simplify the organisational structure of institutions can deal with only one aspect of the problem. A more general and effective approach sets prudential capital and liquidity requirements that are aligned with bank risk.

Given the uncertainties of risk measurement, simple gauges of bank solvency risk used in combination with more elaborate risk-sensitive metrics can improve risk capture. Regulation can also improve risk assessment by setting higher standards of quality for banks' internal risk models. Finally, the supervisory framework can strengthen market discipline by requiring more specific disclosures of the characteristics and performance of those internal models.

Capital, profitability and balance sheet repair

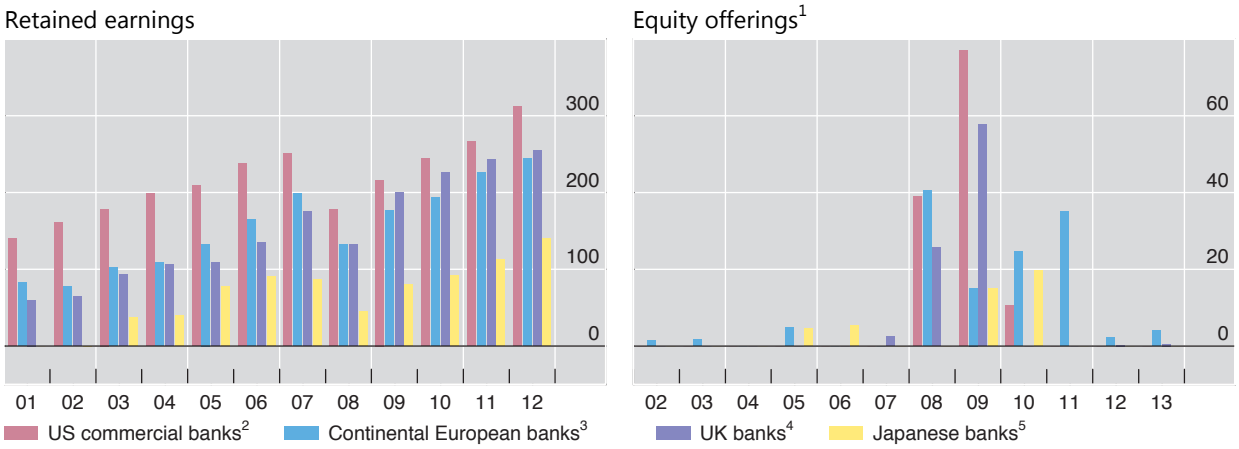
The need to repair balance sheets has dominated banking sector developments in recent years. Banks' financial strength deteriorated abruptly after the prolonged financial boom turned to a bust and the economy entered a balance sheet recession. The disruption to financial intermediation highlighted the need to restore bank solvency and profitability. The repair of banks' balance sheets involves the recognition of legacy losses, the disposal of impaired assets, and the build-up of robust capital buffers supported by a reliable earnings capacity.

Banks have made progress in charging off bad loans, with US banks generally leading their European peers. Uncertainty about asset quality remains a greater concern in Europe. The forthcoming asset quality review and stress tests of European banks will be critical in ensuring completion of the loss recognition and balance sheet repair process, which will also require that appropriate backstops be put in place.

At the same time, banks worldwide have improved their capital ratios at a faster pace than set out in the Basel III phase-in arrangements. In the 12 months to mid-2012, the average Common Equity Tier 1 (CET1) capital of large, internationally

Balance sheet repair

In billions of US dollars — Graph V.1



[1] Total rights offerings. [2] Bank of America, Citigroup, JPMorgan Chase and Wells Fargo. [3] Banco Santander, BNP Paribas, Commerzbank, Credit Suisse, Deutsche Bank, UBS and UniCredit. [4] Barclays, HSBC and Lloyds TSB Group. [5] Mitsubishi UFJ Financial Group, Mizuho Financial Group and Sumitomo Mitsui Financial Group.

Sources: Bloomberg; BIS calculations.

active banks had risen from 7.1% of risk-weighted assets to 8.5%. It was thus considerably higher than the 2019 minimum of 4.5% CET1 plus a 2.5% conservation buffer.

During the same period, banks still below the 2019 benchmark reduced their capital shortfall by almost 60%, to €208.2 billion. That remaining gap is roughly equivalent to half of their collective profits (after tax and before distributions) for the period. For a group of smaller banks, the corresponding capital shortfall was €16 billion, or 70% of the same profit measure.

Retained earnings are at present the main source of capital for banks. A stable earnings environment would be instrumental in closing the gap in required capital before the 2019 deadline. Retained earnings of major global banks have generally risen above pre-crisis levels (Graph V.1, left-hand panel) and have made a major contribution to capital, although in many cases with the help of volatile trading income. By contrast, new capital offerings have played a lesser role (Graph V.1, right-hand panel). In the euro area, sovereign debt problems have been seen as potentially limiting the ability of lenders there to access new capital.

Stable profits will be critical to the resilience of the banking sector. Profits have rebounded from the lows registered during the financial crisis, but recovery remains uneven across countries (Table V.1). In the United States, pre-tax bank profits improved further last year, in large part because of a fall in loan loss provisions. However, the combination of accommodative monetary policy and competitive lending conditions continued to squeeze net interest margins. The profits of banks in China and India increased substantially, owing to higher net interest margins and strong loan growth. In Australia, Canada and Sweden, banks consolidated the gains made in previous years. Profitability in Russia improved mainly because of a sharp drop in loan loss provisions.

Profits in other jurisdictions remained lacklustre. In the euro area, sovereign debt strains compromised asset quality, while a stagnating economy lowered revenues. Non-performing loans increased, especially in Italy and Spain, leading to

Profitability of major banks[1]

As a percentage of total assets — Table V.1

Country[2]	Pre-tax profits			Net interest margin			Loan loss provisions			Operating costs[3]		
	2000–07	2008–11	2012	2000–07	2008–11	2012	2000–07	2008–11	2012	2000–07	2008–11	2012
Australia (4)	1.58	1.07	1.18	1.96	1.81	1.82	0.19	0.33	0.21	1.99	1.20	1.19
Canada (6)	1.03	0.80	1.07	1.74	1.57	1.65	0.24	0.27	0.19	2.73	1.87	1.77
France (4)	0.66	0.29	0.19	0.81	0.96	0.90	0.13	0.26	0.20	1.60	1.10	1.06
Germany (4)	0.26	0.06	0.09	0.68	0.81	0.83	0.18	0.17	0.13	1.38	1.10	1.33
Italy (3)	0.83	–0.03	–0.06	1.69	1.86	1.65	0.40	0.60	0.95	2.27	1.83	1.63
Japan (5)[4]	0.21	0.36	0.56	1.03	0.92	0.84	0.56	0.19	0.07	0.99	0.84	0.75
Spain (3)	1.29	0.94	0.08	2.04	2.31	2.36	0.37	0.81	1.49	2.29	1.58	1.73
Sweden (4)	0.92	0.56	0.68	1.25	0.93	0.92	0.05	0.18	0.09	1.34	0.88	0.81
Switzerland (3)	0.52	–0.05	0.03	0.64	0.52	0.60	0.05	0.06	0.01	2.39	1.82	2.02
United Kingdom (6)	1.09	0.19	0.20	1.75	1.14	1.08	0.31	0.59	0.34	2.02	1.24	1.37
United States (9)	1.74	0.42	0.96	2.71	2.53	2.34	0.45	1.23	0.41	3.58	3.00	3.06
Brazil (3)	2.23	1.61	1.50	6.56	4.77	4.42	1.24	1.42	1.46	6.21	3.79	3.33
China (4)[5]	1.62	1.56	1.83	2.74	2.32	2.39	0.31	0.30	0.25	1.12	1.02	1.01
India (3)[6]	1.26	1.34	1.45	2.67	2.35	2.90	0.88	0.46	0.60	2.48	2.52	2.25
Russia (3)	3.03	1.46	2.39	4.86	4.70	4.09	0.87	1.90	0.36	4.95	2.72	2.78

[1] Values for multi-year periods are simple averages. Cross-country comparisons may be limited by differences in accounting standards. [2] In parentheses, number of banks included in 2012. [3] Includes personnel and other operating costs. [4] Excludes personnel costs; 2012 figures for one of the banks are estimated on the basis of half-year results. [5] Data start in 2007. [6] Data start in 2002.

Sources: Bankscope; BIS calculations.

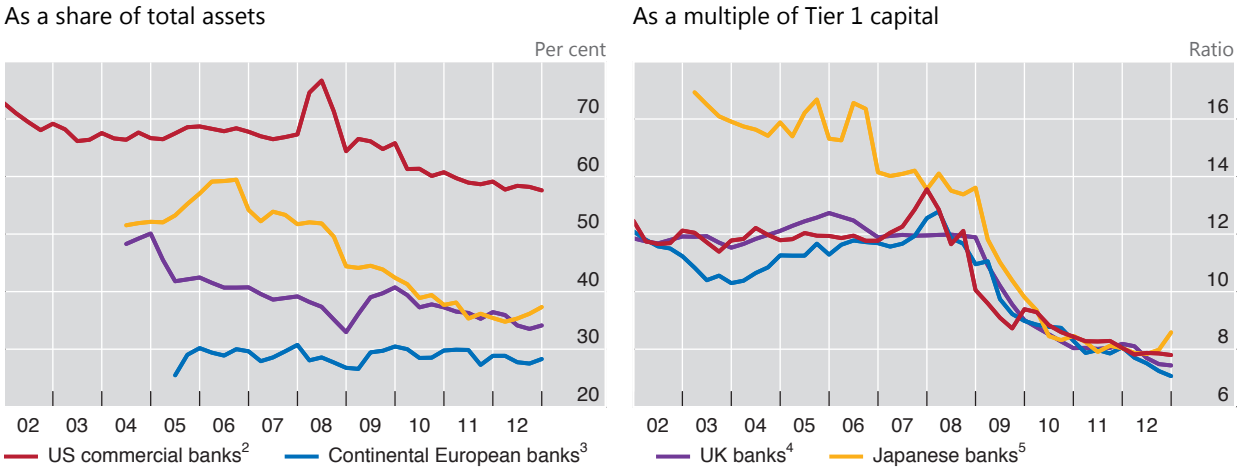
a sharp rise in loan loss provisions. Profits in Brazil continued to slide, in line with larger loan loss provisions and despite lower costs.

Since the onset of the crisis, banks have also been improving their regulatory capital ratios by reducing risk-weighted assets (Graph V.2, left-hand panel) through a combination of divestments and portfolio reallocations. The process broadly stabilised in 2012 for most major banks. Global banks have reportedly sold about $720 billion in assets since the start of 2007, with European banks accounting for more than half that amount.[1] The crisis in the euro area has weighed heavily: European banks have been net sellers of assets, while banks from the United States and other advanced economies have been net buyers. At the same time, banks have increased their holdings of low risk-weight assets, including government-guaranteed debt. By so doing, however, they have become more sensitive to changes in the valuation of government debt.

Moreover, the continued reduction in risk-weighted assets through the post-crisis period suggests that impaired assets have still not been fully recognised. Market commentary has suggested that much of this trend reflects banks' optimisation of risk-weighted assets – the redesign of transactions in order to lower

[1] See eg McKinsey Global Institute, "Financial globalisation: retreat or reset?", *Global Capital Markets 2013*, March.

Risk-weighted assets[1] Graph V.2



[1] Values are averages weighted by total assets. Cross-country comparisons may be limited by differences in accounting standards. [2] Bank of America, Citigroup, JPMorgan Chase and Wells Fargo. [3] Banco Santander, BNP Paribas, Commerzbank, Credit Suisse, Deutsche Bank, UBS and UniCredit. [4] Barclays, HSBC and Lloyds TSB Group. [5] Mitsubishi UFJ Financial Group, Mizuho Financial Group and Sumitomo Mitsui Financial Group.

Sources: Bankscope; Bloomberg; company financial reports; BIS calculations.

capital requirements – rather than a genuine increase in loss absorption capacity. Such window-dressing raises questions about the use of internal risk assessments for the determination of regulatory capital requirements, as discussed below.

The progress in balance sheet repair has also resulted in a steady decline in leverage, especially for those banks that have made considerable progress in the resolution of legacy assets (Graph V.2, right-hand panel). The pressure from regulators and investors has been a key factor in driving leverage down.

Balance sheet restructuring is necessary to improve banks' willingness and ability to provide new lending. By the same token, it lays the basis for a stronger economic recovery. In fact, the cost and availability of credit are more favourable in those jurisdictions where banks have been most successful in rebuilding capital.

Progress with global regulatory financial reform

In 2009, policymakers set an ambitious regulatory reform agenda to address weaknesses highlighted by the financial crisis. They aimed to set the financial sector on more robust foundations and to support sustainable economic growth by reducing the risk of future crises.[2] The agenda includes tightening the requirements for capital and liquidity buffers for banks, improving the resolvability of financial firms, enhancing the transparency and resilience of the infrastructure of the over-the-counter (OTC) derivatives market, and addressing the risks posed by shadow banking, broadly understood as credit intermediation involving entities outside the regular banking system. With many elements of the new standards already in place, emphasis is gradually shifting to monitoring the pace of implementation.

[2] For detailed information on financial reform initiatives involving the BIS, see the chapter "The BIS: mission, activities, governance and financial results".

The Basel III framework, developed by the Basel Committee on Banking Supervision, is a central element of the reform agenda. It sets significantly higher requirements for loss absorption, puts greater emphasis on a higher quality of capital, and better captures the full scope of bank risk. Innovative aspects of the framework include a leverage ratio, a capital overlay for systemically important banks, a countercyclical capital buffer and standards for a liquidity coverage ratio (LCR). The final version of the LCR was published in January 2013.

The LCR promotes the resilience of banks by ensuring that they maintain an adequate stock of high-quality liquid assets to withstand reversals in funding conditions. The LCR requirements are being phased in, like the new capital adequacy requirements, to support the gradual strengthening of the banking system and the supply of finance for economic activity. Work is progressing on other elements, including a net stable funding ratio, the review of trading book rules, the treatment of securitisation, and large exposures.

A globalised banking system will reap the benefits of the framework only through its full, timely and consistent implementation across all jurisdictions. Basel Committee members have agreed to assess both the alignment of national regulations with the Basel III standards and the consistency of the framework's outcomes on banks. The Committee's implementation monitoring programme assesses the timeliness of adoption of Basel III; domestic regulatory consistency; and the consistency of outcomes, including banks' calculations of risk-weighted assets.

Weaknesses in the resolution procedures for banks at the point of failure, especially for those with more complex business models and international operations, significantly increased the costs of the global crisis. Resolution schemes that enable authorities to quickly deal with failing financial institutions would reduce spillovers to the financial system and the exposure of taxpayers to losses. The Financial Stability Board (FSB) provided guidance with its November 2011 publication *Key attributes of effective resolution regimes for financial institutions*. The implementation of the FSB guidance is at an early stage. Many countries still need to adopt legislation to enable the efficient resolution of global systemically important banks and other internationally active banks.

Another major area of regulatory reform focuses on financial market infrastructure. The crisis revealed major shortcomings in the post-trade processing of OTC derivatives, notably the inadequate reporting of transactions and an insufficient collateralisation of bilateral counterparty exposures. Commitments to improve standards in OTC derivatives markets have covered three principal areas. First, the centralised clearing of standardised contracts: robust legal and regulatory frameworks that place a central counterparty (CCP) between transacting parties will reduce interconnectedness across the financial system. Second, mandatory reporting of customised transactions: reporting to trade repositories of transactions not channelled through a CCP will improve transparency in OTC markets. Third, non-centrally cleared contracts: these will be singled out and subjected to more exacting prudential capital requirements.

In 2009, the G20 agreed to implement central clearing and electronic trading of standardised derivatives instruments by the end of 2012. Few jurisdictions have met this deadline, but legislative frameworks are in place in key jurisdictions, and some progress has been made in implementing the necessary standards. Market regulators are developing detailed rules and addressing issues of cross-border consistency and applicability.

The reform agenda is also advancing with regard to applying oversight and regulation to the shadow banking system, which provides financial services that complement those of regulated banks. Reforms focused on banks may spur the

migration of certain financial activities to the shadow banking sector, producing a build-up of systemic vulnerabilities in the form of leverage and liquidity mismatches. The FSB has provided policy recommendations and guidance for further regulatory steps aimed at mitigating this risk. Specific areas include money market funds; banks' exposures to shadow banks; and measures to address risks in repurchase agreements and securities lending.

National initiatives on bank structure regulation

Acting parallel to the international regulatory reform process, a number of individual jurisdictions are implementing or considering initiatives on the regulation of bank structure.

The various initiatives involve different ways of separating commercial banking activities – deposit-taking and credit intermediation in the real economy – from the risks inherent in investment banking (see Box V.A). The initiatives have implications not only for the business models of universal banks but also for the effectiveness of the global prudential framework as they interact with international regulatory standards.

The proposals would protect commercial banking directly by shielding it from losses incurred elsewhere. The structural separation that achieves this shielding can itself provide an indirect form of protection for commercial banks by reducing their complexity and, arguably, also their size. Separation also makes them easier to manage, supervise and resolve, as well as more transparent to outside stakeholders. In addition, structural separation may prevent the aggressive risk-taking culture of investment bankers from infecting the more utility-like business of commercial banking. And it can reduce moral hazard because it prevents public sector support of protected activities (deposit guarantees and central bank lending) from indirectly subsidising other business activities.

Structural reform initiatives are not without challenges. Defining and enforcing the lines that separate commercial and investment banking activities is a notoriously difficult task, and it is rendered more so by an increasingly complex financial marketplace. Another challenge is to avoid an unintended shift of intermediation activities outside the perimeter of consolidated supervision. An open question is how structural reform initiatives would interact with each other. In particular, will national differences in structural regulation complicate the supervision and resolution of internationally active banks? Avoiding that outcome puts a premium on international coordination in order to ensure a level playing field.

Structural banking reforms proposed at the national level differ from international regulation, notably Basel III. The former impose constraints on specific activities, while the latter takes banks' business models and structure as given and sets capital and liquidity requirements that depend on the riskiness of the consolidated group. From this perspective, the two approaches can be seen as complementary. Indeed, certain aspects of structural regulation – restrictions on leverage for ring-fenced institutions – may reinforce elements of Basel III.

However, structural regulation could lead to different capital and liquidity requirements for the core banking and trading entities within a single banking group. Although this may be intended, it complicates regulation at the consolidated level. Hence, there are limits to the substitutability between structural reform regulation on the one hand, and capital and liquidity regulation on the other. Restrictions in bank structure may support the stability of individual firms, but their benefits are less clear for the system as a whole. Buffers that are robust to uncertainty and reflect the complexities in risk assessment can help at the level of both the firm and the system.

Box V.A: Recent proposals for the structural reform of banking

Proposals for changing the structure of banking activities are in varying stages of implementation across jurisdictions. They include the Volcker rule (United States); the proposals of the Vickers Report (United Kingdom); and the Liikanen Report (European Union).① The common rationale of these initiatives is to protect financial stability by shielding core functions of commercial banks from losses related to investment banking and securities markets activities. The initiatives vary, however, in their diagnoses and prescriptions.

A stylised comparison of selected structural reform proposals

Table V.A

	Volcker: institutional separation	Liikanen: subsidiarisation	Vickers: ring-fencing
Permissible activity and structure	Remove certain investment activities from bank holding companies	Proprietary and higher-risk trading activity have to be placed in a separate legal entity	Structural separation of activities via a ring fence for retail banks
Deposit-taking institution			
• deal as principal in securities and derivatives	No	No	No
• invest in hedge funds and private equity	No	No	No
• engage in market-making	Yes	No	No
• provide underwriting	Yes[1]	Yes	Restricted
• hold non-trading exposures to other financial intermediaries	Unrestricted	Unrestricted	Restricted (inside the group)
Holding company with banking and trading subsidiaries	Not permitted	Permitted	Permitted
Geographic scope	Unrestricted	Unrestricted	Limitations on the ability of UK ring-fenced banks to provide services outside the European Economic Area[2]

[1] Underwriting in response to demand from clients and counterparties. [2] The European Economic Area is the European Union plus Iceland, Liechtenstein and Norway.

The Volcker rule considers that certain trading operations are non-core activities and therefore should be kept outside the financial sector safety net. It prohibits proprietary trading by commercial banks and prevents them from investing in or sponsoring hedge funds and private equity funds, even within the same business group. A holding company with a commercial bank subsidiary would not be permitted to also have a trading subsidiary.

The proposals in the Liikanen Report are mainly designed to address the too-big-to-fail problem. The report sees the growing investment banking and wholesale funding activities of universal banks as the root cause of banking system distress. It strives to prevent contagion and cross-subsidisation within banking groups by compartmentalising risk. It recommends placing riskier trading activities in specific subsidiaries within the same holding company, thus improving the resolvability of banking firms.

Like the Volcker rule, the Vickers Report considers core banking activity to be like a public utility – an essential but low-return business that should be shielded from excessive risk. In contrast, however, it proposes ring-fencing of core banking activities and moving trading and underwriting activities to separate entities within the same holding company.

① Draft legislation with similar objectives has been proposed in France and Germany.

Complexity in risk measurement and prudential rules

Policymakers are working to improve consistency in the application of the new, more stringent capital standards. The monitoring of how the regulatory framework is performing in practice has revealed a higher than expected range of variation in risk weights across banks. Observers have suggested that these differences are both systematic and persistent. The range of variation indicates that the interaction of risk-sensitive rules with the complexity of risk modelling has created a wide scope for inconsistency, which can seriously weaken both the credibility and the effectiveness of the framework.

The relevance of the concern and possible remedies depend on the factors that drive this variation in internal risk measurement outcomes. Some factors are inherent in statistical risk modelling; others largely reflect the practicalities of risk measurement and the specifics of implementing the prudential framework. Both types of factors can hinder the ability of outsiders to interpret the predictions of risk models and to understand differences between banks. The response of policy, including the calibration of the balance between risk-based and risk-insensitive elements of the prudential framework, should reflect the relative importance of these factors.

Sources of variability in internal risk models: observability and bias

The calculation of regulatory capital largely depends on banks' internal risk models. However, the outcomes of these models can differ across banks at a given time and within a bank across time for reasons other than changes in underlying risk. The sources of these differences can be classified into five broad categories, which differ in their transparency (their observability by an outsider) and in the extent to which they distort risk measurement in ways detrimental to financial stability.

The first category consists of differences in what risk models actually measure – that is, the risk parameter of interest. For example, in calculating the probability of default, some banks may measure the ability of the borrower to repay in the prevailing macroeconomic environment; others may assess the average ability to repay over the course of the cycle. Likewise, the tail risk in trading portfolios could be estimated under either prevailing or stressed market conditions, and the probability of tail losses can be set at more or less stringent levels. If not clearly flagged, such differences can produce spurious variation in the calculated size of safety buffers across banks and reduce comparability.

The second category consists of more fundamental differences in the structure of the risk models. Models are stylised descriptions of the real world that rely on assumptions and statistical estimation. While some models may be inferior to others, no single model is unambiguously better than the rest. Models based on different assumptions can provide different risk assessments even when applied to the same data. This does not invalidate their outcomes. On the contrary, two models both fully supported by existing evidence can produce two different assessments of risk, and the difference will simply reflect a legitimate diversity in views.

In the absence of a single objective gauge of risk, such diversity is desirable: the ability of market participants to form independent judgments on risk and to base business decisions on those judgments is a key source of market liquidity and systemic resilience. From a financial stability perspective, imposing a single view on risk can be counterproductive, as the market provides a mechanism to balance the views of bulls and bears.

A third category is estimation noise. Statistical noise in the data used to estimate risk models can produce different outcomes even for models that are

Box V.B: Statistical noise in risk estimates

Risk measurement is subject to estimation noise, which can be quite significant when estimation focuses on rare events such as extreme losses in a securities portfolio or the default of a highly rated borrower. The exercise in this box illustrates the potential size of estimation noise in the context of credit exposures. It shows that in some cases noise can be comparable to the size of the underlying risk and that, while it cannot be eliminated, it can be reduced by calibrating the model with data drawn from a longer historical period.

The exercise is deliberately stylised to ensure that statistical noise is the only source of deviation of estimated risk from the true underlying risk. It is akin to the exercise a bank would perform to assess the default risk in a portfolio of similar loans; it does not examine the range of risk variation across the entire credit portfolio of the bank. It also cannot address the issue of how estimates differ across banks without further assumptions about the data that each bank uses to form the estimate of risk.

The bank is assumed to hold a portfolio of 200 loans for a period of one year. The bank knows that the loans are drawn from a distinct larger population, or class, of borrowers with identical characteristics, and in particular with the same probability of default (PD).

Default risk for each loan is driven by two factors, one systematic and the other idiosyncratic, as in Vasicek (2002).① Random variations in the systematic factor affect all loans similarly and cannot be diversified away; by contrast, the impact of the idiosyncratic factor is loan-specific and diversifiable in large portfolios. The relative strength with which the two factors drive risk depends on the correlation of loan performance with the systematic factor: the higher the correlation, the closer the similarities in borrower performance across loans.

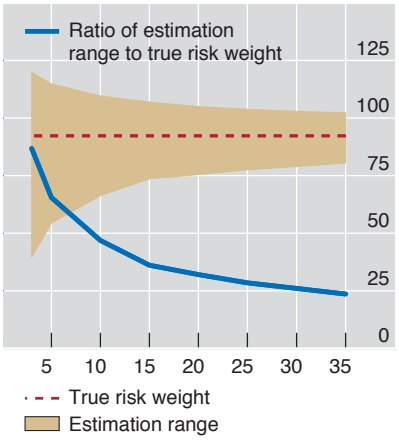
There is no model uncertainty: the bank is assumed to know the underlying model of risk. But there is statistical uncertainty because the model is estimated on the basis of the historical performance of loans of this type. The bank observes the default rate in similar portfolios in previous years. On that basis, it estimates the one-year PD and assigns a risk weight to the exposure according to the Basel framework's internal ratings-based approach for credit risk. The exercise is illustrated across the three panels of Graph V.B, in which the horizontal axis measures the sample size, namely the length of the historical period of loan performance over which the model is calibrated.

In the left-hand panel, *the shaded area* shows the range of estimates of risk weights for this class of loans for different sample sizes. The plotted estimation range excludes the most severe risk weight estimates (top 5%) and the

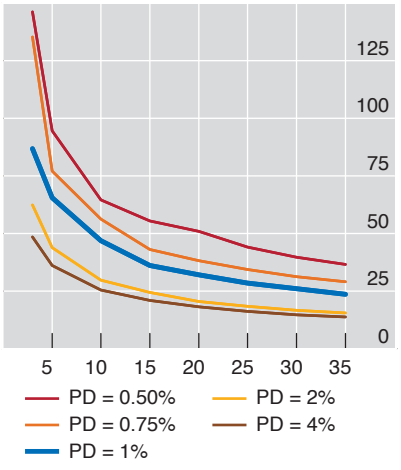
Noise and sample size in estimating risk weights[1]

In per cent — Graph V.B

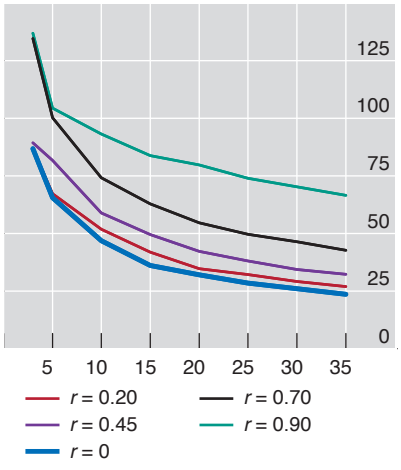
Changing only the sample size (number of years)[2]



Changing the sample size with different probabilities of default[3]



Changing the sample size with different levels of cyclical persistence[4]



[1] Risk weights are computed on the basis of the Basel framework's internal ratings-based approach for credit risk for a given probability of default (PD). [2] Estimation based on cyclical persistence, r (measured as the year-on-year serial correlation of the systematic risk factor) = 0 and PD = 1%. [3] r = 0. [4] PD = 1%.

Source: BIS calculations.

most benign (bottom 5%). The *dashed line* depicts the true underlying risk weight for the class of borrowers that has a PD of 1% and from which the 200 loans were drawn. *The blue line* is the size of estimation noise relative to true risk, calculated as the ratio of the range of the estimated risk weight to the true risk weight, expressed in per cent.

Estimation precision increases with the length of the calibration period (ie the sample size). For the shortest sampling period, the width of the range of risk weight estimates in the left-hand panel is about four fifths of the true risk weight of 92% for a PD = 1%. Lengthening the sample period to about 15 years produces sizeable gains in precision; gains from further increases in sample size are smaller. The remaining two panels show noise curves for similar exercises performed on draws of 200 loans from populations with different characteristics.

The centre panel shows the relative noise measures for separate sets of 200 loans that differ only in terms of the PD of the populations from which they were drawn. At a given sample size, the range of estimates (and hence the statistical noise) increases as the riskiness of the loans declines. This is because the historical performance of higher-quality loans includes more periods with no defaults – periods that are thus not very informative. For instance, with 20 years of historical data, the noise on loans with 1% PD (matching the riskiness of the loans in the left-hand panel and indicated by the blue line) is about one third of the true value of the risk weight for these loans. For the loan portfolio drawn from a population with the lower PD of 0.50% (the uppermost curve in the panel), the noise jumps to 50% of the risk weight. These differences in noise across variations in PD narrow (again, to a progressively lesser extent) as the estimation sample increases.

The right-hand panel shows the effect of drawing loans from populations with varying degrees of cyclical persistence, ie the year-on-year serial correlation of the systematic factor, denoted by r (and with PD = 1%, as in the left-hand panel). If historical samples are not fully random but are strongly influenced by the most recent cyclical experience, they will tend to underestimate risk in good times and overestimate it in bad times; this increases estimation noise with respect to underlying risk. At a given sample size, estimation noise rises with the correlation. And as in the other panels, the level of noise declines with increasing sample length, but to a progressively lesser extent. Taking again the estimates based on a 20-year history, the noise in the most persistent cycle (r = 0.90) is almost three times higher than the noise in the absence of a cyclical effect (the blue line). This suggests that minimum required sample sizes should be much longer in the presence of persistent cycles in credit defaults.

① O Vasicek, "Loan portfolio value," *Risk*, vol 15, December 2002, pp 160–62.

quite similar in structure. Depending on the underlying risk characteristics and the size of the sample used to estimate the model, the magnitude of the range of estimates can match the underlying risk being measured.

Variation due to estimation noise is unavoidable. While the noise can be reduced, for instance through the use of larger samples of historical data, it cannot be eliminated (see Box V.B). This means that the prudential framework must account for this source of variability. Fortunately from the perspective of systemic stability, the noise in statistical estimation is by nature unbiased: deviations across banks and over time tend to cancel out, thus mitigating the impact on system-wide behaviour.

A fourth source of variation in outcomes stems from bankers' incentives, which favour optimistic views on risk and low regulatory capital. The natural entrepreneurial proclivity for risk-taking can inject an optimistic bias in model calibration, as the views of the risk management units may take a back seat to those of the front office. More importantly, banks want to economise on their funding costs. While in theory the mix between debt and equity should not affect the overall cost of funding, in reality a number of distortions make debt cheaper. The tax deductibility of debt costs and the funding advantages from the presence of the safety net are cases in point. In addition, banks have specific incentives to economise on regulatory capital. For any given level of bank capital, the lower the regulatory capital requirement, the less likely it is that the supervisory judgment will constrain business decisions. Moreover, a capital level higher than the regulatory minimum projects an image of a safe and sound bank.

Differences due to strategic choices by banks are unwelcome because they undermine regulatory efforts. Unlike the effect of purely statistical factors such as estimation noise, the effects of which cancel out across banks, management interventions in the models skew risk assessments downwards by understating potential loss. They arguably account, at least in part, for the secular decline in the industry-wide ratio of risk-weighted assets to total assets (Graph V.2).

Finally, variations in model outcomes can reflect supervisors' scope for intervention in setting specific model attributes. For instance, the supervisor-determined multiplier for estimates of market risk can range from 3 to 5.5 times the model outcome and is not always disclosed. Similarly, weaknesses in a bank's process of risk measurement and management, or peculiarities in the local economic environment, can lead supervisors to make compensatory changes in model outcomes. Like definitional differences in models, supervisory interventions that are not transparent can frustrate analysts' ability to compare outcomes across banks and over time.

The discussion above suggests that, in theory, if the contribution of each source of variation could be identified, it should be treated separately according to its effect on financial stability. But detecting a bias in risk measurement is quite difficult in practice. Real-time estimates of future risks always have a strong element of judgment, and there are limits to model validation based on the model's historical track record. True, the requirement that banks use the same model for internal and regulatory purposes aims at limiting the scope for misrepresentation, but it cannot fully address the problem of incentives. And given the absence of objective benchmarks, peer comparison may be of limited help: market participants tend to form similarly optimistic views of the future during a boom, only to be collectively disappointed by the bust.

The risk sensitivity of the prudential framework

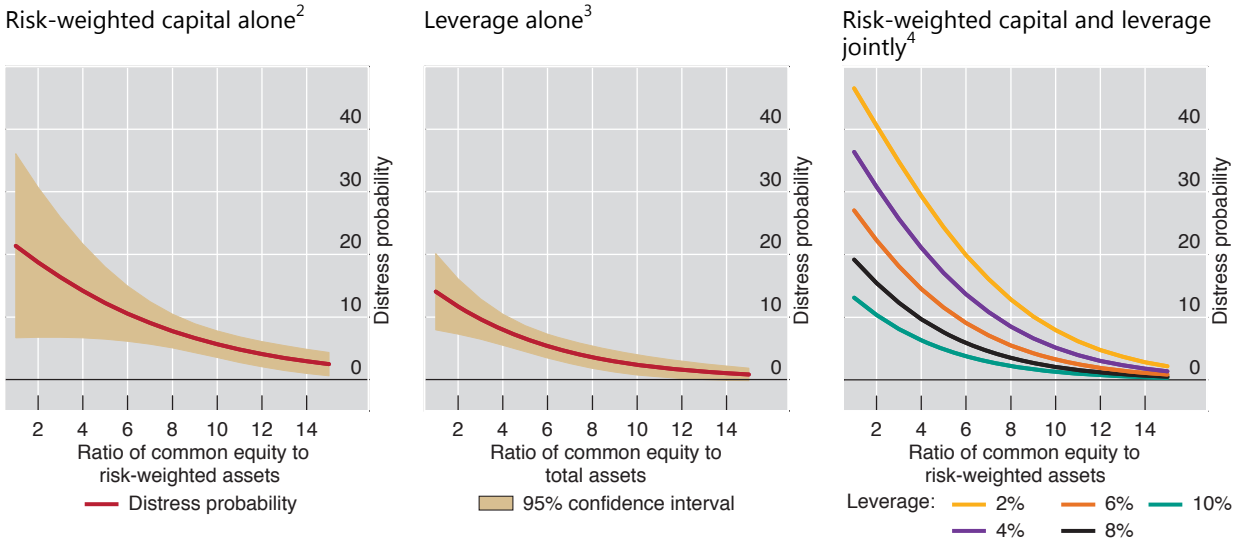
The difficulties of risk measurement raise the question of whether the prudential framework puts too much emphasis on internal measures of risk. Many commentators have argued that minimum prudential requirements should have a less easily manipulated basis, namely the simple ratio of regulatory capital to total assets – the leverage ratio – instead of the ratio of regulatory capital to risk-weighted assets. Indeed, simplicity and transparency are important advantages of the leverage ratio. Nevertheless, the issue hinges on its ability to capture the solvency risk of banks and on how it interacts with incentives.

Risk capture is a key consideration if the prudential framework is to achieve its objective of ensuring a minimum level of solvency for banks. In an ideal world in which risk can be measured objectively and accurately, the minimum ratio of capital to assets will vary across banks depending on their risk profile. In an alternative hypothetical world in which risk measurement is impossible, the prudential requirements will be based on a risk-insensitive metric of solvency such as the leverage ratio. The real world is somewhere between these two ends of the spectrum.

Common equity measured against both risk-weighted and unweighted assets, which are proxies of the corresponding regulatory ratios, can give advance signals of bank weakness (Graph V.3). A low ratio of common equity to risk-weighted assets (CE/RWA) is strongly associated with the likelihood that the bank's operations, net of any external support, will receive a credit rating equivalent to distress or default within one year (left-hand panel). A drop in CE/RWA from 8% to 6% would increase the likelihood of distress from less than 8% to almost 11%; a further drop of the ratio to 4% would boost the distress likelihood to 14%. Since rating agencies'

Signals of banks' distress risk

Estimated probability of distress in one year, in per cent[1] Graph V.3



[1] Estimates based on a logistic regression of an indicator variable denoting a bank's individual rating below D on the variables indicated in each panel, lagged by one year, and a dummy variable to flag observations in the post-2007 period. The sample is an unbalanced panel of annual observations for 66 internationally active banks over the period 2000–12. The vertical axis measures the estimated probability of distress for different values of the explanatory variable. Distress is the likelihood that the bank's operations, net of any external support, will receive a credit rating equivalent to distress or default. [2] Risk-weighted capital is the ratio of common equity to risk-weighted assets. [3] Leverage is the ratio of common equity to total assets. [4] Probability of distress for a given level of risk-weighted capital (horizontal axis) at five different leverage ratios.

Sources: Bankscope; Fitch Ratings; BIS calculations.

assessments of distress and the capitalisation ratios differ from supervisory definitions, these numbers can only be interpreted as being indicative.

The link between the proxy of the leverage ratio – common equity to total (unweighted) assets (CE/TA) – and the likelihood of bank distress shows a similar pattern (Graph V.3, centre panel). A drop in CE/TA (an increase in leverage) from 4% to 2% raises the likelihood of distress from below 8% to almost 12%. In addition, predictions based on the proxy leverage ratio appear more precise than those based on the risk-weighted measure, as evidenced by their narrower confidence band.

Importantly, the two ratios provide signals that are complementary to each other, so when used jointly they improve risk capture, as shown in the right-hand panel of Graph V.3. In particular, the combination of low values for each ratio (a low level of risk-weighted capital and high leverage) shows a much higher likelihood of future distress than does the same low value for each ratio considered separately. For instance, 14% of the banks with common equity equal to 6% of its risk-weighted assets and 4% of its total assets would be in distress within a year's time. This is a higher likelihood than that signalled by either capitalisation ratio in isolation, and it jumps to 30% for the banks with respective proxy capitalisation ratios of 4% and 2%.

Each ratio interacts differently with bank incentives and market discipline. In the ideal world of objective, accurate risk measures, prudential rules based on risk-weighted metrics of solvency deal effectively with bankers' incentives. In the real world, measurement relies on judgment and is subject to estimation noise and model error. Complexity gives rise to uncertainty and distorts the final outcome by providing more room for regulatory arbitrage and optimistic assessments of risk. In

turn, this puts a premium on the ability of supervisors to detect such bias in validating a model, and it strengthens the case for the use of risk-insensitive metrics.

That said, the leverage ratio does not address the problem of incentives because it lumps together positions of very different risk profiles. For a given ratio, banks seeking to minimise regulatory capital can simply reallocate their portfolios towards riskier activities, or shrink their balance sheet without necessarily reducing their potential losses. In order to ensure a minimum level of solvency for all banks, risk-insensitive rules must require higher capital at all banks. Put differently, the simplicity of the leverage ratio improves comparability in the application of prudential rules, but at the cost of not providing information to the market about the underlying risk profile of the bank. Simplicity in this case weakens market discipline.

Policy responses to uncertainty in risk measurement

The policy response to the challenges posed by variability in risk model outcomes must be multifaceted. The overarching objective is to strengthen financial stability by supporting an adequate and credible solvency standard for banks. To fulfil that objective, the policy response needs to seek a balance between several specific but somewhat conflicting goals: enhance the quality of risk measurement in banks by preserving the legitimate diversity of individual firm perspectives; narrow the scope for regulatory arbitrage; and empower market discipline by supporting the ability of outside stakeholders to compare the performance of banks.

The first element of a multifaceted policy response is to strengthen the risk sensitivity of the prudential framework. Somewhat paradoxically, the incorporation of a leverage ratio as an additional element of the framework strengthens its risk capture. As discussed above, harnessing the complementary strengths of the two ratios provides an effective response to the practical and theoretical shortcomings in risk measurement. The argument for a framework that combines the two metrics is also supported by the fact that it is difficult to manipulate one without affecting the other, typically in the opposite direction. For example, an upward shift in portfolio risk might leave the leverage ratio unaffected, but it should increase risk-weighted assets. Conversely, investments in assets with underestimated risk, such as highly rated tranches of collateralised debt obligations prior to the crisis, would increase the denominator of a leverage ratio that incorporates derivatives exposures.

A second facet of the response would be to improve the reliability of internal risk measurement in banks through more stringent requirements for model approval. Tighter requirements can mitigate some of the variability that arises from statistical factors. An obvious example is a minimum length of time over which the model must be estimated, possibly conditioned on whether the sample covers a full credit cycle. Other standards could address the quality of the data and performance when the model is applied to stylised portfolios supplied by the supervisor. More demanding standards of approval also strengthen the confidence of outsiders in model estimates.

A third facet of the policy response is to enhance market discipline by improving outsiders' understanding of risk weight calculations. Doing so requires greater transparency regarding the characteristics of internal models. Greater comparability in the disclosures that banks make about the structure and performance of their internal models will help analysts and outside stakeholders assess the relative strength of banks. Such comparability can be improved with more specific information about the risk measurement technology used by the bank, including its calibration. More importantly, greater standardisation of

information allows outsiders to better compare model performance. This information could include more detailed results of historical performance (comparing model assessments with eventual portfolio performance) and the assessment of the model as applied to standardised portfolios supplied by the supervisor. Greater transparency by supervisors concerning the application of add-ons and multipliers to individual bank outcomes would also work in this direction.

Summing up

Ensuring the stability of an evolving financial system requires continual adaptation by the prudential framework. In response to the crisis, the authorities have tightened prudential rules, and banks are working to meet higher solvency standards. The combined effect of these efforts can make banks more resilient. Banks need to rebuild their franchise on business lines that play to their individual strengths and deliver a steady stream of earnings. Repairing their balance sheets through loss recognition and the build-up of capital are key to future success.

Policy responses to complexity are also important for the overall outcome. Rules that simplify the organisational structure of banks may reduce the complexity at the level of the firm, but their impact on system-wide risk can be ambiguous. This is especially true if national rules take different approaches and result in conflicting requirements for global banks.

Prudential standards that strengthen the capacity of banks to deal with risks represent the most reliable defence against financial instability. Rules requiring ample capital and liquidity buffers that are linked to the underlying risks are key elements of these standards. These rules need to address the complexities of risk measurement in a way that improves transparency and comparability in the financial system. A key step towards that goal is harnessing the mutually reinforcing nature of risk-sensitive and risk-insensitive metrics of solvency. Buffers that are robust to uncertainty and reflect the complexities in risk assessment will enhance the resilience of individual banks and of the financial system as a whole.

VI. Monetary policy at the crossroads

Monetary policy continues to be extraordinarily accommodative as central banks have kept policy rates very low and further expanded their balance sheets. Even though these measures have played an important role in successfully navigating the crisis and its immediate aftermath, concerns are being raised about the declining effectiveness of additional monetary policy actions and the negative side effects of prolonged monetary accommodation. Central banks face several significant challenges as they consider the merits of further accommodation, contemplate the eventual exit and look to the nature of policy frameworks in a more normal environment.

This chapter first reviews recent central bank actions against the backdrop of the trend towards monetary policy activism since the start of the crisis and considers the near-term policy challenges. It then turns to issues associated with the eventual exit from the current policy stance and discusses the longer-term implications of the crisis experience for monetary policy frameworks. The chapter concludes that flexible strategies for a smooth exit and challenging adjustments – albeit not major reforms – to pre-crisis monetary policy frameworks will be important priorities for central banks.

Monetary policy and the crisis

Two major interrelated trends have characterised the conduct of monetary policy over the past five years. First, policy rates in all economic areas have been cut and kept low (Graph VI.1). Most major advanced economy central banks had by early 2009 reduced interest rates all the way to their effective lower bound, where they still are four years later. The Federal Reserve underpinned its low interest rate policy by adopting forward guidance linking the duration of its policy stance to unemployment and inflation objectives. The ECB has kept rates low since early 2009. After raising rates twice in 2011, it subsequently reduced rates, most recently to new lows. In real terms, policy rates in the major advanced economies have not been so persistently negative since the 1970s.

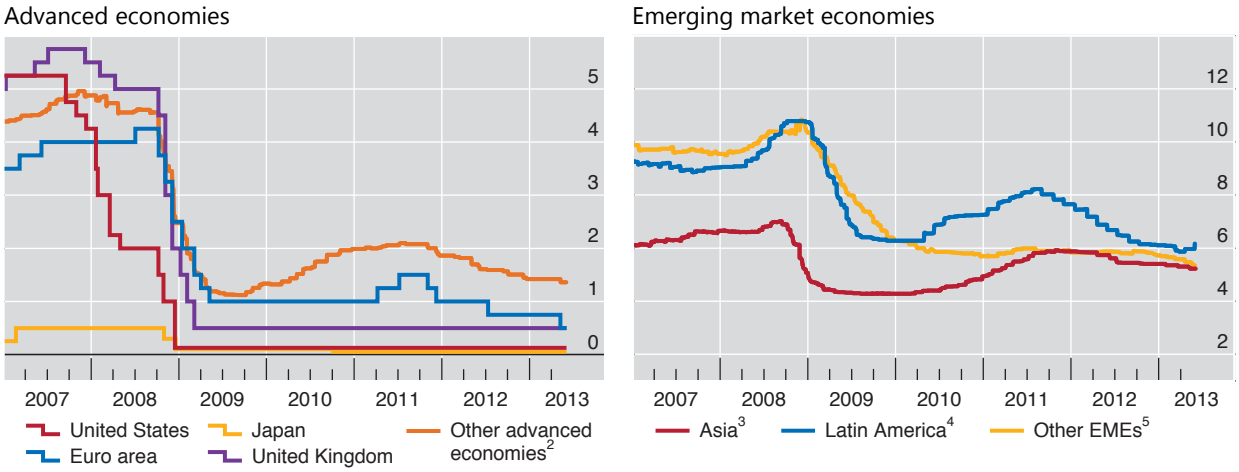
In the other advanced economies and the emerging market economies, policy rates have also trended down (Graph VI.1). While nominal rates have generally been well above their lower bounds, real rates have also been very low, in particular against the background of stronger economic performance and more buoyant asset and credit markets than in the major advanced economies.

The second key monetary policy trend is the massive growth of central bank balance sheets, both in absolute terms and as a percentage of GDP (Graph VI.2). Since late 2007, central bank total assets worldwide have roughly doubled to about $20 trillion, or just over 30% of global GDP. In the emerging Asian economies, central bank assets correspond to more than 50% of GDP, unchanged since the end of 2007 as GDP in this region also expanded strongly over the period. And in Switzerland, the ratio recently reached 85% of GDP as the Swiss National Bank sharply increased its foreign reserves – to roughly $470 billion by the end of 2012 – in defence of its exchange rate floor against the euro.

Along with the expansion of balance sheets, the maturity of central bank assets in the major advanced economies has lengthened markedly, driven by the changing

Policy rates[1]

In per cent — Graph VI.1



[1] Policy rate or closest alternative; for target ranges, the midpoint of the range. Aggregates are weighted averages based on 2005 GDP and PPP exchange rates. [2] Australia, Canada, Denmark, New Zealand, Norway, Sweden and Switzerland. [3] China, Chinese Taipei, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. [4] Argentina, Brazil, Chile, Colombia, Mexico and Peru. [5] Other emerging market economies (EMEs): the Czech Republic, Hungary, Poland, Russia, Saudi Arabia, South Africa and Turkey.

Sources: Bloomberg; Datastream; national data.

nature of unconventional monetary policy measures implemented since 2007 (Graph VI.3). In the early phase of the crisis, central banks stepped up overnight and term funding for financial institutions in order to address tensions in money markets. Subsequently, the Federal Reserve, the Bank of Japan and the Bank of England launched large-scale programmes to purchase longer-term private and public sector debt securities with the aim of providing further monetary stimulus at the effective lower bound by reducing longer-term interest rates.

The ECB has focused on addressing impairments in the euro area monetary transmission process. To this end, the ECB launched additional longer-term refinancing operations (LTROs) and asset purchase programmes targeted at illiquid segments of private and government bond markets. As a consequence, outright securities holdings of the Eurosystem have remained small compared with those of the other three major economy central banks, but the duration of the refinancing operations has lengthened.

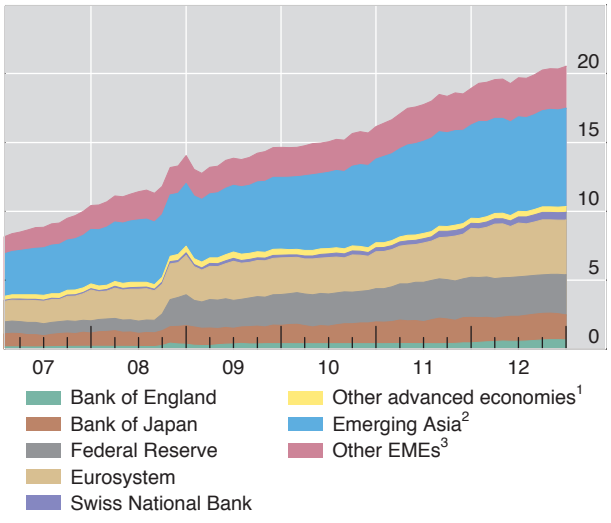
At the current juncture, the four major central banks are pursuing different balance sheet programmes to address the specific economic and financial difficulties they face. The Federal Reserve is operating an open-ended asset purchase programme of $85 billion in monthly purchases, including mortgage-backed securities and Treasuries. This programme, along with forward guidance on policy rates, has pushed the US yield curve down to historical lows in order to boost aggregate demand. The Fed has announced that the pace and eventual size of the programme will be determined by labour market and inflation performance.

The Bank of England's Funding for Lending Scheme (FLS) aims at boosting credit availability to the real economy. It does this, in part, by subsidising the funding costs of financial firms. The extension of the FLS earlier this year reflects some initial signs of success in stimulating lending but also concerns about continued impairment in the monetary transmission mechanism. The extended scheme seeks to increase banks' incentives to lend to small and medium-sized enterprises.

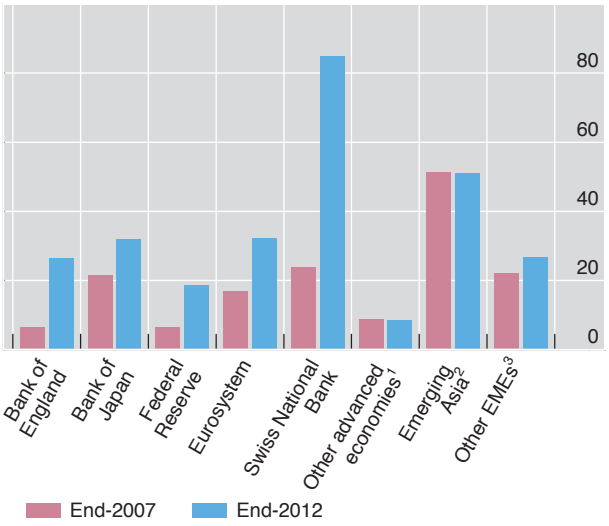
Central bank total assets

Graph VI.2

In trillions of current US dollars



As a percentage of GDP



[1] Australia, Canada, Denmark, New Zealand, Norway and Sweden. [2] China, Chinese Taipei, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. [3] Argentina, Brazil, Chile, Colombia, the Czech Republic, Hungary, Mexico, Peru, Poland, Russia, Saudi Arabia, South Africa and Turkey.

Sources: IMF, *International Financial Statistics*; Datastream; national data.

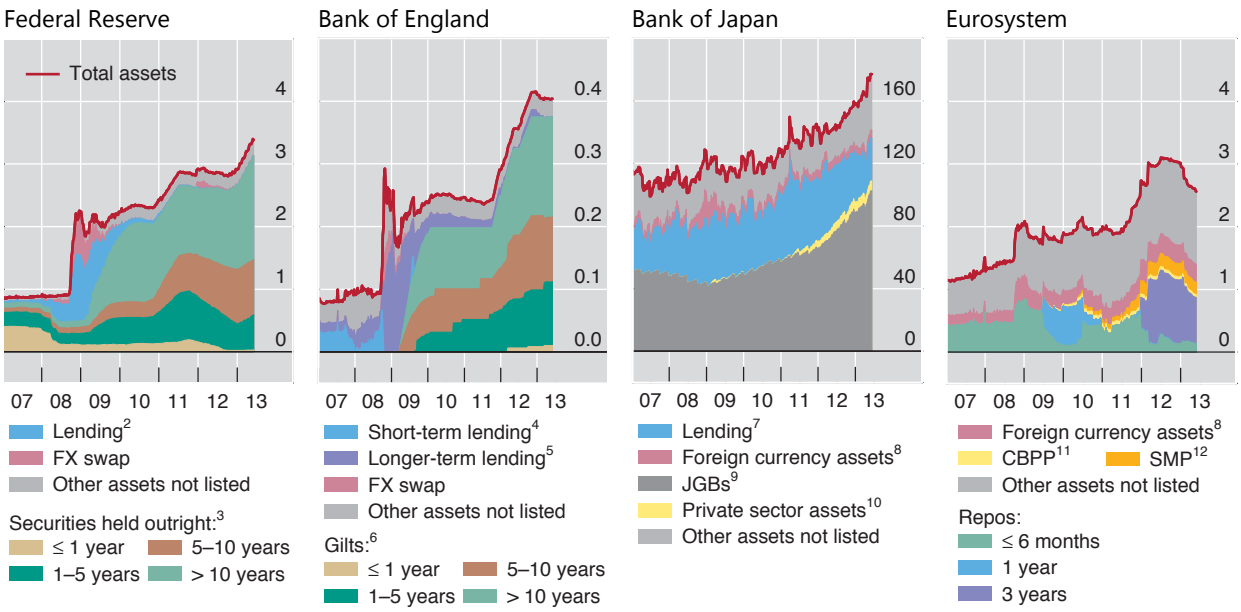
The ECB's Outright Monetary Transactions (OMTs) address redenomination risk in the euro area. By providing a liquidity backstop for sovereign debt markets, OMTs aim at ensuring the integrity of the area-wide monetary policy. The activation of OMTs is conditional on the fulfilment of strict criteria under an appropriate European Financial Stability Facility / European Stability Mechanism programme. OMTs have yet to be formally activated, but their mere establishment has contained downside tail risks in the euro area (see Chapter II).

The Bank of Japan has launched its Quantitative and Qualitative Monetary Easing programme aiming to double the size of its monetary base and the outstanding amounts of Japanese government bonds and exchange-traded funds and more than double the average maturity of its government bond purchases. The programme is part of a broader effort by the Japanese government and the Bank of Japan to overcome deflation and support sustainable growth. The plan includes an increase in the Bank of Japan's price stability target to 2% annual inflation, from its goal of 1% previously; and a shift in the main operating target for money market operations from the uncollateralised call rate to the monetary base. At the time of this Report, according to both market- and survey-based measures, inflation expectations in Japan have drifted upwards, but it is too early to assess the lasting impact of the programme.

Outside the major advanced economies, the increase of central bank assets has been mainly driven by a large-scale accumulation of foreign exchange reserves. Many emerging Asian economies added to their foreign exchange holdings in the wake of the crisis as they leaned against appreciation pressures on their currencies. While the rate of accumulation has slowed down in recent years, the stock of foreign reserve holdings in these economies is large, amounting to more than $5 trillion at the end of 2012, or about half of the world's total stock of foreign reserves (Table II.1). Moreover, these economies now hold reserves in excess of conventional metrics of reserve adequacy.

Central bank balance sheet size and composition[1]

In trillions of respective currency units — Graph VI.3



[1] Bank of England and Federal Reserve: breakdown by remaining maturity; Eurosystem: breakdown of outstanding repo operations by original maturity. [2] Outstanding in repos, term auction facility, other loans and net portfolio holdings of Commercial Paper Funding Facility LLC. [3] US Treasury securities, mortgage-backed securities and agency debt; face value. [4] One-week, other maturity within-maintenance period, and fine-tuning repo operations. [5] Longer-term repo operations. [6] Holdings of the Asset Purchase Facility; proceeds. [7] Receivable under resale agreements and loans excluding those to the Deposit Insurance Corporation. [8] Includes US dollar liquidity auctions. [9] Japanese government bonds. [10] Commercial paper, corporate bonds, exchange-traded funds and listed real estate investment trust securities. [11] Covered bonds held under the Covered Bond Purchase Programme (CBPP) 1 and the CBPP 2. [12] Securities held under the Securities Markets Programme (SMP).

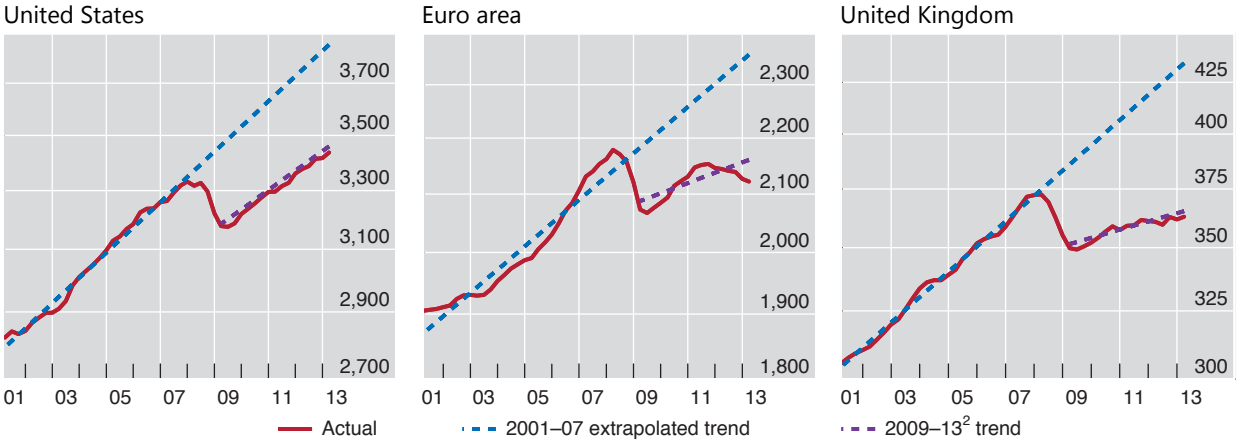
Sources: Datastream; national data.

Taken together, central bank actions since the start of the crisis have played a critical stabilising role, by first offsetting the forces of the financial collapse and then supporting a recovery in the real economy. However, economic activity has remained well below its pre-crisis trends in the United States, the euro area and the United Kingdom (Graph VI.4), and unemployment rates have remained stubbornly high, especially when compared with previous cyclical recoveries. This observation in part explains why central banks have taken further actions over the past year, and why even more radical ideas have been entertained, such as the adoption of nominal GDP targeting and monetisation of fiscal deficits.

Despite having succeeded in containing the crisis, monetary policy has fallen short of original expectations for various reasons. In this regard, it may have been inappropriate to regard the previous trajectory of GDP as a benchmark. At least in the countries at the centre of the financial bust, the sustainable path of GDP has arguably been overestimated. Financial booms tend to conceal structural misallocations of resources; these imbalances are only fully revealed in the subsequent busts and the balance sheet recessions that accompany them (see Chapter III). There is also ample evidence that, in the aftermath of financial crises, the path of potential output shifts downwards. In addition, under these conditions monetary policy is likely to be less effective than usual. In balance sheet recessions, private sector retrenching and an impaired financial sector clog the transmission of monetary policy measures to the real economy. In order to lift growth in a sustainable way, appropriate repair and reform measures are necessary.

Real GDP[1]

Quarterly data, in billions of respective currency units — Graph VI.4



[1] Seasonally adjusted, on a logarithmic scale. [2] First quarter.

Sources: National data; BIS calculations.

Along with the impaired monetary transmission mechanism, there remain concerns that central bank policies may have become less effective at the margin. After all, there are limits to how far interest rates and risk spreads can be compressed. For example, term premia for long-term yields are already highly negative. And as the degree of market segmentation declines compared with the height of the crisis, the portfolio balance channel of large-scale asset purchase programmes may lose some of its force.

At the same time as central bank measures may have become less effective, accommodative monetary policies have produced various side effects, as highlighted in last year's Report.[1] Prolonged low policy rates tend to encourage aggressive risk-taking, the build-up of financial imbalances and distortions in financial market pricing. This environment has also created incentives to delay necessary balance sheet repair and reforms. These incentives have been sending the wrong signals to those fiscal authorities with serious long-term sustainability issues and to those financial institutions which have not gone far enough in recognising losses and increasing capital and have been evergreening loans.

Another significant side effect comes from global monetary policy spillovers. Persistently low interest rates in the major advanced economies have put upward pressure on exchange rates and encouraged destabilising capital flows to faster-growing emerging market economies and several small advanced economies.[2]

1 See BIS, *82nd Annual Report*, June 2012, Chapter IV, for a detailed discussion of the side effects of prolonged monetary accommodation.

2 For more details on the risks arising from global spillovers, see J Caruana, "International monetary policy interactions: challenges and prospects", speech at the CEMLA-SEACEN conference on "The role of central banks in macroeconomic and financial stability: the challenges in an uncertain and volatile world", Punta del Este, Uruguay, 16 November 2012.

Exit strategies

In the years ahead, exiting from the extraordinarily accommodative policy stance will raise significant challenges for central banks. They will need to strike the right balance between the risks of exiting prematurely and the risks associated with delaying exit further. While the former are well understood, it is important not to be complacent about the latter just because they have not yet materialised. And central banks will need to ensure that exit proceeds as smoothly as possible.

The timing and pace of exiting will naturally depend on the individual circumstances in each of the major advanced economies. Evidence of some strengthening of the recoveries earlier this year led markets to expect a somewhat earlier, though not imminent, exit. Forward curves indicate that policy rates are expected to remain at their current very low levels for at least another year and then only gradually pick up, with somewhat different trajectories over time for the four economies (Graph VI.5). Of course, expectations may display discontinuities over time as developments unfold and as perceptions about the effectiveness of each central bank's strategy evolve.

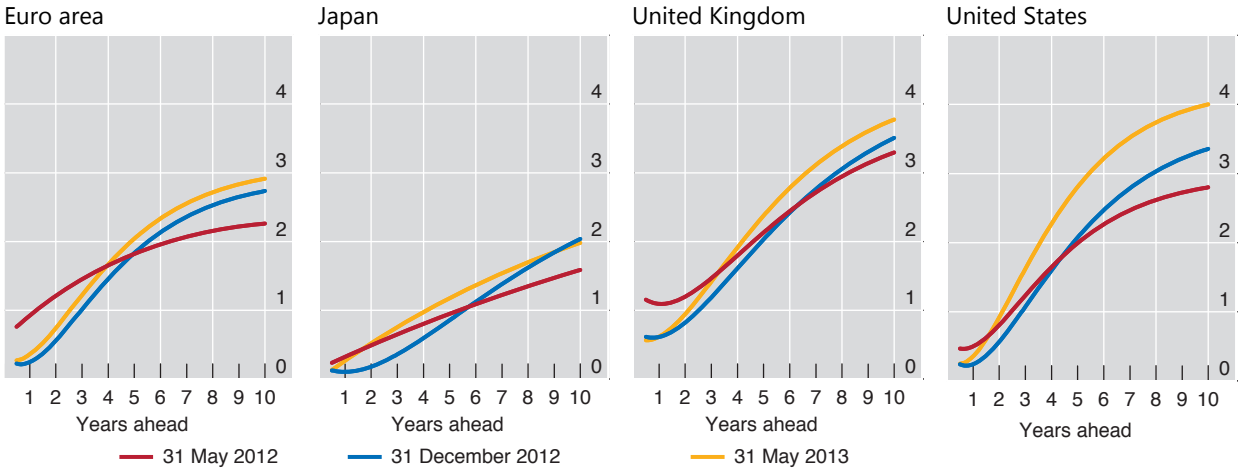
In recent years, central banks have strengthened their operational capabilities to flexibly manage the exit. Indeed, there was once a concern that policy interest rates could not be raised before the large-scale asset purchases were unwound. From a purely technical perspective, however, this is no longer considered a primary issue. Central bank deposit facilities, payment of interest on excess reserves, term repos and other arrangements now offer central banks a wide range of options that allow them to decouple policy rate from balance sheet policy decisions.

Moreover, central bank communication strategies will also be key in this context. The enhanced forward guidance adopted by some central banks in recent years has strengthened the ability to shape private sector expectations in a manner consistent with policy goals.

One cautionary episode that provides a historical benchmark to help calibrate the exit risks is the mid-1990s normalisation of US policy rates. In early 1994, the Federal Reserve raised its policy rate after keeping it unusually low for a considerable

Forward curves[1]

In per cent — Graph VI.5



[1] Instantaneous nominal forward rates derived from the Libor/swap curve.

Sources: Datastream; BIS calculations.

period. The immediate response was a sharp increase in yield curves not just in the United States but around the world.[3]

To be sure, much has changed since 1994. But considerations cut both ways. On the one hand, central banks are now much more transparent about their policy intentions and have gained considerable experience in managing expectations. On the other hand, the context is much more complex. Exit now requires a sequencing of both interest rate increases and the unwinding of balance sheet policies.

In addition, each exit will have to be engineered in an environment of high levels of debt, much of which has been issued at record low interest rates. Open questions remain about how well markets will react to a change in course of monetary policy, not least as central banks have taken on such a large role in key markets. In some cases, for instance, central banks are in effect perceived as the marginal buyer of longer-term bonds; in others, they have provided an ample liquidity backstop and in effect become core intermediaries in interbank markets. These considerations highlight the possibility that disruptive market dynamics could even materialise as soon as central banks signal that an exit is imminent. The risk that exit will be delayed to avoid such disruptions is likely to rise over time, as the situation becomes more entrenched.

This also puts a premium on financial institutions having the capacity to bear interest rate risk. Financial market innovations over time have improved the ability of investors to hedge against interest rate risks. In addition, current efforts in stress-testing balance sheets to a sharp rise in yield curves are important to strengthen readiness. That said, there may be limits to investors' ability to hedge effectively if the transition to higher rates turns out to be particularly abrupt and bumpy. In this situation, counterparty risks are also likely to emerge, as aggregate exposures to interest rate risk cannot be eliminated by such private sector practices. And, with banks holding significant portfolios of long-dated fixed income assets, a sharp rise in interest rates could also raise the risk of financial system stress.

The initiation and subsequent pace of exiting by central banks in the major advanced economies will also have consequences for small advanced as well as emerging market economies. To the extent that the exit in each economy is well timed and smooth, against the backdrop of solid recovery that puts the global economy on a path to balanced and sustainable growth, the outcome would be positive for all. In contrast, an outsize increase in interest rates could lead to volatile capital flows and exchange rates, with corresponding adverse implications for global macroeconomic and financial stability. This suggests that those economies likely to be affected would benefit from strengthening their capital buffers, reducing financial imbalances and increasing the capacity of their policy frameworks to absorb volatility.

Central banks also face various political economy challenges as they consider exiting. History has shown that monetary policy decisions are best when insulated from short-term political expediency considerations; hence the importance of operational autonomy. This applies with particular force in extreme conditions such as those prevailing today. On balance, political economy pressures could make exit harder and work towards delaying it.

There are several reasons for this. First, indebted sectors, be they households, non-financial firms or, indeed, governments, will not welcome an increase in interest rates. To be sure, there is nothing new in this. But with interest rates having been extraordinarily low for so long, the high levels of debt together with the special lending schemes in place are likely to strengthen indebted sectors' reaction,

[3] For a more detailed description of this episode, see BIS, *66th Annual Report*, June 1996, Chapter V.

especially if their expectations and patterns of behaviour have become accustomed to this unusual environment. For instance, it is easy to imagine tensions arising between central banks trying to exit and debt management offices seeking to keep servicing costs low.

Second, central banks' finances could easily come under strain, raising questions about their use of public money, reducing government revenues and possibly even undermining the institutions' financial independence. The public's tolerance for central bank losses may be quite low.

Finally, there may be broader reputational considerations at play. For example, where central banks pay interest on reserves, unless exit is accompanied by a rise in unremunerated reserve requirements, the associated higher transfers to the banks may raise eyebrows among the public and take on a political dimension, particularly if they occur at a time of fiscal consolidation.

All this puts a premium on careful preparation and advance communication and requires that central banks' anti-inflation credentials remain intact. Retaining the flexibility and wherewithal to exit is critical to avoid being overtaken by markets.

The road ahead

While central banks face daunting challenges in the near term and in the eventual exit, they also have to keep an eye on the road ahead. What lessons should be drawn from the crisis for central banks' monetary policy frameworks? Some of these lessons pertain to policy instruments and market operations; others to the more strategic aspects of the frameworks.

In response to the crisis, central banks have widened the range of tools and altered their market operations in order to address sometimes extreme conditions. Should these tools and practices become a permanent feature of the new frameworks?

Some of the issues are rather technical, although they may have significant implications for market functioning. One example is the payment of interest on reserves. This common practice was not available to the Federal Reserve before the crisis and is likely to be retained, as it improves the ability of the central bank to control short-term interest rates. A second, more delicate, point concerns the range of acceptable collateral. This was considerably broadened in crisis-hit countries and is unlikely to be narrowed considerably going forward. That said, central bank choices in this domain will need to balance various considerations, including the availability of high-quality collateral, regulatory reforms and views concerning the appropriate role of central bank liquidity in normal and turbulent times. A third point is what short-term policy rate to target, for example a collateralised or uncollateralised interest rate. This, again, is likely to depend on country-specific circumstances, as it has in the past.

A more general issue is whether central banks should resume operating in the markets so as to influence only a short-term rate. This would mean shelving attempts to influence broader financial conditions more directly through, for instance, large-scale asset purchases or special lending schemes. If so, the short-term policy rate and expectations about its future path would again become *the* mechanism to steer monetary conditions.

While it might be tempting to opt for a broader set of tools, there are good reasons to return to a narrower one. First, while central banks have direct control over the short-term rate, their ability to influence other asset prices, such as long-term government bond yields, can only be assessed within the context of the consolidated government sector balance sheet: what the debt management office

does, for example, matters too. Second, central bank balance sheet measures can easily blur the distinction between monetary and fiscal policies. Third, these measures can also put the central bank's financial strength at risk. All this raises tricky issues concerning coordination with the government and operational autonomy. For these reasons, such tools are best considered suitable for exceptional circumstances only.

Turning to the more strategic aspects of monetary policy, the crisis has not discredited the core elements of pre-crisis frameworks: price stability orientation and independence in central bank decision-making. These features have been essential to achieving low and stable inflation in advanced and emerging market economies alike over past decades and have proved instrumental in anchoring inflation expectations.

However, pre-crisis monetary policy frameworks did not ensure lasting financial and economic stability. In an environment of low and stable inflation, financial imbalances ushered in the most severe crisis since the Great Depression. This experience suggests that there are gains from integrating financial stability considerations more systematically into the conduct of monetary policy, particularly in view of the tendency of economies to generate long-lasting financial booms followed by busts.

Regulatory reform will surely play an important role in mitigating such risks, but it is not sufficient. Significant progress has already been made in the regulatory area (see Chapter V), especially with respect to macroprudential frameworks and tools. These measures will undoubtedly make the financial system more resilient and better able to withstand financial busts. That said, their effectiveness in restraining financial booms is less clear. And regulatory measures can only go so far: some parts of the financial system are difficult to regulate, and over time these measures may lose some of their effectiveness owing to regulatory arbitrage. In the light of these considerations, monetary policy has an important complementary role to play, as the policy rate represents the universal price of leverage in a given currency that cannot be bypassed so easily.

Integrating such financial stability considerations into monetary policy frameworks raises serious analytical challenges. The pre-crisis workhorse macroeconomic models ignored the possibility of financial booms and busts and assigned no meaningful role to the financial sector. Moreover, financial stability analysis at central banks hardly informed monetary policy decisions. Since the crisis, central banks have redoubled efforts to address these deficiencies. Progress has been made with respect to model design, the range of available tools and ways of incorporating their insights into policymaking. The Central Bank of Norway, for example, has recently amended its benchmark policy model to capture the notion that interest rates that are too low for too long can create distortions over time. Even so, the road ahead is still a long one.

These efforts should help inform the adoption of a more symmetrical approach to financial booms and busts than in the past. Over the past 10 to 15 years, central banks appear to have responded asymmetrically to financial stability concerns. In advanced economies, for example, policy rates were slashed aggressively in response to financial headwinds (the LTCM crisis, the bursting of the dotcom bubble and the recent international credit and sovereign financial crisis) but subsequently raised only hesitantly and gradually; this is sometimes referred to as "financial dominance".[4]

[4] See H Hannoun, "Monetary policy in the crisis: testing the limits of monetary policy", speech at the 47th SEACEN Governors' Conference, Seoul, Korea, 13–14 February 2012.

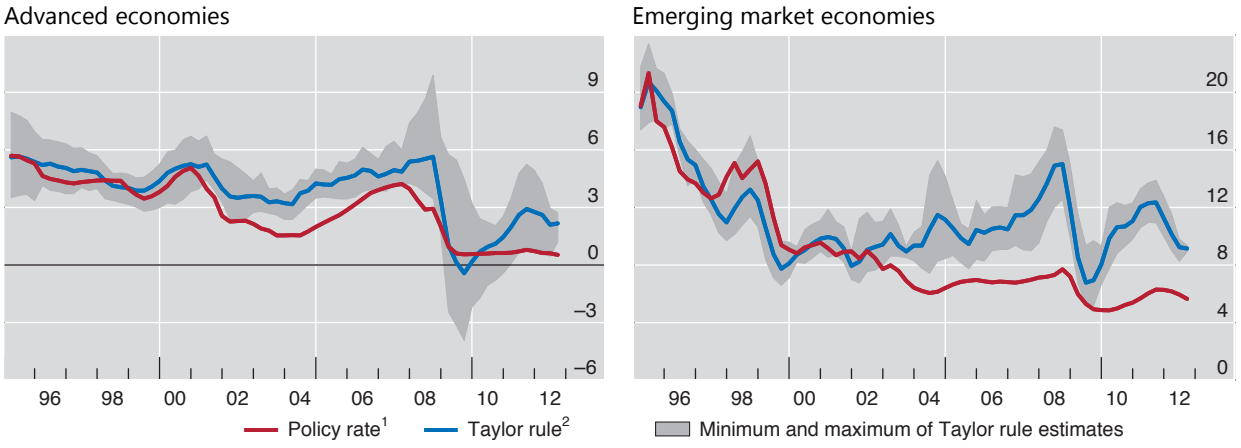
A more symmetrical approach would mean tightening more strongly in booms and easing less aggressively, and less persistently, in busts. Such an approach could help mitigate the risk of a renewed build-up of financial imbalances. In practice, this includes paying more attention to financial stability concerns and extending policy horizons to take account of the fact that the build-up of financial imbalances takes a long time to unfold, often spanning more than one business cycle upswing, as traditionally measured.

The historical interpretation of the past 10 to 15 years is consistent with evidence from a simple Taylor rule that links policy rates in a mechanical way to inflation and the output gap. Estimates suggest that monetary policy in advanced economies has been systematically too accommodative for most of the period since the early 2000s (Graph VI.6, left-hand panel). To be sure, there is considerable uncertainty about a number of inputs in this simple benchmark, not least the longer-term equilibrium level of interest rates. Even so, the benchmark ignores the influence of forward guidance or balance sheet policies, which would make the policy at the current juncture considerably more accommodative. And this evaluation is further supported by signs of rapid credit and property price increases in several economies less affected by the crisis, as highlighted in central banks' own assessments of macroeconomic conditions and confirmed by the activation of macroprudential measures.

These uneven developments across countries shine the spotlight on yet another aspect of policy frameworks: the need for a better appreciation of global monetary policy spillovers in the increasingly globalised world. The recent crisis has underscored their importance. Accommodative monetary conditions played a role in boosting vulnerabilities globally. Unusually low policy rates in the major advanced economies were transmitted to the rest of the world in part by the resistance of emerging market economies to exchange rate appreciation and capital flow pressures. Graph VI.6 (right-hand panel) shows that many emerging market

The Taylor rule and policy rates

In per cent — Graph VI.6



[1] Weighted average based on 2005 GDP and PPP exchange rates. Advanced economies: Australia, Canada, Denmark, the euro area, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States. Emerging market economies: Argentina, Brazil, China, Chinese Taipei, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Poland, Singapore, South Africa and Thailand. [2] See B Hofmann and B Bogdanova, "Taylor rules and monetary policy: a global 'Great Deviation'?", *BIS Quarterly Review*, September 2012, pp 37–49.

Sources: IMF, *International Financial Statistics* and *World Economic Outlook*; Bloomberg; CEIC; Consensus Economics; Datastream; national data; BIS calculations.

economies kept interest rates lower than would have been suggested by domestic macroeconomic conditions (ie as implied by a simple Taylor rule). These economies also intervened heavily in foreign exchange markets. Taken together, this policy response amplified the global credit and asset price boom prior to the crisis.

The recent build-up of financial imbalances in a number of emerging market and small advanced economies indicates that this mechanism may be at work again. This does not necessarily mean that central banks need to coordinate their policies more closely than in the past. Rather, it suggests that central banks, at a minimum, may benefit from putting more weight on the global side effects and feedbacks that arise from their individual monetary policy decisions. This is in each central bank's own interest, especially if the spillovers have the potential to foster financial instability that ends in crisis, with significant global repercussions that swing back to the originating countries.

Summing up

Central banks have become increasingly overburdened, as they have been relied on heavily for years to stimulate economies through very accommodative monetary policies. There are growing concerns at this juncture about the effectiveness of these policies and their negative side effects. Monetary accommodation can only be as effective as the balance sheet, fiscal and structural policies that accompany it.

The eventual exit from current policies also presents first-order challenges, some purely technical and others of a more political economy nature. Tools to manage the exit are in place and have been tested to some extent. But central banks are mindful of the fact that the size and scope of the exit will be unprecedented. This magnifies the uncertainties involved and the risk that it will not be smooth.

Moreover, the longer the current accommodative conditions persist, the bigger the exit challenges become. This puts central banks in a very uncomfortable position and highlights the need to address the economies' underlying balance sheet and structural problems without delay.

The crisis has also reinforced the view that price stability is not enough. That said, efforts to integrate financial stability concerns into monetary policy frameworks are still a challenging work in progress. And at the same time, in a more globalised world, central banks will increasingly need to factor in global policy spillovers.

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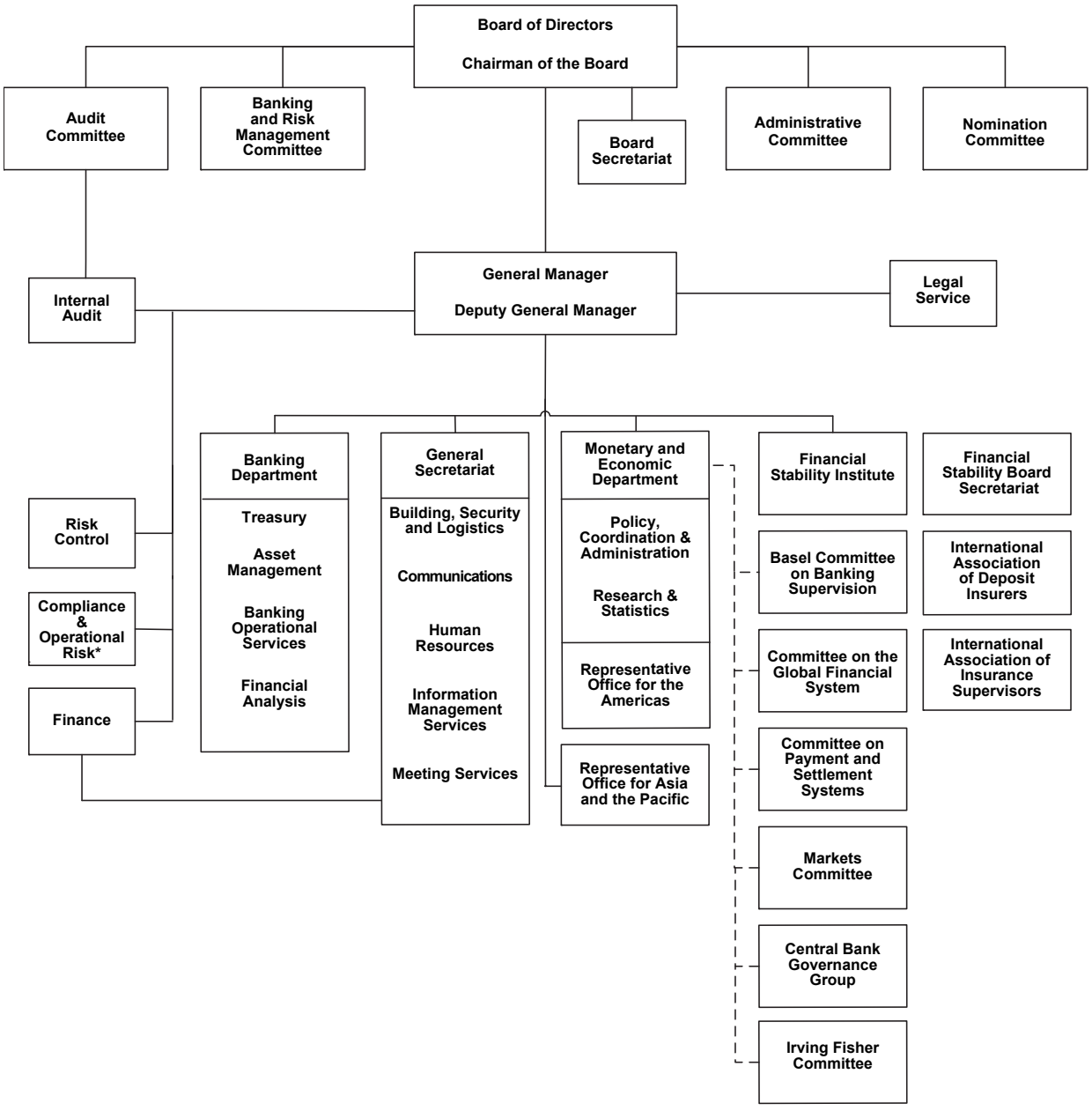


* Direct access to the Audit Committee on compliance matters.

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 2012/13; describes the institutional framework that supports the work of those groups; 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 among monetary authorities and financial supervisory officials through its meetings programmes 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 authorities and international standard setters to strengthen the financial sector; and to work with international institutions to address threats to global financial stability.

The BIS research and statistics function helps meet 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 cooperation among financial and monetary officials 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 of 30 BIS member central banks in major advanced and emerging market economies that account for about four fifths of global GDP. The Governors of another 19 central banks attend the GEM as observers.[1] 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.

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 to discuss selected topics of general interest to its members. In 2012/13, the topics discussed were:

- Reform of the over-the-counter (OTC) derivatives markets: progress and open issues
- Collateral scarcity: assessment and implications
- How big and how global should the financial system be?
- Making the European monetary union (presentation by guest speaker Harold James)
- Structural bank regulation initiatives: approaches and implications

Two other groups – the Central Bank Governance Group, which also meets during the bimonthly meetings, and the Irving Fisher Committee on Central Bank Statistics – have a broader membership than the GEM, and hence, by agreement with the GEM and the BIS Board, the All Governors' Meeting is responsible for overseeing their work.

Other regular consultations

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

[1] 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.

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. In its January 2013 meeting, the GHOS unanimously endorsed the Basel Committee's proposed revisions to the liquidity coverage ratio (LCR), a key element of the Basel regulatory framework; and it reaffirmed its support of the other component of the global liquidity regime, the net stable funding ratio (NSFR), while directing the Committee to review it over the next two years. The GHOS endorsed the Committee's medium-term work agenda – assessing the comparability of model-based internal risk weightings; and considering the appropriate balance to be struck among simplicity, comparability and risk sensitivity in reforming the regulatory framework. It also endorsed a new charter for the Committee to improve understanding of the Committee's activities and decision-making processes.

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 annual meetings of the working parties on 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.

In January 2013, the BIS hosted a seminar on sovereign risk, inviting Governors from shareholding banks to hear presentations from policymakers, practitioners and academics. Also scheduled for 2013 are meetings of Governors and senior officials from Africa and other regions and of Governors from Latin America and the Caribbean.

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 (FSB), 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 groups:

- 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 reducing each group's costs of operation through economies of scale, the Basel Process supports a more efficient 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 preventing 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 and by 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 central banks and financial sector supervisory and regulatory agencies.

Activities of BIS-hosted groups in 2012/13

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' policy development work to ensure that it 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;
- collaborates with the IMF to conduct early warning exercises; and
- promotes member jurisdictions' implementation of internationally agreed commitments, standards and policy recommendations through monitoring, peer review and disclosure.

The membership of the FSB consists of senior officials from finance ministries, central banks, and financial regulators and supervisors of 24 countries and territories;[2] senior officials from the European Central Bank (ECB) and the European Commission; and high-level representatives of international financial institutions and international standard-setting bodies and central bank groups.[3]

The FSB, chaired by Mark Carney,[4] operates through Plenary meetings of its membership; the Plenary names the Chair of the FSB and appoints a Steering Committee. The FSB also has four Standing Committees on the following subjects:

- Assessment of Vulnerabilities – chaired by Agustín Carstens, Governor of the Bank of Mexico, who succeeded Jaime Caruana, General Manager of the BIS, as Chair on 31 March 2013;
- Supervisory and Regulatory Cooperation – chaired by Daniel Tarullo, member of the Board of Governors of the Federal Reserve System, who succeeded Adair Turner, Chairman of the UK Financial Services Authority, as Chair on 31 March 2013;
- Standards Implementation – chaired by Ravi Menon, Managing Director of the Monetary Authority of Singapore, who succeeded Tiff Macklem, Senior Deputy Governor of the Bank of Canada, as Chair on 31 March 2013; and
- Budget and Resources – established in November 2012 and chaired by Jens Weidmann, President of the Deutsche Bundesbank.

The Plenary has also established various working groups, which cover a number of technical areas. The work of the FSB is supported by a Secretariat, located at the BIS, comprising a staff of 26.

Plenary meetings were held in May and October 2012 and in January 2013. As detailed below, the FSB was active in a wide range of areas during the year, and

[2] The country members of the G20 plus Hong Kong SAR, the Netherlands, Singapore, Spain and Switzerland.

[3] The international financial institutions are the BIS, IMF, OECD and World Bank. The international standard-setting bodies and central bank groups are the Basel Committee on Banking Supervision, CGFS, CPSS, International Accounting Standards Board, IAIS and the International Organization of Securities Commissions.

[4] Governor of the Bank of Canada until 1 June 2013 and Governor of the Bank of England beginning 1 July 2013.

several policy initiatives approved at the May Plenary meeting were endorsed at the June 2012 Los Cabos Summit of the G20 Leaders.

Early warning exercises

As part of its regular activities, the FSB conducted two early warning exercises, in April and October, 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 macrofinancial vulnerabilities.

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

During 2012, national authorities and international organisations made further progress in implementing the FSB's framework to address the systemic and moral hazard risks associated with SIFIs, which was endorsed by the G20 Leaders at their 2010 Seoul Summit. The framework contains three key elements:

- a resolution framework to ensure that all financial institutions can be quickly resolved without destabilising the financial system and exposing the taxpayer to risk of loss;
- higher loss absorbency capacity to reflect the greater risks to the global financial system; and
- more intensive supervisory oversight for financial institutions that may pose systemic risks.

Resolution of SIFIs. Since the FSB published the *Key attributes of effective resolution regimes for financial institutions* in November 2011 as a new international standard, many jurisdictions have begun reforms to align their resolution regimes with it. The *Key attributes* standard is designed to apply to all types of financial institutions that may be systemically significant if they fail, including not only banks but also insurers, financial market infrastructures (FMIs) and investment firms. The FSB is working with sectoral standard setters to develop guidance on how to apply the *Key attributes* standard to these other types of financial institutions.

During 2012, the FSB began to develop an assessment methodology for the *Key attributes* standard to assist jurisdictions with their implementation and for use both in FSB peer reviews and in IMF and World Bank assessments of national resolution regimes.

The FSB is also preparing guidance on three key aspects of recovery and resolution planning: (i) developing the stress scenarios and triggers for recovery actions that should be used in recovery plans for global SIFIs (G-SIFIs); (ii) developing resolution strategies and associated operational resolution plans tailored to different group structures; and (iii) identifying the critical functions that would need to remain in operation during resolution to maintain systemic stability. Draft guidance was published for consultation in October 2012 and will be finalised in the first half of 2013.

Higher loss absorbency. In November 2012, the FSB published the first annual update to its list of global systemically important banks (G-SIBs), using end-2011 data. The update added two banks and removed three from the initial list of 29 G-SIBs, published in November 2011, thus reducing the total number to 28.

The FSB will continue annual November updates of the list, which is based on a methodology developed by the Basel Committee on Banking Supervision (BCBS). Beginning with the 2012 update, the list assigns each bank to one of the five levels of required additional loss absorbency (additional common equity) for G-SIBs. The levels range from 1% to 3.5% of risk-weighted assets, according to the level of systemic risk posed by the bank. Starting from 2016, the additional loss absorbency will be phased in over three years, initially for those banks in the November 2014 list.[5]

More intensive supervisory oversight. In November 2012, the FSB released its third progress report on intensifying supervisory oversight. It concluded that, to make supervision more proactive and effective, further steps are needed, including commitments by governments to strengthen the official mandates, resources and independence of supervisors in line with standard setters' stated core principles.

Extending the framework. The FSB and standard-setting bodies continue to extend the SIFI framework to additional types of systemically important financial institutions. In 2012, the FSB and the BCBS finalised a principles-based framework for addressing domestic SIBs (D-SIBs), and national authorities will begin to apply requirements to these institutions starting from 2016. The IAIS has issued for public consultation its proposed assessment methodology for identifying global systemically important insurers (G-SIIs), as well as policy measures to be applied to identified G-SIIs. An initial designation of G-SIIs is expected in the first half of 2013. The FSB, in consultation with the International Organization of Securities Commissions (IOSCO), has also been working on the assessment methodology for non-bank, non-insurance G-SIFIs, and a consultation paper is expected in 2013.

Improving the OTC and commodity derivatives markets

The G20 has made commitments to improve the functioning, transparency and oversight of the OTC derivatives market by means of increased standardisation, central clearing, organised platform trading and reporting of all trades to trade repositories. The FSB published progress reports on member jurisdictions' implementation of these agreed reforms in June and October 2012 and April 2013; and it continues to press member jurisdictions to complete the reforms, which were due by end-2012, and to ensure the consistency of implementation across jurisdictions. The FSB's OTC Derivatives Coordination Group, composed of the chairs of the BCBS, CGFS, CPSS, FSB and IOSCO, works to improve the coordination and consistency of these bodies' workstreams that have a bearing on OTC derivatives markets.

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.

[5] The current list is at www.financialstabilityboard.org/publications/r_121031ac.pdf.

In November 2012, the FSB published for consultation an initial set of detailed policy recommendations to mitigate the potential systemic risks associated with shadow banking. The recommendations covered the following objectives:

- mitigate spillovers between the regular banking system and the shadow banking system;
- reduce the susceptibility of money market funds to runs;
- assess and mitigate systemic risks posed by other shadow banking entities;
- assess and align the incentives associated with securitisation; and
- dampen risks and procyclical incentives associated with securities lending and repurchase agreements that may exacerbate funding strains in times of runs.

The FSB will deliver a refined set of recommendations to the September 2013 G20 Summit.

In November 2012, the FSB published its second annual monitoring report on the global shadow banking system, expanding its coverage to include all FSB member jurisdictions. The report assesses risks from the shadow banking system, including innovations and changes that could lead to growing systemic risks and regulatory arbitrage.

Credit ratings

In November 2012, the FSB published a roadmap for work by standard setters and national authorities to accelerate progress in implementing its *Principles for reducing reliance on credit rating agency ratings*, published in October 2010. The goal is twofold: to eliminate mechanistic market reliance on ratings, which is a cause of herding and cliff effects that can amplify procyclicality and cause systemic disruption; and to create incentives for market participants to improve their independent credit risk assessment and due diligence. As part of the roadmap, the FSB has launched a peer review, to be completed in early 2014, of national authorities' actions to achieve these goals.

Addressing data gaps

The global financial crisis highlighted major gaps in information on the large, globally active financial institutions that play a key role in the financial system. The FSB is continuing its project to develop a common data template for G-SIBs that will detail their exposures and funding dependencies by counterparty as well as by market, sector and instrument. Such data would strengthen the information available to authorities on linkages among G-SIBs. Phase 1 of the project, which began in March 2013, will provide national supervisory authorities for G-SIBs and other large banks with common access to improved data on bilateral and aggregate credit exposures through a central hub located at the BIS (see also the discussion of international statistical initiatives in the "Research and statistics" section below). Consideration will be given to progressively expanding the framework with improved data on bilateral funding dependencies (Phase 2) and consolidated balance sheets (Phase 3).

Advancing transparency through the legal entity identifier

At their November 2011 Cannes Summit, the G20 Leaders asked the FSB to recommend a system for uniquely identifying parties to financial transactions worldwide. The FSB recommendations for such a global "legal entity identifier" (LEI) take a global federated approach drawing on local infrastructure and expertise

and were endorsed by the G20 Leaders at their Los Cabos Summit in June 2012. The FSB developed the charter for a Regulatory Oversight Committee (ROC) to oversee the global LEI system. In January 2013, the ROC, comprising approximately 50 regulatory authorities from around the globe, took over leadership of the initiative. The FSB provides a secretariat and administrative support for the ROC.

In cooperation with private sector experts, the ROC is preparing for the establishment of a Central Operating Unit along with Local Operating Units; the latter will act as the primary interface with registrants in the federated global LEI system.

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 International Accounting Standards Board and the United States' Financial Accounting Standards Board to complete their convergence project, and it is monitoring their progress in implementing specific G20 and FSB accounting recommendations. The two accounting boards made further progress in 2012, but work remains ongoing in some key areas of convergence, notably on accounting for financial instruments and insurance contracts, on which the two standard setters will undertake further consultation in 2013.

Enhanced Disclosure Task Force (EDTF)

In May 2012, the FSB encouraged the formation of the EDTF, a private sector initiative to enhance risk disclosure practices by major banks. The EDTF published its principles and recommendations for such disclosures in October 2012, together with examples of good practice. The FSB views the EDTF report as a valuable step towards improving the quality of risk disclosures.

Monitoring implementation and strengthening adherence to international standards

The FSB's Coordination Framework for Implementation Monitoring (CFIM), endorsed by G20 Leaders at their 2011 Cannes Summit, highlights areas in which implementation of reforms is particularly important for global financial stability and ensures that these are subject to more intensive monitoring and detailed reporting. Current priority areas are the Basel II/2.5/III framework; the OTC derivatives market; compensation practices; policy measures for G-SIFIs; resolution frameworks; and shadow banking. Detailed reporting of progress in implementation has already begun in several of these areas, and the FSB will extend and deepen monitoring in 2013. In the area of compensation, the FSB has launched a dedicated Bilateral Complaint Handling Process, a mechanism by which national supervisors from the FSB member jurisdictions can work together to address firms' level playing field concerns.

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. In 2012/13, the FSB completed thematic peer reviews of resolution regimes and financial institutions' risk governance as well as a country peer review of South Africa.

In November 2012, the FSB published a status update on its initiative to promote jurisdictions' adherence to standards for international supervisory and

regulatory cooperation and information exchange. The update covers all jurisdictions evaluated under the initiative, including those identified as non-cooperative.

Mortgage underwriting principles

In April 2012, the FSB published *Principles for sound residential mortgage underwriting practices*. The principles provide a framework within which jurisdictions should define minimum acceptable underwriting standards. The goal is to limit the risks that mortgage markets pose to financial stability and to better safeguard borrowers and investors. Following up on this work, the FSB has planned a workshop for June 2013 regarding commercial real estate underwriting and its regulation and supervision across the FSB membership.

Impact of regulatory reforms on emerging market and developing economies (EMDEs)

In June 2012, the FSB published a study identifying potential unintended consequences for EMDEs stemming from internationally agreed regulatory reforms. As requested by the G20, and in consultation with standard-setting bodies and international financial institutions, the FSB has established a follow-up process for continued monitoring, analysis and reporting of material unintended consequences and measures taken to address them. The FSB also continues to monitor progress made in implementing the recommendations of the October 2011 FSB-IMF-World Bank report on financial stability issues of particular interest to EMDEs.

Financial regulatory factors affecting the availability of long-term finance

In February 2013, the FSB published an assessment of the effect of the G20 financial reform programme on the availability of long-term investment finance. The assessment is part of a broader study of long-term finance by international organisations for the G20. The FSB assessment concluded that, while there may be short-term adjustment effects, the most important contribution of the financial reform programme to long-term investment finance is to rebuild confidence and resilience in the global financial system. Nevertheless, the FSB will continue to monitor the possible effects of regulatory reforms on the supply of long-term financing.

Regional consultative groups

To facilitate its interaction with a wider group of countries, the FSB has established six regional consultative groups that bring together FSB members with 65 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, which typically meet twice a year, discuss vulnerabilities affecting regional and global financial systems and the financial stability initiatives of the FSB and member jurisdictions. Several of the regional bodies have established working groups to study issues relevant to their region and to provide input to the FSB.

FSB capacity, resources and governance

The FSB is taking steps to strengthen its capacity, resources and governance in line with recommendations of a high-level working group endorsed by G20 Leaders at

their 2012 Los Cabos Summit. G20 Leaders also endorsed a revised FSB Charter to reinforce certain elements of the FSB mandate. The FSB was established as an association under Swiss law in January 2013 in order to place it on an enduring organisational footing that includes legal personality and greater financial autonomy while still maintaining strong links with the BIS. The FSB will continue to be hosted by the BIS in Basel, and the two organisations have entered into an agreement that formalises the provision of financial and other resources for the FSB secretariat.

FSB: 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.

Key initiatives

The Basel III framework, a set of global regulatory standards on bank capital adequacy and liquidity that promote a more resilient banking sector, began to come into effect in many jurisdictions at the start of 2013. All Basel Committee member countries have introduced, or are in the process of introducing, the capital adequacy requirements; and the Committee has finalised the liquidity coverage ratio, the first ever global liquidity standard for banks. The Committee continues to develop global regulatory and supervisory standards and to monitor its members' implementation of the Basel framework.

Liquidity

The Committee published its revised liquidity coverage ratio (LCR) after the GHOS endorsed the revisions in January 2013. The LCR ensures that a bank has an adequate stock of unencumbered high-quality liquid assets to meet its cash needs under a liquidity stress scenario covering 30 calendar days. The LCR was first published in December 2010. At that time, the Basel Committee put in place a rigorous process to review the standard and its implications for financial markets, credit extension and economic growth. It committed to address unintended consequences as necessary. The revised LCR will take effect on 1 January 2015 as originally intended, but to ensure that it will not disrupt the ongoing process of strengthening banking systems or the financing of economic activity, the minimum requirement will begin at 60% of the intended ratio and rise by 10 percentage points per year to reach 100% on 1 January 2019.

As a complement to the short-term focus of the LCR, the net stable funding ratio (NSFR) addresses the longer-term structure of bank debt. Due to be introduced in 2018 as a minimum standard, it is intended to limit banks' overreliance on short-term wholesale funding and to promote a sustainable maturity structure for assets

and liabilities. Reviewing the NSFR will be a priority for the Committee over the next two years.

In July 2012, the Committee published the consultative paper *Monitoring indicators for intraday liquidity management*, which reinforces its call for banks to actively manage their intraday liquidity positions and risks so that they can meet their payment and settlement obligations under both normal and stressed conditions. The Committee finalised the guidance in March 2013. The indicators are intended to allow banking supervisors to monitor a bank's management of its intraday liquidity risk; over time, they will also help supervisors better understand banks' management of this risk as well as their payment and settlement behaviour.

Derivatives

The crisis that began in 2007 showed that improved regulation, together with enhanced market transparency, would be necessary to limit excessive and opaque risk-taking through OTC derivatives and to reduce systemic risk posed by OTC derivatives transactions, markets and practices. To that end, the Basel Committee has agreed on reforms to ensure that banks adequately capitalise exposures to counterparty credit risk, whether arising from other banks or from exposures to central counterparties (CCPs). It is also working with other global regulatory bodies to set margining requirements for non-centrally cleared contracts. Completing these reforms in the near term is essential to promote system-wide stability and mitigate the potential for spillover effects on the real economy.

Exposures to central counterparties. In July, the Committee issued an interim standard for the capitalisation of bank exposures to CCPs. The interim standard allows for full implementation of Basel III while recognising that additional work is needed to develop an improved capital framework.

The Committee's framework for capitalising exposures to CCPs builds on *Principles for financial market infrastructures*, released in April 2012 by the CPSS and IOSCO. Those principles are designed to enhance the robustness of the essential infrastructures – including CCPs – supporting global financial markets. The Committee is currently working with the CPSS and IOSCO to develop a final standard that appropriately recognises the enhanced regulatory framework for CCPs while ensuring that risks faced by banks are appropriately capitalised.

Margining requirements on non-centrally cleared derivatives. Margining requirements can help mitigate systemic risk in the derivatives markets. They can also encourage standardisation and promote central clearing by reflecting the generally higher risk of non-centrally cleared derivatives. In July, the Committee in collaboration with IOSCO published a consultative paper setting out high-level principles for margining practices and treatment of collateral and proposing margin requirements for non-centrally cleared derivatives. These principles will apply to all transactions that involve either financial firms or systemically important non-financial entities. A near-final proposal was issued for consultation in February 2013; the Committee and IOSCO expect to finalise the margin requirements later in the year.

To reduce the liquidity impact of the original margin proposal, which included a zero initial margin threshold, the February proposal provides for a universal initial margin threshold of €50 million. The near-final proposals also envisage a gradual phase-in. The requirement to collect and post initial margin on non-centrally cleared trades, to be phased in between 2015 and 2019, will begin with the largest, most active and most systemically risky derivatives market participants.

Core principles for effective banking supervision

The Committee completed its review of its *Core principles for effective banking supervision* and the associated *Core principles methodology* in September, and the resulting revisions were endorsed by banking supervisors at the 2012 International Conference of Banking Supervisors.

The core principles are the de facto standard for sound prudential regulation and supervision of banks and banking systems. Originally issued by the Committee in 1997, they are used by countries as a benchmark for assessing and improving the quality of their supervisory systems. In addition, the IMF and the World Bank use the core principles in their Financial Sector Assessment Program (FSAP) to assess the effectiveness of countries' banking supervisory systems and practices.

The revised core principles highlight the distinction between what supervisors do and what they expect banks to do and contain important enhancements to strengthen supervisory practices and risk management in light of the global financial crisis and the past few years of market turmoil. For example, they emphasise the need for greater supervisory intensity combined with adequate resources to deal with systemically important banks; the importance of applying a macroprudential perspective to the supervision of individual banks; and the need for effective measures (in crisis management, and recovery and resolution) to reduce both the probability and impact of a bank failure.

Domestic systemically important banks

In November 2011, the Basel Committee issued final rules for *global* systemically important banks (G-SIBs). In endorsing those rules, the G20 Leaders asked the Committee and the FSB to extend the framework to *domestic* SIBs (D-SIBs).

In October 2012, the Basel Committee released *A framework for dealing with domestic systemically important banks*, which contains a set of principles on the assessment methodology and the higher loss absorbency required for D-SIBs. The framework's perspective complements that of the G-SIB rules by focusing on the domestic economic effect of bank distress or failure. Given that complementarity, the Committee believes it would be appropriate for national authorities to require banks that they identify as D-SIBs to comply with the principles in line with the phase-in arrangements for the G-SIB framework (ie from January 2016).

Settlement of foreign exchange transactions

In February, the Committee released *Supervisory guidance for managing risks associated with the settlement of foreign exchange transactions*. Since publication of the original guidance in September 2000, the foreign exchange market has made significant strides in reducing the risks associated with the settlement of transactions, but substantial settlement-related risks remain, not least because of the rapid growth in foreign exchange trading.

The updated guidance provides a more comprehensive and detailed view of the governance and management of settlement-related risks. In addition, to reduce principal risk, it promotes the use of payment-versus-payment arrangements where they are practicable.

Trading book review

In recognition of the substantial losses incurred by banks during the financial crisis that began in 2007, the Committee in 2009 introduced a package of substantially

increased capital requirements for trading activities, particularly for securitisations and structured credit products. These revisions became known as Basel 2.5.

At the time it published Basel 2.5, the Committee also commenced a fundamental review of trading book capital requirements. It aimed to evaluate the design of the market risk regulatory regime as well as weaknesses in risk measurement under the framework's internal models-based and standardised approaches. In May 2012, the Committee issued proposals for a regulatory framework that can be implemented consistently by supervisors and that achieves comparable levels of capital across jurisdictions. Key elements of the proposals include (i) setting a more objective boundary between the trading book and the banking book that materially reduces the scope for regulatory arbitrage; (ii) moving from value-at-risk to expected shortfall, a risk measure that better captures low-probability but high-impact crises (tail risks); (iii) calibrating the revised framework in both the standardised and internal models-based approaches to a period of significant financial stress; (iv) comprehensively incorporating the risk of market illiquidity; (v) reducing model risk in the internal models-based approach, including through a more granular process for models approval and constraints on diversification; and (vi) revising the standardised approach to be more risk-sensitive and act as a credible fallback to internal models.

The Committee also proposed to strengthen the relationship between the models-based and standardised approaches by establishing a closer link between the calibration of the two approaches; to require mandatory calculation of the standardised approach by all banks; and to consider the merits of introducing the standardised approach as a floor or surcharge to the models-based approach. Furthermore, the treatment of hedging and diversification in the two approaches will be more closely aligned.

Securitisation

In December, the Committee released a consultative paper setting out proposed revisions to the capital adequacy standards for securitisation exposures. Given the role of securitisation exposures in the global financial crisis, the Committee's objectives are to make capital requirements more prudent and risk-sensitive; to mitigate mechanistic reliance on external credit ratings; and to reduce current cliff effects in capital requirements. The revisions incorporate additional risk drivers, such as maturity; and new regulatory approaches, such as a simplified supervisory formula approach and different applications of the concentration ratio approach in Basel 2.5.

High-cost credit protection

The Committee has been concerned about potential arbitraging of regulatory capital through certain credit protection transactions. It has monitored developments in that regard and, after further consideration, published a consultative proposal in March that would strengthen capital requirements when banks engage in certain high-cost credit protection transactions.

Audit

The financial crisis has highlighted the need to improve the quality of internal and external bank audits. In June, the Committee issued *The internal audit function in banks*, replacing a 2001 document with revised supervisory guidance for assessing audit effectiveness. The guidance builds on the Committee's *Principles for enhancing corporate governance*, which requires banks to have an internal audit function with

authority, stature, independence, adequate resources and access to the board of directors. The new guidance addresses the supervisory authority's expectations of and relationship to the internal audit function as well as supervisory assessments. It encourages internal bank auditors to comply with, and contribute to, national and international professional standards and promotes consideration of prudential issues in the development of standards and practices. The new document also details responsibilities of a bank's audit committee.

In March, the Committee also issued for consultation *External audits of banks*, providing supervisory guidance that will enhance and supersede existing guidance. The new document reflects the evolution of bank practices and the introduction of new standards and regulations over the past 10 years. It sets out the Committee's greater supervisory expectations of (i) more robust audit of banks and (ii) enhanced engagement between the audit committee and auditors and between auditors and supervisors.

Disclosure and reporting

Timely disclosure of financial information promotes market discipline by providing meaningful information to bank investors and other interested parties. The Committee is working to ensure consistency, relevance and coherence in the area of prudential disclosures through its publication of required disclosures and its establishment of a dedicated working group on the topic. The group's objective is to (i) propose adjustments to the Committee's disclosure requirements to maintain their relevance; (ii) ensure that disclosures are consistent with the Committee's other policy initiatives; and (iii) review and consider new disclosure requirements and proposals emanating from external sources.

Composition of capital. During the financial crisis, market participants and supervisors could not thoroughly assess banks' capital positions or draw adequate cross-jurisdictional comparisons. The problem was a lack of detail in capital disclosures and a lack of domestic and international consistency in reporting. In June 2012, the Committee published a set of disclosure requirements on the composition of banks' capital that aim to improve both transparency and comparability.

Data aggregation and risk reporting. The financial crisis revealed that many banks, including G-SIBs, were unable to aggregate risk exposures and identify concentrations fully, quickly and accurately. The lack of data hampered decision-making, with wide-ranging consequences for the banks themselves and for the stability of the financial system as a whole. The Basel Committee's *Principles for effective risk data aggregation*, published in January, will strengthen the aggregation of risk data, internal risk reporting and, hence, risk management at banks – especially G-SIBs.

Implementation and monitoring of Basel III

Full, timely and consistent implementation of the Basel III framework is fundamental to raising the resilience of the global banking system, maintaining market confidence in regulatory ratios and providing a level playing field internationally. The benefits of the recent round of regulatory reforms will not be realised without sound implementation, which is essential for securing a stable global banking system.

In April 2012, the Basel Committee introduced its Regulatory Consistency Assessment Programme (RCAP), which seeks to ensure the timely adoption of

Basel III; domestic regulatory consistency with Basel III; and the consistency of outcomes, with an initial focus on banks' calculations of risk-weighted assets. The RCAP, primarily a peer review process, assesses any inconsistencies and reports on their impact on financial stability and on the maintenance of an international level playing field. In doing so, it promotes full and consistent implementation of Basel III, facilitates effective dialogue among members, and provides peer pressure where needed.

A key element of the process is transparency, including periodic reporting to the G20; reports were submitted to the G20 Leaders in June 2012 and to the G20 finance ministers and central bank Governors in October 2012 and April 2013. The Committee also assesses Basel III's quantitative impact on financial markets and reports the results of its monitoring exercises twice a year.

Timely adoption of Basel III. The first element of the Committee's RCAP focuses on the status of domestic rule-making processes to ensure that the Committee's capital standards are incorporated in national law or regulation according to the internationally agreed time frames. These progress reports, which were published in April and October 2012 and April 2013, provide a high-level view of Committee members' progress in adopting the Basel standards (Basel II, 2.5 and III). The Committee believes that disclosure will provide an additional incentive for members to fully comply with the international agreements.

Regulatory consistency. Assessments of domestic regulations in relation to the Basel standards, conducted by independent teams of technical experts from a wide range of countries, began with the European Union, Japan and the United States and were published in October. The rules reviewed in Japan were already in effect; those of the European Union and the United States were in draft form and will be the subject of follow-up reviews once they are finalised. The results of an assessment of Singapore's Basel III rules were published in March.

Consistency of outcomes. To assess the regulatory consistency of results produced by the Basel standards, the Committee studied banks' calculation of risk-weighted assets for the trading book. A similar exercise for the banking book is being conducted, and results will be published in 2013. The report of the trading book review, published in January, contained two analyses. The first examined publicly available data for a selection of large banks. The second involved 15 internationally active banks in an exercise using a hypothetical portfolio. The report estimates the variation in risk weights for market risk across banks and highlights aspects of the Basel standards that contribute to that variation. An exercise planned for 2013 will include more complex hypothetical portfolios to help the Committee deepen its analysis of the variation in risk measurement of trading books across banks.

These preliminary findings will feed into the policy work already initiated by the Committee regarding the enhancement of bank disclosures and the fundamental review of the trading book. Moreover, the data used to compile the report provide national supervisors with a clearer picture of the risk models of their banks in relation to those of international peers and will help the supervisors take action where needed.

Simplicity and comparability

In parallel with the analysis of the consistency in outcomes, the Committee undertook a review of the Basel framework's simplicity and comparability. The Committee is considering ways in which the Basel framework can be simplified

without materially altering its underlying objective, or weakening it, or reducing the comparability of the results. It will publish a consultative paper on these topics in 2013.

Peer review of stress testing

Stress testing is an important tool used by banks to identify the potential for unexpected adverse outcomes across a range of risks and scenarios. In 2009, in the wake of the financial crisis, the Committee published *Principles for sound stress testing practices and supervision*.

The Committee's Standards Implementation Group conducted a peer review of supervisory authorities' implementation of the 2009 principles and published the results in April 2012. The review found that stress testing has become a key component of the supervisory assessment process as well as a tool for contingency planning and communication. Overall, the review found the 2009 stress testing principles to be generally effective. In many countries, however, the principles are not fully implemented. The Committee will continue to monitor the implementation of the principles and determine whether additional guidance might be necessary.

Outreach and the global supervisory community

The Committee organised the 17th biennial International Conference of Banking Supervisors, hosted in Istanbul on 13–14 September by the Central Bank of the Republic of Turkey and the Turkish Banking Regulation and Supervision Agency. At the conference, which brought together banking supervisors and central bankers from more than 100 countries, delegates endorsed the Committee's revised core principles, discussed lessons learned from the financial crisis, particularly from the perspective of emerging market and developing economies, and considered the latest developments in supervision, risk management and financial stability.

The Committee also strengthened its collaboration with the global supervisory community through its participation in a series of annual high-level meetings organised jointly by the Committee and the Financial Stability Institute and attended by Deputy Governors of central banks and heads of supervisory authorities from various regions of the world. In addition, the Committee expanded its outreach to jurisdictions that are not members of the Committee through its Basel Consultative Group (BCG). The BCG facilitates broad supervisory dialogue with non-member countries on Committee initiatives, and it provides input to the Committee's regulatory reform agenda to ensure that the needs of the international banking community are appropriately addressed.

Basel Committee: www.bis.org/bcbs

Committee on the Global Financial System

The Committee on the Global Financial System (CGFS) monitors financial market developments for the Governors of the BIS Global Economy Meeting and analyses the implications of these developments for financial stability and central bank policy. The CGFS is chaired by William C Dudley, President of the Federal Reserve Bank of New York. Committee members are Deputy Governors and other senior officials from 23 central banks of major advanced and emerging market economies and the Economic Adviser of the BIS.

Among the focal points of the Committee's discussions during the past year were sovereign debt problems and associated banking sector challenges in the

euro area as well as policy initiatives that could stop contagion among sovereigns and break the link between sovereign risk and bank funding problems. Measures addressing currency denomination risk and related risk premia in euro area sovereign debt markets were a key aspect in this context. Committee members also examined unconventional monetary policies regarding their potential consequences for market functioning, risk-taking and financial stability. This examination included, in particular, possible risks from international spillovers of the current accommodative policies and challenges posed by a future exit from those policies. Interest rate risk exposures and factors increasing the sensitivity of bond yields to a change in the monetary policy stance were another key aspect. Additional topics addressed by the Committee were the international economic and financial implications of the so-called fiscal cliff in the United States and risks related to a possible abrupt growth slowdown in China.

The Committee also commissioned a number of in-depth analyses and longer-term projects carried out by groups of central bank experts. Two of the resulting reports were released in late 2012:

- The first, published in November, formally ended a multi-year project to enhance the BIS international banking statistics – a key international data set for which the CGFS serves as the governing body. The enhanced statistics, which will be implemented in two stages beginning in 2013, help close some key gaps in the currently reported data. Over time, this will significantly increase the analytical value of the statistics in areas such as banks' sources and uses of foreign currency funding, the transmission of possible funding shocks across banking systems, banks' country credit risk exposures, and credit supply and funding trends among different types of banks.
- The second report, published in December, builds on earlier work by the Committee to help policymakers put macroprudential policies into action. Taking a practical perspective, the report provides guidance on how to assess three broad criteria that are key in determining the selection and application of macroprudential instruments: timing, effectiveness and efficiency. It also sets out, for the first time, seven broad principles for the design and operation of the macroprudential policies formulated by the CGFS in 2011.

A third report, to be released in 2013, explores the implications for markets and policy of the increasing demand for collateral assets arising from regulatory reform and other developments. It finds that supply will be less of a concern than the adverse market effects of endogenous adjustments that are likely to prevent any lasting scarcity of collateral assets at the system level. Those effects include an increase in interconnectedness, procyclicality and financial system opacity as well as higher operational, funding and rollover risks. The report argues that policy responses therefore need to focus primarily on those adverse developments (eg in the context of shadow banking activities or balance sheet encumbrance), rather than on supply-demand conditions in the markets for collateral assets.

CGFS: 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 chair is Paul Tucker, the Bank of England's Deputy Governor, Financial Stability.

New standards for financial market infrastructures

The CPSS, together with IOSCO, published *Principles for financial market infrastructures* in April 2012. The document sets out new international standards intended to govern systemically important financial market infrastructures (FMIs) – payment systems, central securities depositories, securities settlement systems, central counterparties and trade repositories. The new standards replace the three previous sets of CPSS and CPSS-IOSCO standards – those for systemically important payment systems (2001), for securities settlement systems (2001) and for central counterparties (2004). The revised set of 24 principles reflects lessons learned from the recent financial crisis as well as the experience gained from applying the previous standards during the past decade. The document also contains a set of five responsibilities for the authorities that oversee or regulate the FMIs. These responsibilities include effective cooperation between authorities where more than one is involved.

In December, the CPSS and IOSCO jointly published *Principles for financial market infrastructures: disclosure framework and assessment methodology*. The disclosure framework prescribes the form and content of the information that FMIs are expected to publicly disclose in compliance with the 24 principles; the disclosures are intended to help show how FMIs work and to facilitate more robust comparisons between them. The assessment methodology promotes thorough and consistent assessments. It is intended primarily for external assessors at the international level, in particular the IMF and the World Bank, but it also provides a baseline for national authorities to assess observance of the principles by FMIs and to self-assess the way they discharge their own responsibilities as regulators, supervisors and overseers.

The CPSS and IOSCO have begun regularly gathering information from a number of jurisdictions to monitor their progress in implementing the standards; status reports will be published starting in the second half of 2013. The initial goal of the monitoring is to determine whether jurisdictions have made the changes to their legal and regulatory framework that are necessary to enable them to implement the standards. Subsequently, more detailed assessments will be carried out.

Recovery and resolution of financial market infrastructures

In July 2012, the CPSS and IOSCO released a consultative document, *Recovery and resolution of financial market infrastructures*, that outlines the issues involved in designing effective recovery plans and resolution regimes for FMIs. The CPSS and IOSCO will assist the FSB in elaborating how the FSB's *Key attributes of effective resolution regimes* apply to FMIs. The CPSS and IOSCO will also articulate what jurisdictions need to do to ensure that FMIs of different types have good recovery capabilities and plans.

Authorities' access to trade repository data

A consultative report issued by the CPSS and IOSCO in April 2013 outlines the framework to guide authorities' access to data held in trade repositories, both regular and ad hoc. The guidance expands on issues of access addressed in the January 2012 CPSS-IOSCO publication on aggregation and reporting of data on OTC derivatives.

Guidance on foreign exchange settlement risk

The CPSS worked with the BCBS on the revision of its supervisory guidance on how banks should manage the risks of settling foreign exchange transactions. As reported above, the BCBS published the updated guidance in February.

Innovations in retail payments

In the May 2012 report *Innovations in retail payments*, the CPSS provides an overview of innovative retail payment activities and identifies a number of factors that could hinder or help such innovations. The study also raises issues for central banks concerning their various responsibilities and tasks as catalysts, overseers and operators of payment systems.

The new Red Book and the annual statistical update

In November, the Committee published the second and final volume of its new edition of *Payment, clearing and settlement systems in the CPSS countries*, a reference work known as the Red Book, describing FMIs in member countries (the new volume 1 was released in September 2011). In January, the Committee published the annual update of *Statistics on payment, clearing and settlement systems in the CPSS countries*.

CPSS: www.bis.org/cpss

Markets Committee

The Markets Committee, chaired by Hiroshi Nakaso, Deputy 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 the liquidity management operations of central banks. Currently, 21 central banks are represented on the Committee.

Recurring concerns over euro area sovereign debt and the ultra-low interest rate environment in the major currency areas shaped the Committee's discussions during the year. The Committee closely monitored government bond market and bank funding conditions in the euro area and their effects on the integrity of the single market. A bout of market stress in mid-2012 prompted Committee members to hold ad hoc conference calls to exchange information on the latest developments. And as major central banks announced further rounds of unconventional measures and adopted new approaches to forward policy guidance, the Committee examined their effects on financial markets both at home and abroad.

The Committee also discussed selected longer-term and structural issues such as the efforts in different jurisdictions to review existing practices in reference interest rates and the responses to that in the private sector. Moreover, the Committee Chair and several members participated in a working group established by the ECC to examine reference interest rate practices from a central banking perspective, focusing on the implications for monetary transmission and financial stability. Committee members also kept abreast of several ongoing financial sector reforms and assessed their potential impact on the functioning of financial markets.

The Committee published a study on how central bank frameworks and practices regarding collateral evolved in the five years from mid-2007. In addition, as part of the preparation for the 2013 BIS Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity, a group established by the Committee completed its task of refining the survey's categories for counterparty and execution method and its currency-pair coverage. The 53 central banks participating in the survey then began technical preparations.

Markets Committee: www.bis.org/markets

Central Bank Governance Group

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 information exchange and research on the design and operation of central banks as public policy institutions. In addition, the Group suggests priorities for BIS work on these topics that is carried out through the almost 50 central banks that make up the Central Bank Governance Network. The research work and results of the numerous Network-based surveys on governance topics are available to central bank officials, and selected material is published.

During the past year, the Governance Group gathered at the BIS bimonthly meetings to address the evolving circumstances of central banks. With the support of research commissioned from its BIS secretariat and survey information generated by the Network, the Group assessed the financial strength that central banks need in order to be effective in the post-crisis world; discussed the challenges arising from changing mandates and arrangements relating to financial stability; and deliberated on the efforts made by central banks to improve the public's understanding of their increasingly complex activities.

Central Bank Governance Group: www.bis.org/about/cbgov.htm

Irving Fisher Committee on Central Bank Statistics

The Irving Fisher Committee on Central Bank Statistics (IFC), chaired by Muhammad Ibrahim, Deputy Governor of the Central Bank of Malaysia, is a forum for economists and statisticians from 80 central banks to address statistical topics related to monetary and financial stability. Among its activities during the year was a webcast in which Roberto Rigobon of the MIT Sloan School of Management presented his work on the Billion Prices Project; the project compiles a daily price index and inflation rate based on price and product descriptions collected every day from online retailers in more than 70 countries.

At the Committee's sixth biennial conference, held in Basel, the topics included the measurement of shadow banking, residential and commercial property prices, commodity markets, market expectations, effective exchange rates, and private and public sector indebtedness.

The IFC sponsored a workshop on financial inclusion indicators in cooperation with the Central Bank of Malaysia at Sasana Kijang, Kuala Lumpur. The event aimed to advance the data-gathering efforts needed to support greater financial inclusion worldwide (inclusion refers to the availability of appropriate financial services to underserved populations; the concept can extend to expanding financial literacy and consumer protection).[6]

The IFC's annual membership survey focused on data sharing between central banks and supervisory authorities. In its annual report to the BIS All Governors' Meeting in January 2013, the Committee proposed a task force on data sharing to analyse existing practices regarding the sharing of data, in particular with respect to banks' balance sheets and activities.

IFC: www.bis.org/ifc

[6] See the workshop's Sasana Statement on Financial Inclusion Indicators, www.bis.org/ifc/events/sasana_statement.pdf.

International Association of Deposit Insurers

Founded in 2002, the International Association of Deposit Insurers (IADI) strengthens safety-net regimes around the world by providing guidance for effective deposit insurance systems, conducting research and promoting collaboration among the key players in the global financial safety net. The number of organisations affiliated with IADI now stands at 88, including 67 deposit insurers as Members, nine Associates and 12 Partners. The 2012 IADI Annual General Meeting elected Jerzy Pruski, President of the Management Board of the Bank Guarantee Fund of Poland, as IADI's President and Chair of its Executive Council; he succeeded Martin J Gruenberg, Chairman of the US Federal Deposit Insurance Corporation.

IADI adopted strategic priorities in 2012 that, in line with the global efforts to strengthen the financial stability framework, (i) promote strong deposit insurance and resolution systems; (ii) strengthen and deepen relationships with other international financial organisations and standard-setting bodies on safety net-related matters; and (iii) support research and the development of guidance to further promote effective deposit insurance systems.

Core principles for effective deposit insurance systems, part of the FSB's key standards for sound financial systems, is used in the Financial Sector Assessment Program (FSAP) conducted by the IMF and World Bank. IADI experts who meet the IMF and World Bank Assessor qualifications will now participate in FSAP missions evaluating deposit insurance systems. IADI has begun to revise and update the core principles and is participating in the drafting of the assessment methodology for the FSB's *Key attributes of effective resolution regimes for financial institutions*. IADI is also contributing to the work of the FSB Cross-Border Crisis Management Committee in the development of G-SIFI resolution guidance.

In response to FSB recommendations in its thematic review of deposit insurance, IADI is developing additional guidance on matters stemming from the global financial crisis. Three papers – addressing deposit reimbursement, public awareness and deposit insurance coverage – were submitted to the FSB this year. Three other papers, scheduled for completion in 2013, focus on moral hazard, ex ante funding and the impact of multiple deposit insurance systems within one jurisdiction.

The 2012 annual joint IADI-FSI seminar "Bank Resolution: Current Developments, Challenges and Opportunities" reviewed insights and experiences on issues involving SIFIs and G-SIFIs. IADI continued its collaboration with the FSI to produce online tutorials on deposit insurance issues.

IADI maintains a global deposit insurance system database and updates it with results from its annual survey and targeted research. IADI posted on its public website a selection of results from its second annual survey of deposit insurers; full results are available to IADI Members, the FSB and the BIS.

IADI: 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. Its purpose is to promote effective and globally consistent supervision and contribute to global financial stability so that policyholders may benefit from fair, safe and stable insurance markets.

Financial stability

The IAIS initiated public consultations on an assessment methodology for systemically important insurers in May 2012 and on proposed policy measures in October. It expects to deliver conclusions on both topics to the FSB in 2013.

The IAIS is developing a framework for monitoring the insurance sector's macroeconomic and financial market environment. Under the framework, macroprudential surveillance of the insurance sector differentiates the scope for supervisory action from the powers of central banks. The IAIS is also exploring macro stress testing in the insurance sector.

In a July 2012 paper on reinsurance and financial stability, the IAIS concluded that surveillance of non-reinsurance activities of reinsurers is warranted. A joint working paper by economists from the IAIS, BIS and IMF studied the impact of natural catastrophes on the reinsurance sector.

Insurance core principles

At its October general meeting, the IAIS revised Insurance Core Principle (ICP) 9, which covers supervisory review and reporting, and adopted guidance on how best to apply the ICPs to improve access to insurance products for those currently underserved.

Internationally active insurance groups

In July, the IAIS issued the first comprehensive draft of the Common Framework for the Supervision of Internationally Active Insurance Groups (ComFrame) for public consultation, and a revised draft is scheduled for 2013. In a field testing phase scheduled for 2014, ComFrame will be evaluated in practice so that it can be modified as necessary before its formal adoption, planned for 2018.

New global insurance market report

In October 2012, the IAIS released its first *Global insurance market report*, the successor publication to its reinsurance market reports. It covers the performance of primary insurers as well as reinsurers and reports on key developments in the global insurance market.

The new report contains both publicly available and confidential data submitted by global reinsurers for the period 2007–11. It shows that, while global primary insurers and reinsurers have been affected by the financial crisis and subsequent recession in many economies around the world, they have also been resilient in the face of the devastating series of natural disasters in 2005 and again in 2011. The data reveal that the reinsurance sector absorbed record-high losses in 2011 with a smaller impact on equity capital than in 2005, the former record-setting year.

Multilateral Memorandum of Understanding

Insurance supervisors that are signatories to the IAIS Multilateral Memorandum of Understanding (MMoU) participate in a global framework for cooperation and information exchange. The memorandum sets minimum standards to which signatories must adhere, and all applicants are subject to review and approval by an independent team of IAIS members. MMoU participants are better able to promote the financial stability of cross-border insurance operations for the benefit of consumers. The MMoU currently has 34 signatories representing more than 52% of worldwide premium volume.

Standards observance

The IAIS Standards Observance Subcommittee, created in 2010, is conducting assessments and peer reviews on the implementation of the ICPs as revised in 2011. The resulting confidential individual reports inform the participating supervisory authorities, and an aggregate report gives the standard-setting committees critical feedback on any challenges in interpretation or scope experienced in IAIS member jurisdictions.

More broadly, the IAIS organises regional seminars and workshops on implementing IAIS principles, standards and guidance in collaboration with the FSI, national supervisory authorities and other bodies. The Financial Inclusion Subcommittee extends this focus on implementation to supervisory authorities in emerging market and developing economies; the subcommittee also manages the IAIS relationship with its partnering Access to Insurance Initiative and the Islamic Financial Services Board.

IAIS: www.iaisweb.org

Financial Stability Institute

The Financial Stability Institute (FSI) assists supervisory authorities worldwide in their oversight of financial systems by fostering a solid understanding of prudential standards and good supervisory practice.

In the current context in particular, the FSI is assisting supervisors with implementation of reforms developed by international standard-setting bodies in response to the financial crisis. It is doing this through a range of channels, including conferences, high-level meetings, seminars and the internet. Its online information resource and learning tool, FSI Connect, is used by financial sector supervisors at all levels of experience and expertise.

In addition, the FSI conducts surveys of selected countries' implementation of the Basel framework. Surveys are now undertaken annually, and the results are published on the BIS website. The 2012 survey showed that 91 countries had implemented or were in the process of implementing Basel II, and 51 countries were in the process of implementing Basel III.

Meetings, seminars and conferences

The FSI's extensive programme of seminars, conferences and high-level meetings is targeted at banking and insurance sector supervisors and central bank financial stability experts. Over the past year, approximately 1,800 representatives of central banks and banking and insurance supervisory authorities participated in 42 banking seminars, nine insurance seminars and the FSI's sixth biennial conference.

For some of the insurance seminars, the FSI worked with the IAIS and its regional network. For regional banking seminars, the FSI collaborated with the following supervisory groups:

- Africa – Committee of Bank Supervisors of West and Central Africa (BSWCA); Southern African Development Community (SADC);
- Americas – Association of Supervisors of Banks of the Americas (ASBA); Center for Latin American Monetary Studies (CEMLA); Caribbean Group of Banking Supervisors (CGBS);
- Asia and the Pacific – Executives' Meeting of East Asia-Pacific Central Banks (EMEAP) Working Group on Banking Supervision; South East Asian Central Banks (SEACEN); Central Banks of South East Asia, New Zealand and Australia (SEANZA) Forum of Banking Supervisors;
- Europe – European Banking Authority (EBA); Group of Banking Supervisors from Central and Eastern Europe (BSCEE);

- Middle East – Arab Monetary Fund (AMF); Gulf Cooperation Council (GCC) Committee of Banking Supervisors; and
- Other – Group of French-Speaking Banking Supervisors (GSBF); Group of International Finance Centre Supervisors (GIFCS).

The biennial FSI conference, held in Basel in November, brought together more than 100 central bankers and banking supervisors to discuss leading-edge risk management practices and the banking implications of current supervisory reforms. In October, the FSI hosted the first annual conference of the Global Partnership for Financial Inclusion, during which participants discussed the challenges faced by standard-setting bodies in their efforts to broaden financial inclusion.

The annual high-level meetings for Deputy Governors of central banks and heads of supervisory authorities, organised jointly with the BCBS, took place in Africa, Asia, central and eastern Europe, Latin America and the Middle East. The meeting topics included financial stability, macroprudential tools and policies, regulatory priorities and other key supervisory issues. The FSI seminars focused on improving supervisors' understanding of financial regulatory reforms, particularly those relating to Basel III capital and liquidity.

FSI Connect

FSI Connect is used by more than 9,500 subscribers from 245 central banks and banking and insurance supervisory authorities. It offers more than 230 tutorials covering a wide range of regulatory policy and supervisory topics. Recently released tutorials include capital conservation and countercyclical buffers, regulatory capital adjustments under Basel III, and assessment and guidance relating to the insurance core principles.

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) – 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, the principal themes of the work were the immediate challenges of the global financial crisis and its longer-term implications for policy.

A first strand of research continued to examine the link between the macroeconomy and public and private balance sheets against the backdrop of rising debt. The topics of the investigation included the link between the size of the financial system and growth; the financial cycle and its relationship to the business cycle; the interplay between the financial health of the sovereign and that of the banking sector; and the risks to financial stability in this new environment.

The sustainability and implications of extraordinarily low interest rates figured prominently in the analyses.

A second strand of work focused on prudential and structural policies designed to make the financial system more resilient. The analysis examined strengths and weaknesses of macroprudential policy instruments and their relationship to monetary policy tools. The research paid special attention to the interaction between the emerging regulation of bank liquidity and the implementation of monetary policy.

A third strand studied the evolution of monetary policy in the wake of the global financial crisis. It analysed the effectiveness of policy in addressing balance sheet recessions and the pros and cons of central banks' balance sheet policies, such as large-scale asset purchases and the accumulation of foreign exchange reserves. The work also assessed changes in the transmission mechanism of policy and explored the threat of fiscal dominance.

A fourth strand explored the nexus between the international monetary and financial system and the performance of the global economy. At issue was global liquidity – the concept as well as measurement and policy implications – and its relationship to developments in international banking. Making extensive use of the BIS's unique international financial statistics, the research included detailed studies on transnational banking activity and on segments of the foreign exchange market.

The BIS research function annually organises conferences and workshops for participants from the worlds of policy, research and business. The leading event is the BIS Annual Conference. In June 2012, the 11th BIS Annual Conference addressed the future of financial globalisation and its implications for macroeconomic, monetary and financial stability.

International statistical initiatives

Work to improve the collection and dissemination of data on cross-border claims and liabilities of internationally active banks continued along the lines of the multistage process endorsed by the CGFS. In a first stage, central banks have enhanced the reporting of residency-based cross-border data. The second stage enhancements will see central banks report a more detailed sectoral breakdown in both the locational and consolidated banking statistics; the latter will be extended to include the liability positions of banks, including capital.

On its website, the BIS has begun publicly releasing data that were developed in cooperation with central bank members of the Data Bank: new long-series data on total credit and improved international and domestic statistics on debt securities.[7] As one of the sponsors of the Statistical Data and Metadata Exchange (SDMX), the BIS uses these standards in all its collection, processing and dissemination of statistics. The BIS also continues its participation in the Inter-Agency Group on Economic and Financial Statistics (IAG), which follows up on the FSB and IMF recommendations to the G20 to close data gaps revealed by the financial crisis.[8]

[7] The Data Bank contains key economic indicators reported by almost all BIS shareholding central banks, additional detailed macroeconomic series from major advanced and emerging market economies, and data collected by various BIS-hosted groups. Substantial efforts have been made to facilitate use of the Data Bank for calculating and disseminating long series of important economic variables, such as credit.

[8] The IAG comprises the BIS, ECB, Eurostat, IMF, OECD, United Nations and World Bank (www.principalglobalindicators.org/about_iag.aspx). The same organisations also sponsor the SDMX initiative (www.sdmx.org).

As a participant in the FSB Working Group on Data Gaps and Systemic Linkages, the BIS launched a central hub to house data covering global systemically important banks. Over time, the data will give national supervisory authorities a better understanding of how balance sheet interlinkages can amplify or cushion financial shocks. In addition, the initiative will help strengthen international communication among supervisory authorities.

Other central bank initiatives to which the BIS lends support

The BIS contributes to the activities of central banks and regional central bank organisations. During the past year, it supported the following groups in hosting events on the following topics:

- CEMLA (Center for Latin American Monetary Studies) – banking, payment and settlement systems, fiscal policy and central bank finances;
- FLAR (Fondo Latinoamericano de Reservas) – reserve management;
- SEACEN (South East Asian Central Banks) Research and Training Centre – central bank communications, financial stability and supervision, monetary policy and payment and settlement systems;
- MEFMI (Macroeconomic and Financial Management Institute of Eastern and Southern Africa) – payment and settlement systems, and portfolio and risk management; and
- World Bank – portfolio diversification.

BIS experts also contributed to events organised by the International Banking and Finance Institute of the Bank of France.

Financial services of the Bank

Through its Banking Department, the BIS offers a wide range of financial services designed to assist central banks and other official monetary authorities in the management of their foreign reserves and to foster international cooperation in this area. 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 BIS credit intermediation, which is supported by a rigorous framework of internal risk management. 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; a risk control unit controls the Bank's financial risks – ie credit, liquidity and market risks – and is also responsible for the coordination required for 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 Representative Office for Asia and the Pacific.

Scope of services

As an institution owned and governed by central banks, the BIS possesses a distinctive understanding of the needs of reserve managers – their primary requirement of safety and liquidity as well as their evolving need to diversify substantial exposures arising from the growth of foreign exchange reserves. To meet those needs, the BIS offers investments that vary by 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), Medium-Term Instruments (MTIs) and products with embedded optionality (Callable MTIs); tradable instruments can be bought or sold at any time during the Bank's dealing hours.

Also available are money market placements, such as sight/notice accounts and fixed-term deposits, in most convertible currencies; in addition, the Bank provides short-term liquidity facilities and extends credit to central banks, usually on a collateralised basis. Moreover, the Bank acts as trustee and collateral agent in connection with international financial operations.

The Bank transacts foreign exchange and gold on behalf of its customers, thereby providing access to a large liquidity base in the context of, for example, regular rebalancing of reserve portfolios or major changes in reserve currency allocations. 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 buying and selling, sight accounts, fixed-term deposits, earmarked accounts, upgrading and refining and location exchanges.

The BIS also provides asset management products. These products, which consist of sovereign securities and high-grade fixed income instruments, are available in two forms: dedicated portfolio mandates tailored by the BIS to each customer's preferences; and open-end fund structures – BIS Investment Pools (BISIPs) – that allow customers to invest in a common pool of assets similar to mutual funds or unit funds. Both forms are offered as either single currency or multicurrency mandates in major reserve currencies. The investor in multicurrency mandates can choose whether to hedge back into the base currency.

In addition, the BISIP structure is used for the Asian Bond Fund (ABF) initiative sponsored by EMEAP (Executives' Meeting of East Asia-Pacific Central Banks). The BIS, in cooperation with a group of advising central banks, has chosen the same structure for a US inflation-protected government securities fund managed by external investment firms.

The BIS Banking Department hosts global and regional meetings, seminars and workshops on reserve management issues. These gatherings 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 2012/13

In 2012/13, financial markets continued to be driven largely by the evolution of the sovereign debt crisis in the euro area. Despite periods of high volatility, however, funding conditions in credit markets improved overall. The Bank's balance sheet total fluctuated between SDR 255 billion and SDR 201 billion. For the year, it decreased by SDR 43.7 billion, following a marginal decrease of SDR 5.4 billion in the previous year. As a result, the balance sheet total at 31 March 2013 was SDR 212.0 billion.

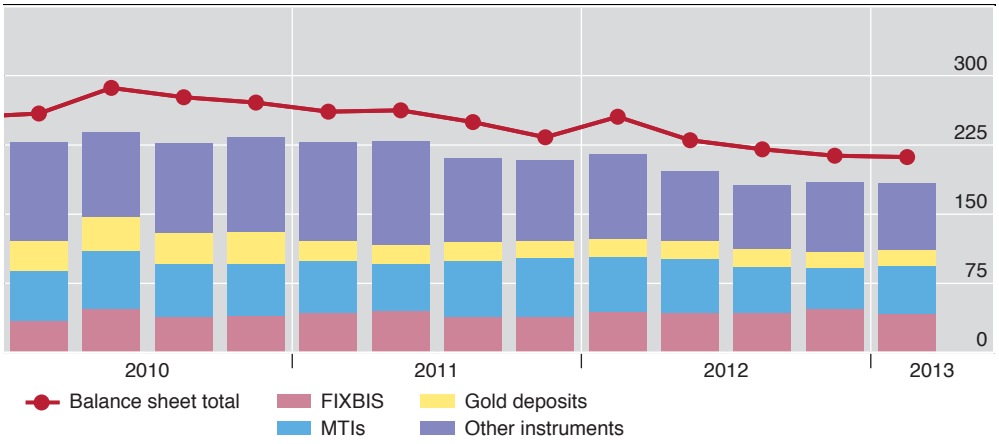
Liabilities

Customer placements, about 90% of which are denominated in currencies and the remainder in gold, constitute the largest share of total liabilities (see graph). On 31 March 2013, customer placements (excluding repurchase agreements) amounted to SDR 183.7 billion, compared with SDR 215.4 billion at the end of 2011/12; the decrease occurred in both currency and gold.

Currency deposits decreased from SDR 195.8 billion a year ago to SDR 166.2 billion at end-March 2013. That balance represents some 2.0% of the

Balance sheet total and customer placements by product

End-quarter figures, in billions of SDR



The sum of the bars indicates total customer placements.

world's total foreign exchange reserves – which totalled nearly SDR 7.4 trillion at end-March 2013, up from SDR 7.0 trillion at end-March 2012.[9] The share of currency placements denominated in US dollars was 76%, while euro- and sterling-denominated funds accounted for 8% and 7%, respectively.

Gold deposits amounted to SDR 17.6 billion at end-March 2013, a decrease of SDR 2.0 billion for the financial year.

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 held 115 tonnes of fine gold in its investment portfolio at 31 March 2013. The Bank's credit exposure is managed in a conservative manner, with almost all of it rated no lower than A– at 31 March 2013 (see note 3, "Credit risk", in the "Risk management" section of the financial statements).

The Bank's holdings of currency assets totalled SDR 157.1 billion on 31 March 2013, compared with SDR 200.2 billion at the end of the previous financial year (see note 6, "Currency assets", in "Notes to the financial statements"). The Bank uses various derivative instruments to manage its assets and liabilities efficiently (see note 8, "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 and the BIS mission

[9] Excluded from the ratio calculation are funds placed by institutions for which data on foreign exchange reserves are not available.

within each region by organising meetings, supporting regional institutions and Basel-based committees, 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

The activities of the Asian Office are guided by the Asian Consultative Council (ACC), comprising the Governors of the 12 BIS shareholding central banks in the Asia-Pacific region.[10] The Office undertakes economic research, organises high-level regional meetings and, through its Regional Treasury, offers specialised banking services. The economics team in Hong Kong focuses its research on the region's policy issues.

The Asian Consultative Council

At its June 2012 semiannual meeting in Basel, the Council nominated Choongsoo Kim, Governor of the Bank of Korea, to succeed Masaaki Shirakawa, Governor of the Bank of Japan, as chair of the ACC beginning in October. At its February 2013 meeting, the Council endorsed a new research theme, "Cross-border financial linkages in Asia and the Pacific", which will be the focus of Asian Office research on financial stability issues for the next two years.

Research

Economists in the Asian Office produced research on the two themes previously endorsed by the ACC. On the monetary stability side, the theme was inflation dynamics and globalisation in Asia and the Pacific; the specific policy issues under this theme were identified at a June research workshop in Hong Kong. On the financial stability side, the theme was property markets and financial stability; in August, a conference co-hosted with the Reserve Bank of Australia in Sydney showcased the results of that research.

In carrying out their research, Asian Office economists collaborated with selected academics from around the world and economists at BIS shareholding central banks in the region. The resulting papers have informed policy discussions in various central bank meetings and have appeared in refereed journals as well as the *BIS Quarterly Review*.

The Special Governors' Meeting and other high-level meetings

The Asian Office organised 11 high-level BIS policy meetings. Each was held jointly with a central bank in the region or with a regional body of central banks, including the Executives' Meeting of East Asia-Pacific Central Banks (EMEAP) and 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 Bank of Korea and held in Seoul in February. For the third year in a row, the event included a meeting with the chief executive officers of large financial

[10] The 12 central banks are those of Australia, China, Hong Kong SAR, India, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Singapore and Thailand.

institutions active in the region. The discussion centred on issues of bank profitability and regional expansion.

Other high-level events were the Eighth Meeting on Monetary Policy Operating Procedures, in Hong Kong in April; a meeting of the Working Party on Monetary Policy in Asia, co-hosted by the Bank of Japan in Tokyo in June; the SEACEN-BIS Exco Seminar, co-hosted by the Bank of Korea in Busan in September; and the Eighth Roundtable on Financial Markets, co-hosted by the Bank of Korea in Hong Kong in December.

Banking activity and the Asian Bond Funds

The dealing room of the Asian Office continued to work closely with the BIS Risk Control unit to explore new investment outlets and expand its involvement in regional financial markets while maintaining a conservative risk profile. Central banks in the region also maintained a conservative stance in their reserve portfolio operations with the BIS, demanding mainly short-term liquid instruments. On balance, placements by central banks in the region in the 2012/13 financial year were down slightly from those in 2011/12.

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 2013, the combined size of all ABF funds was just under $5.8 billion, an increase of slightly more than 19% from the end of March 2012. The total return on the region-wide fund, the Pan-Asia Bond Index Fund (PAIF), from its inception on 7 July 2005 to end-March 2013 was 69.8%, which compared favourably with the 44.0% return on a US Treasury index of similar duration.

The Americas Office

In its research and outreach, the Americas Office takes guidance from the Consultative Council for the Americas (CCA), comprising the Governors of the eight BIS shareholding central banks in the region.[11] The chair of the CCA is Agustín Carstens, Governor of the Bank of Mexico.

The Office organised the third annual CCA research conference, hosted in April 2012 by the Central Bank of Brazil, which covered financial stability, financial regulation and monetary policy. The Office has also implemented two research network projects to aid cooperative investigation among CCA members on topics of regional concern. The first project, on the effects of foreign exchange market operations in Latin America, held a plenary session in April 2012; its closing conference, in November, was hosted by the Bank of the Republic, the central bank of Colombia. In March 2013, the Office organised a meeting of authors to finalise the papers for publication. A second research network project was launched in January, on financial stability considerations in central bank policy models. Economists in the Americas Office have conducted additional research, including studies of foreign exchange intervention, hedging in foreign exchange markets, oil prices and food prices, and the regionalisation of banking in Latin America, that has been used internally or published on the BIS website or in academic journals.

The Office's outreach activities included support for several meetings: the 16th BIS Working Party for Monetary Policy in Latin America, hosted in September by the Central Reserve Bank of Peru; a roundtable on fiscal policy, public debt management and government bond markets organised jointly by the BIS and the

[11] Those of Argentina, Brazil, Canada, Chile, Colombia, Mexico, Peru and the United States.

host, the Center for Latin American Monetary Studies (CEMLA), in Mexico City; and a BIS-CEMLA workshop on central bank finances, hosted by the Central Bank of Chile. The Office also organised two BIS panels at the November meetings of the Latin American and Caribbean Economic Association in Lima. As part of their outreach activities, economists of the Americas Office have made numerous presentations, including those at several FSB regional consultative group meetings and at an FSI-CEMLA seminar on Basel III and stress testing.

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 2012/13 financial year, the BIS employed 647 staff members from 54 countries.

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 independent auditor.

The BIS Board of Directors

Consisting of 18 members at present, 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.

At its meeting in June 2012, the BIS Board re-elected the following members for a further period of three years: Agustín Carstens, Governor of the Bank of Mexico; Mario Draghi, President of the ECB; Klaas Knot, President of the Netherlands Bank; and Zhou Xiaochuan, Governor of the People's Bank of China. In September 2012, the Board re-elected two other members, also for a further period of three years: Mark Carney, Governor of the Bank of Canada; and Masaaki Shirakawa, Governor of the Bank of Japan.

With effect from 13 September 2012, Ben Bernanke, Chairman of the Board of Governors of the Federal Reserve System, reappointed William C Dudley as a member of the Board for three years.

Anne Le Lorier, First Deputy Governor of the Bank of France, stepped down as a member of the Board at the end of December 2012.

Mervyn King, Governor of the Bank of England, appointed Paul Tucker to the Board for a three-year term with effect from 1 January 2013. Ignazio Visco, Governor of the Bank of Italy, reappointed Fabrizio Saccomanni as a member of the Board for one year from 1 January 2013. Mr Saccomanni stepped down as a member of the Board on 28 April 2013. With effect from 29 April, Ignazio Visco

appointed Fabio Panetta, Deputy Director General of the Bank of Italy, as a member of the Board for the unexpired portion of Mr Saccomanni's term, ending 31 December 2013.

In January 2013, the Board re-elected Christian Noyer, Governor of the Bank of France, as Chairman of the Board of Directors for a further period of three years beginning on 7 March 2013.

In March 2013, the Board re-elected Thomas Jordan, Chairman of the Governing Board of the Swiss National Bank, for a further period of three years.

On 19 March 2013, Masaaki Shirakawa stepped down as Governor of the Bank of Japan and therefore left the Board. At its meeting in May 2013, the Board elected Haruhiko Kuroda, Mr Shirakawa's successor as Governor of the Bank of Japan, as a member of the Board for the unexpired period of Mr Shirakawa's term of office, ending on 12 September 2015.

Mark Carney stepped down as Governor of the Bank of Canada and thus also as a BIS Board Member on 1 June 2013. The Board appointed Luc Coene, Governor of the National Bank of Belgium, as successor to Mr Carney as Chairman of the Audit Committee.

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

BIS member central banks

Bank of Algeria

Central Bank of Argentina

Reserve Bank of Australia

Central Bank of the Republic of Austria

National Bank of Belgium

Central Bank of Bosnia and Herzegovina

Central Bank of Brazil

Bulgarian National Bank

Bank of Canada

Central Bank of Chile

People's Bank of China

Bank of the Republic (Colombia)

Croatian National Bank

Czech National Bank

National Bank of Denmark

Bank of Estonia

European Central Bank

Bank of Finland

Bank of France

Deutsche Bundesbank (Germany)

Bank of Greece

Hong Kong Monetary Authority

Magyar Nemzeti Bank (Hungary)

Central Bank of Iceland

Reserve Bank of India

Bank Indonesia

Central Bank of Ireland

Bank of Israel

Bank of Italy

Bank of Japan

Bank of Korea

Bank of Latvia

Bank of Lithuania

Central Bank of Luxembourg

National Bank of the Republic of Macedonia

Central Bank of Malaysia

Bank of Mexico

Netherlands Bank

Reserve Bank of New Zealand

Central Bank of Norway

Central Reserve Bank of Peru

Bangko Sentral ng Pilipinas (Philippines)

National Bank of Poland

Bank of Portugal

National Bank of Romania

Central Bank of the Russian Federation

Saudi Arabian Monetary Agency

National Bank of Serbia

Monetary Authority of Singapore

National Bank of Slovakia

Bank of Slovenia

South African Reserve Bank

Bank of Spain

Sveriges Riksbank (Sweden)

Swiss National Bank

Bank of Thailand

Central Bank of the Republic of Turkey

Central Bank of the United Arab Emirates

Bank of England

Board of Governors of the Federal Reserve System (United States)

Board of Directors

Chairman: Christian Noyer, Paris
Vice-Chairman: (vacant)
Ben S Bernanke, Washington
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
Mervyn King, London
Klaas Knot, Amsterdam
Haruhiko Kuroda, Tokyo
Fabio Panetta, Rome
Guy Quaden, Brussels
Paul Tucker, London
Ignazio Visco, Rome
Jens Weidmann, Frankfurt am Main
Zhou Xiaochuan, Beijing

Alternates

Mathias Dewatripont or Jan Smets, Brussels
Paul Fisher or Michael Cross, London
Anne Le Lorier or Marc-Olivier Strauss-Kahn, Paris
Joachim Nagel or Karlheinz Bischofberger, Frankfurt am Main
Janet L Yellen or Steven B Kamin, Washington
Emerico Zautzik, Rome

Committees of the Board of Directors

Administrative Committee, chaired by Agustín Carstens
Audit Committee, chaired by Luc Coene
Banking and Risk Management Committee, chaired by Stefan Ingves
Nomination Committee, chaired by Christian Noyer

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.

At the end of April 2013, Günter Pleines retired as Head of Banking Department. At its meeting on 7 January 2013, the Board appointed Peter Zöllner as Head of Banking Department for a period of five years beginning on 1 May 2013.

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	Peter Zöllner
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

In memoriam

The Bank was saddened to learn of the death of Sir Andrew Crockett on 3 September 2012 at the age of 69. Sir Andrew was the General Manager of the BIS from 1 January 1994 to 31 March 2003. Among his many achievements was his work to expand the membership of the BIS and its Board beyond the Bank's traditional, mostly European base. The Bank's opening of representative offices in Asia and the Americas was a part of this global outreach. Another milestone reached under Sir Andrew's leadership was the creation of the Financial Stability Forum (FSF – later the Financial Stability Board), of which he was the first Chairman. The Basel Process was greatly strengthened by locating the FSF Secretariat at the BIS. Sir Andrew also initiated significant changes to modernise the Bank's management culture. In its continuing efforts to further strengthen the institution, the Bank is building on Sir Andrew's legacy.

Bank budget policy

The process of formulating the Bank's annual expenditure budget 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 corresponding resource requirements. The process of reconciling detailed business plans, objectives and overall resource availability culminates in a draft budget, which must be approved by the Board before the start of the financial year.

The budget distinguishes between administrative and capital expenditures. As 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 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 2012/13 reflected the Bank's priority of responding to the global financial crisis. Additional staff positions devoted to the Basel Process were allocated to the FSB, which became an independent association at the end of January 2013; to the BCBS; and, to strengthen research capacities, to the statistical sections of the Monetary and Economic Department. At the same time, IT projects were undertaken to enhance statistical and research systems, and to upgrade IT infrastructure related to the provision of banking and asset management services to central bank customers.

For 2012/13, overall administrative expense on the Bank's budget basis of accounting amounted to CHF 271.2 million, or CHF 6.8 million (2.4%) lower than the budget.[12] It was CHF 16.2 million (6.4%) above actual administrative expense in 2011/12.

Capital expenditure was CHF 20.7 million, or CHF 2.0 million (8.8%) below the budget. It was CHF 5.5 million (21%) below actual capital expenditure in 2011/12.

Total expenditure was CHF 291.9 million, or CHF 8.8 million (2.9%) below budget. It was CHF 10.7 million (3.8%) above the actual expenditure in 2011/12.

In March 2013, the Board approved a 1.9% increase in the administrative budget for the financial year 2013/14, to CHF 283.2 million. It also approved a capital budget of CHF 30.5 million (including CHF 14.0 million for the purchase of the building at Centralbahnstrasse 21 in Basel). The total budget of CHF 313.7 million is CHF 13 million (4.3%) higher than in 2012/13. The 2013/14 budget is based on a business plan which continues to focus on enhancing financial stability activities. This includes monitoring of the initial implementation of supervisory and financial standards, and strengthening of the Bank's data collection and statistical systems. Resources have also been added to bolster the Internal Audit and IT Security control functions, and to improve the diversification of the Bank's investments.

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 years between comprehensive salary surveys, the salary structure is adjusted on the basis of the rate of inflation in Switzerland and the weighted average real wage development in industrial countries. As of 1 July 2012, the salary structure was accordingly decreased by 0.1%.

Through the Bank, BIS staff members have access to a contributory health insurance plan and a contributory defined benefit pension plan. Non-locally hired,

[12] 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").

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 Bank's 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 2012, the annual remuneration of senior officials, before expatriation allowances, is based on the salary structure of CHF 766,220 for the General Manager;[13] CHF 648,340 for the Deputy General Manager; and CHF 589,400 for Heads of Department.

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 CHF 1,096,932 as of 1 April 2013. 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 CHF 1,017,792.

Net profit and its distribution

The Bank recorded a net profit of SDR 898.2 million for its 83rd financial year, ended 31 March 2013. This result was 18% higher than the previous year.

Principal factors behind the 2012/13 profit

The background to the Bank's 2012/13 results was a broad stabilisation of market valuations, but at reduced yields. In this environment, Management maintained a cautious approach to the balance sheet, which was reduced by 17% over the year, from SDR 256 billion to SDR 212 billion. With historically low interest rates, the interest accrual on the investment assets was lower and the net interest margin on the banking business was squeezed. However, this reduction in net interest income was partially offset by a reduction in valuation losses incurred during the year. As a result, net interest and valuation income for the financial year 2012/13 was SDR 1,014.4 million, an increase of SDR 146.6 million from the prior financial year amount of SDR 867.8 million. Operating expenses amounted to SDR 256.3 million, 13% above the 2011/12 figure of SDR 226.7 million. This increase was due mainly to

[13] In addition to the basic salary, the General Manager receives an annual representation allowance and enhanced pension rights.

a higher charge for post-employment benefits following a reduction in the discount rate assumption.

After taking into account the above factors, the Bank's operating profit amounted to SDR 786.2 million, which was SDR 130.7 million above the SDR 655.5 million recorded in 2011/12.

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 2012/13, 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 SDR 82.7 million (2011/12: net gain of SDR 24.7 million). The Bank also realised a gain of SDR 29.3 million on the sale of 1 tonne of its gold investment assets. This compares with a gain of SDR 78.7 million on the sale of 3 tonnes in 2011/12.

As a result of these factors, the net profit for 2012/13 amounted to SDR 898.2 million, 18% above the previous year's profit of SDR 758.9 million. The profit represented a return of 4.8% on average daily equity (2011/12: 4.3%).

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 decreased by SDR 55.5 million (2011/12: gain of SDR 296.5 million), reflecting the recognition in profit of gains made on disposal of available for sale investment securities, which was partially offset by increased valuations on those securities held in the portfolio at year-end. The gold revaluation account decreased by SDR 67.8 million (2011/12: gain of SDR 551.8 million), reflecting the realisation into profit following the sale of 1 tonne, along with a 1% fall in the price of gold over the year.

After adjusting for these movements on revaluation accounts, the Bank's total comprehensive income for 2012/13 was SDR 774.9 million. This represented a return of 4.1% on average daily equity of SDR 18,734 million. In 2011/12, the total comprehensive income of SDR 1,607.2 million benefited from unrealised valuation gains arising both from a rise in gold prices and from a decline in interest rates. Taking into account the dividend for 2011/12 of SDR 168.4 million that was paid during 2012/13, the Bank's equity increased by SDR 606.5 million during the year ended 31 March 2013.

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 Bank should 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 policy, which is due to be reviewed again in 2014/15, ensures that earnings are retained to augment the Bank's capital at a rate sufficient to support its

business. The final approval of the dividend coincides with the outcome of the annual economic capital allocation process (see item 2, "Economic capital", in 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. In normal circumstances, this results in a dividend which increases steadily by SDR 10 per share per annum (the "normal dividend"), while retaining the flexibility to vary the dividend in years of low or high profits.

Consistent with this dividend policy, the Board proposes for the financial year 2012/13 to declare a normal dividend of SDR 315 per share, SDR 10 per share above the normal dividend for 2011/12. The dividend policy foresees the possibility of a supplementary dividend in a year when profits are high and the Bank's capital strength allows. With the current low interest rate environment constraining the Bank's underlying profitability (and hence its capital generating capacity), no supplementary dividend is proposed for 2012/13.

At 31 March 2013, there were 559,125 issued and fully paid shares. This includes the 1,000 shares of the Albanian issue, which are suspended and held in treasury. The normal dividend will be paid on 558,125 shares, with no dividend paid on the 1,000 shares held in treasury. The total cost of the proposed dividend would be SDR 175.8 million, after which SDR 722.4 million would be available for allocation to reserves. The dividend would be paid on 28 June 2013 in one of the component currencies of the SDR (US dollar, euro, yen or sterling) or in Swiss francs according to the instructions of each shareholder named in the Bank's share register at 31 March 2013.

Reserves adjustment for revised accounting policy in 2013/14

With effect from 1 April 2013, the Bank has changed its accounting policy for post-employment benefit obligations to reflect developments in global financial standards. The change, which will be applied in the 2013/14 financial statements, requires statutory reserves to be reduced by SDR 89.7 million, representing the cumulative change in profit recognition as a result of applying the revised accounting policy. To this end, the Board proposes to deduct the aforementioned amount from the free reserve fund. Further details on the revised accounting policy can be found in note 3 to the financial statements.

Proposed application of net profit for 2012/13 and reserves adjustment for revised accounting policy in 2013/14

On the basis of Article 51 of the Bank's Statutes, the Board of Directors recommends that the General Meeting apply the net profit for the year of SDR 898.2 million in the following manner:

(a) SDR 175.8 million to be paid as a normal dividend of SDR 315 per share;
(b) SDR 36.1 million to be transferred to the general reserve fund;[14]
(c) SDR 6.0 million to be transferred to the special dividend reserve fund; and
(d) SDR 680.3 million, representing the remainder of the available profit, to be transferred to the free reserve fund.

In addition, the Board recommends that, to achieve the decrease in the Bank's statutory reserves resulting from the change of accounting policy described in note 3 to the financial statements, SDR 89.7 million be deducted from the free reserve fund.

[14] The general reserve fund exceeded five times the Bank's paid-up capital at 31 March 2013. 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.

Independent auditor

Election of the auditor

In accordance with Article 46 of the Bank's Statutes, the Annual General Meeting of the Bank is invited to elect an independent auditor for the ensuing year and to fix the auditor's remuneration. This election is based on a formal proposal by the Board, which in turn is based on the recommendation of the Audit Committee. This annual process ensures a regular assessment of the knowledge, competence and independence of the auditor, and of the effectiveness of the audit. The 2012 Annual General Meeting elected Ernst & Young as the Bank's auditor for the financial year ended 31 March 2013. The Board policy is to rotate the auditor on a regular basis, with the new auditor chosen following a selection process involving the Bank's Management and the Audit Committee. The financial year ended 31 March 2013 was the first year of Ernst & Young's term as auditor. The previous auditor, Deloitte AG, served a term of seven years.

Report of the auditor

In accordance with Article 50 of the Bank's Statutes, the independent auditor has full powers to examine all books and accounts of the Bank and to require full information as to all its transactions. The Bank's financial statements have been duly audited by Ernst & Young, who have confirmed that they give a true and fair view of the Bank's financial position at 31 March 2013 and the results of its operations for the year then ended. The Ernst & Young report is to be found immediately following the financial statements.

Financial statements

as at 31 March 2013

The financial statements on pages 126–92 for the financial year ended 31 March 2013 were approved on 13 May 2013 for presentation to the Annual General Meeting on 23 June 2013. 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

SDR millions	Notes	**2013**	2012
Assets			
Cash and sight accounts with banks	4	6,884.1	4,077.8
Gold and gold loans	5	35,367.1	35,912.7
Treasury bills	6	46,694.1	53,492.3
Securities purchased under resale agreements	6	28,469.5	46,210.8
Loans and advances	7	19,676.8	22,757.1
Government and other securities	6	62,643.3	77,877.7
Derivative financial instruments	8	5,855.7	7,303.9
Accounts receivable	9	6,171.2	7,845.5
Land, buildings and equipment	10	190.6	193.0
Total assets		**211,952.4**	255,670.8
Liabilities			
Currency deposits	11	166,160.3	195,778.5
Gold deposits	12	17,580.9	19,624.0
Derivative financial instruments	8	3,402.3	4,727.0
Accounts payable	13	5,335.3	16,745.5
Other liabilities	14	487.8	416.5
Total liabilities		**192,966.6**	237,291.5
Shareholders' equity			
Share capital	15	698.9	698.9
Statutory reserves	16	13,647.7	13,057.2
Profit and loss account		898.2	758.9
Less: shares held in treasury	17	(1.7)	(1.7)
Other equity accounts	18	3,742.7	3,866.0
Total equity		**18,985.8**	18,379.3
Total liabilities and equity		**211,952.4**	255,670.8

Profit and loss account

For the financial year ended 31 March

SDR millions	Notes	**2013**	2012
Interest income	20	2,154.0	3,091.2
Interest expense	21	(1,122.5)	(1,633.1)
Net interest income		**1,031.5**	1,458.1
Net valuation movement	22	(17.1)	(590.3)
Net interest and valuation income		**1,014.4**	867.8
Net fee and commission income	23	3.1	4.7
Net foreign exchange gain	24	25.0	9.7
Total operating income		**1,042.5**	882.2
Operating expense	25	(256.3)	(226.7)
Operating profit		**786.2**	655.5
Net gain on sales of securities available for sale	26	82.7	24.7
Net gain on sales of gold investment assets	27	29.3	78.7
Net profit for the financial year		**898.2**	758.9
Basic and diluted earnings per share (in SDR per share)	28	**1,609.3**	1,374.6

Statement of comprehensive income

For the financial year ended 31 March

SDR millions	Notes	**2013**	2012
Net profit for the financial year		**898.2**	758.9
Unrealised gain / (loss) on securities available for sale	18A	(55.5)	296.5
Unrealised gain / (loss) on gold investment assets	18B	(67.8)	551.8
Total comprehensive income for the financial year		**774.9**	1,607.2

Statement of cash flows

For the financial year ended 31 March

SDR millions	Notes	**2013**	2012
Cash flow from / (used in) operating activities			
Interest and similar income received		2,923.9	3,676.2
Interest and similar expenses paid		(911.9)	(1,625.4)
Net fee and commission income	23	3.1	4.7
Net foreign exchange transaction gain	24	14.3	14.4
Operating expenses paid		(239.5)	(210.4)
Non-cash flow items included in operating profit			
Valuation movements on operating assets and liabilities	22	(17.1)	(590.3)
Net foreign exchange translation gain / (loss)	24	10.7	(4.7)
Release of impairment provision on gold loans		–	34.7
Change in accruals and amortisation		(980.5)	(627.4)
Change in operating assets and liabilities			
Currency deposit liabilities held at fair value through profit and loss		(14,079.8)	(18,980.9)
Currency banking assets		30,314.5	19,630.1
Sight and notice deposit account liabilities		(12,021.8)	7,251.1
Gold deposit liabilities		(2,043.1)	(1,645.9)
Gold and gold loan banking assets		472.2	1,291.5
Accounts receivable		0.3	(2.0)
Other liabilities / accounts payable		86.9	41.1
Net derivative financial instruments		123.5	(3,746.1)
Net cash flow from operating activities		**3,655.7**	4,510.7
Cash flow from / (used in) investment activities			
Net change in currency investment assets available for sale	6B	(489.6)	(923.0)
Net change in currency investment assets held at fair value through profit and loss		(56.8)	(51.7)
Net change in gold investment assets	5B	34.8	63.5
Net purchase of land, buildings and equipment	10	(14.5)	(18.9)
Net cash flow used in investment activities		**(526.1)**	(930.1)

SDR millions	Notes	**2013**	2012
Cash flow from / (used in) financing activities			
Issue of shares		–	262.9
Dividends paid		(168.4)	(161.1)
Net cash flow from / (used in) financing activities		**(168.4)**	101.8
Total net cash flow		**2,961.2**	3,682.4
Net effect of exchange rate changes on cash and cash equivalents		(66.5)	1.1
Net movement in cash and cash equivalents		3,027.7	3,681.3
Net change in cash and cash equivalents		**2,961.2**	3,682.4
Cash and cash equivalents, beginning of year	29	**4,264.4**	582.0
Cash and cash equivalents, end of year	29	**7,225.6**	4,264.4

Movements in the Bank's equity

For the financial year ended 31 March

SDR millions	Notes	Share capital	Statutory reserves	Profit and loss	Shares held in treasury	Other equity accounts	Total equity
Equity at 31 March 2011		**683.9**	**12,154.4**	**816.0**	**(1.7)**	**3,017.7**	**16,670.3**
Payment of 2010/11 dividend		–	–	(161.1)	–	–	(161.1)
Allocation of 2010/11 profit		–	654.9	(654.9)	–	–	–
Issue of shares		15.0	247.9	–	–	–	262.9
Total comprehensive income	18	–	–	758.9	–	848.3	1,607.2
Equity at 31 March 2012		**698.9**	**13,057.2**	**758.9**	**(1.7)**	**3,866.0**	**18,379.3**
Payment of 2011/12 dividend		–	–	(168.4)	–	–	(168.4)
Allocation of 2011/12 profit		–	590.5	(590.5)	–	–	–
Total comprehensive income	18	–	–	898.2	–	(123.3)	774.9
Equity at 31 March 2013		**698.9**	**13,647.7**	**898.2**	**(1.7)**	**3,742.7**	**18,985.8**

At 31 March 2013 statutory reserves included share premiums of SDR 1,059.6 million (2012: SDR 1,059.6 million).

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 32.

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 O–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.

Currency assets in investment portfolios, with the exception of cash and sight accounts with banks and those in more actively traded portfolios, are designated as available for sale.

The currency investment assets maintained in more actively traded 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, including balances at futures clearing brokers. 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 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. The 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 initial measurement, the currency assets are revalued to fair value, with all realised and unrealised movements in fair value included under "Net valuation movement".

11. 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. The 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".

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. The 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 32).

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. The 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. The 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 significant or prolonged. 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, Mexico, the Netherlands, Sweden and Switzerland, 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 significantly 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 significantly 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	**2013**	2012
Treasury bills	1.0	0.1
Securities purchased under resale agreements	0.1	0.1
Loans and advances	0.1	0.2
Government and other securities	10.2	11.3
Currency deposits	12.4	13.5
Derivative financial instruments	4.3	4.1

B. Impairment provision on financial assets

The Bank conducts an annual review for impairment at the date of each balance sheet. At 31 March 2013 the Bank did not have any financial assets that were considered to be impaired (31 March 2012: nil).

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. Future change in accounting policy for post-employment benefit obligations

With effect from 1 April 2013, the Bank has changed its accounting policy for post-employment benefit obligations to reflect developments in global financial reporting standards. As a result of the change, the Bank will no longer apply corridor accounting for actuarial gains and losses and all changes in the net defined benefit liabilities or assets will be recognised when they occur. Service costs and the net interest will be recognised in the profit and loss account while re-measurements, such as actuarial gains and losses, will be recognised in other comprehensive income. In addition, the interest cost and the expected return on assets will be replaced with a net interest amount calculated by applying the discount rate to the net defined benefit liabilities.

The change will be applied in the 2013/14 financial statements, and the reported numbers for the current financial year will be restated for comparative purposes. The restatement will result in an increase in other liabilities of SDR 511.7 million and a corresponding decrease in shareholders' equity, reflecting the recognition of the net unrecognised actuarial loss as at 31 March 2013. Of this amount in shareholders' equity, SDR 89.7 million will be deducted from the free reserve, representing the cumulative change in profit recognition as a result of applying the revised accounting policies. The remaining SDR 422.0 million will be deducted from a new account in other equity, representing the cumulative actuarial gains and losses. Further changes in the profit and loss account will result from the new net interest amount calculation and the removal of the amortisation of actuarial gains and losses. The 2013/14 financial statements will provide full details on this accounting policy change.

4. 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.

5. Gold and gold loans

A. Total gold holdings

The composition of the Bank's total gold holdings was as follows:

As at 31 March

SDR millions	**2013**	2012
Gold	35,086.8	34,831.9
Gold loans	280.3	1,080.8
Total gold and gold loan assets	**35,367.1**	35,912.7
Comprising:		
Gold investment assets	3,944.9	4,018.2
Gold and gold loan banking assets	31,422.2	31,894.5

Included in "Gold" is SDR 13,836.1 million (404 tonnes) of gold (2012: SDR 12,262.8 million; 355 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 8 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 18B provides further analysis of the gold revaluation account. Note 27 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

SDR millions	**2013**	2012
Balance at beginning of year	4,018.2	3,451.2
Net change in gold investment assets		
Disposals of gold	(34.1)	(93.3)
Maturities, sight account and other net movements	(0.7)	(4.9)
Release of impairment provision	–	34.7
	(34.8)	(63.5)
Gold price movement	(38.5)	630.5
Balance at end of year	**3,944.9**	4,018.2

During the financial year ended 31 March 2012 the Bank released an impairment provision as the related gold loans were repaid in full.

At 31 March 2013 the Bank's gold investment assets amounted to 115 tonnes of fine gold (2012: 116 tonnes).

6. 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 7).

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 2013	Banking assets	Investment assets			Total currency assets
SDR millions	Held at fair value through profit and loss	Available for sale	Held at fair value through profit and loss	Total	
Treasury bills	**46,552.7**	**–**	**141.4**	**141.4**	**46,694.1**
Securities purchased under resale agreements	**28,469.5**	**–**	**–**	**–**	**28,469.5**
Loans and advances	**19,335.3**	**–**	**–**	**–**	**19,335.3**
Government and other securities					
Government	24,172.2	13,801.8	–	13,801.8	37,974.0
Financial institutions	10,957.8	105.4	718.7	824.1	11,781.9
Other	12,881.4	6.0	–	6.0	12,887.4
	48,011.4	**13,913.2**	**718.7**	**14,631.9**	**62,643.3**
Total currency assets	**142,368.9**	**13,913.2**	**860.1**	**14,773.3**	**157,142.2**

As at 31 March 2012	Banking assets	Investment assets			Total currency assets
SDR millions	Held at fair value through profit and loss	Available for sale	Held at fair value through profit and loss	Total	
Treasury bills	53,338.3	–	154.0	154.0	53,492.3
Securities purchased under resale agreements	46,210.8	–	–	–	46,210.8
Loans and advances	22,570.5	–	–	–	22,570.5
Government and other securities					
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
	63,776.2	13,478.6	622.9	14,101.5	77,877.7
Total currency assets	185,895.8	13,478.6	776.9	14,255.5	200,151.3

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	**2013**	2012
Balance at beginning of year	13,478.6	12,146.4
Net change in currency investment assets available for sale		
Additions	6,268.2	4,086.5
Disposals	(5,247.4)	(2,132.0)
Other net movements	(531.2)	(1,031.5)
	489.6	923.0
Net change in transactions awaiting settlement	(82.2)	88.0
Fair value and other movements	27.2	321.2
Balance at end of year	**13,913.2**	13,478.6

7. 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. At 31 March 2013, the balance held in the futures clearing accounts totalled SDR 34.1 million (2012: SDR 40.3 million).

As at 31 March

SDR millions	**2013**	2012
Loans and advances	19,335.3	22,570.5
Notice accounts	341.5	186.6
Total loans and advances	**19,676.8**	22,757.1

The amount of the change in fair value recognised in the profit and loss account on fixed-term loans and advances is SDR –2.1 million (2012: SDR –1.7 million).

8. 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 11). 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:

As at 31 March	**2013**			2012		
	Notional amounts	Fair values		Notional amounts	Fair values	
SDR millions		Assets	Liabilities		Assets	Liabilities
Bond futures	731.6	0.4	(0.1)	1,023.8	0.2	(0.2)
Cross-currency interest rate swaps	1,284.7	0.2	(145.8)	1,456.3	0.1	(275.4)
Currency and gold forwards	573.6	6.3	(5.9)	950.2	7.0	(2.6)
Currency and gold options	1,674.6	0.2	(0.3)	115.2	–	(0.2)
Currency and gold swaps	102,193.8	2,278.8	(416.9)	116,556.3	2,381.9	(945.0)
Forward rate agreements	4,628.2	0.9	(0.7)	15,881.2	4.1	(4.0)
Interest rate futures	5,773.7	0.1	–	4,722.1	0.1	–
Interest rate swaps	215,102.1	3,568.8	(2,831.4)	304,954.9	4,910.5	(3,496.6)
Swaptions	1,497.7	–	(1.2)	1,446.9	–	(3.0)
Total derivative financial instruments at end of year	**333,460.0**	**5,855.7**	**(3,402.3)**	447,106.9	7,303.9	(4,727.0)
Net derivative financial instruments at end of year			**2,453.4**			2,576.9

9. Accounts receivable

As at 31 March

SDR millions	**2013**	2012
Financial transactions awaiting settlement	6,159.2	7,833.2
Other assets	12.0	12.3
Total accounts receivable	**6,171.2**	7,845.5

"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.

10. Land, buildings and equipment

For the financial year ended 31 March				2013	2012
SDR millions	Land	Buildings	IT and other equipment	Total	Total
Historical cost					
Balance at beginning of year	**41.2**	**257.7**	**102.7**	**401.6**	384.3
Capital expenditure	–	5.7	8.8	14.5	18.9
Disposals and retirements	–	–	(7.4)	(7.4)	(1.6)
Balance at end of year	**41.2**	**263.4**	**104.1**	**408.7**	401.6
Depreciation					
Balance at beginning of year	**–**	**130.7**	**77.9**	**208.6**	193.5
Depreciation	–	8.0	8.9	16.9	16.7
Disposals and retirements	–	–	(7.4)	(7.4)	(1.6)
Balance at end of year	**–**	**138.7**	**79.4**	**218.1**	208.6
Net book value at end of year	**41.2**	**124.7**	**24.7**	**190.6**	193.0

The depreciation charge for the financial year ended 31 March 2013 includes an additional charge of SDR 1.3 million for IT and other equipment following an impairment review (2012: SDR 1.6 million).

11. 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	**2013**	2012
Deposit instruments repayable at one to two days' notice		
Medium-Term Instruments (MTIs)	50,047.8	57,867.3
Callable MTIs	1,755.5	2,016.5
Fixed Rate Investments of the BIS (FIXBIS)	41,760.5	43,507.5
	93,563.8	103,391.3
Other currency deposits		
Floating Rate Investments of the BIS (FRIBIS)	307.3	731.8
Fixed-term deposits	59,144.7	66,560.0
Dual Currency Deposits (DCDs)	190.9	119.9
Sight and notice deposit accounts	12,953.6	24,975.5
	72,596.5	92,387.2
Total currency deposits	**166,160.3**	195,778.5
Comprising:		
Designated as held at fair value through profit and loss	153,206.7	170,803.1
Designated as financial liabilities measured at amortised cost	12,953.6	24,975.4

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 June 2013 and March 2014 (2012: September 2012 and March 2013). 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 between April 2013 and May 2013 (2012: in April 2012 and May 2012).

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 2013) is SDR 165,182.2 million (2012: SDR 194,313.6 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.

12. Gold deposits

Gold deposits placed with the Bank originate entirely from central banks. They are all designated as financial liabilities measured at amortised cost.

13. 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.

14. Other liabilities

The Bank's other liabilities consist of:

As at 31 March

SDR millions	**2013**	2012
Post-employment benefit obligations (see note 19)		
Staff pensions	50.5	30.0
Directors' pensions	6.7	6.4
Health and accident benefits	311.4	287.0
Short positions in currency assets	96.7	69.7
Payable to former shareholders	0.6	0.6
Other	21.9	22.8
Total other liabilities	**487.8**	416.5

15. Share capital

The Bank's share capital consists of:

As at 31 March

SDR millions	**2013**	2012
Authorised capital: 600,000 shares, each of SDR 5,000 par value, of which SDR 1,250 is paid up	3,000.0	3,000.0
Issued capital: 559,125 shares	2,795.6	2,795.6
Paid-up capital (25%)	**698.9**	698.9

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). There were no new shares issued in the financial year ended 31 March 2013.

The number of shares eligible for dividend is:

As at 31 March	**2013**	2012
Issued shares	559,125	559,125
Less: shares held in treasury	(1,000)	(1,000)
Outstanding shares eligible for dividend	**558,125**	558,125
Of which:		
Eligible for full dividend	558,125	546,125
New shares eligible for dividend pro rata from the value date of subscription	–	12,000

16. 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.

The table below analyses the movements in the Bank's statutory reserves over the past two financial years:

SDR millions	Legal reserve fund	General reserve fund	Special dividend reserve fund	Free reserve fund	Total statutory reserves
Balance at 31 March 2011	**68.3**	**3,228.5**	**166.0**	**8,691.6**	**12,154.4**
Allocation of 2010/11 profit	–	65.5	6.0	583.4	654.9
New shares issued	1.5	246.4	–	–	247.9
Balance at 31 March 2012	**69.8**	**3,540.4**	**172.0**	**9,275.0**	**13,057.2**
Allocation of 2011/12 profit	–	29.5	6.0	555.0	590.5
Balance at 31 March 2013	**69.8**	**3,569.9**	**178.0**	**9,830.0**	**13,647.7**

In accordance with Article 51 of the Bank's Statutes, the following profit allocation will be proposed at the Bank's Annual General Meeting:

SDR millions	**2013**
Net profit for the financial year	**898.2**
Transfer to legal reserve fund	–
Proposed dividend:	
SDR 315 per share on 558,125 shares	(175.8)
Profit available for allocation	**722.4**
Proposed transfers to reserves:	
General reserve fund	(36.1)
Special dividend reserve fund	(6.0)
Free reserve fund	(680.3)
Balance after allocation to reserves	–

The balances in the Bank's statutory reserves are also affected by the future implementation of the new accounting policy for post-employment benefits (see note 3). It is proposed to deal with this by deducting SDR 89.7 million from the free reserve fund. Assuming that the Annual General Meeting approves the proposed profit allocation and the deduction from the free reserve fund following the change in accounting policy, the balances in the Bank's statutory reserves at the date of the Annual General Meeting would be:

SDR millions	Legal reserve fund	General reserve fund	Special dividend reserve fund	Free reserve fund	Total statutory reserves
Balance at 31 March 2013	**69.8**	**3,569.9**	**178.0**	**9,830.0**	**13,647.7**
Change of accounting policy (from 1 April 2013) for post-employment benefit obligations (see note 3)	–	–	–	(89.7)	(89.7)
Proposed allocation of 2012/13 profit	–	36.1	6.0	680.3	722.4
Balance at 23 June 2013 assuming approval of proposed profit allocation	**69.8**	**3,606.0**	**184.0**	**10,420.6**	**14,280.4**

17. Shares held in treasury

For the financial year ended 31 March	**2013**	2012
Number of shares at beginning of year	1,000	1,000
Number of shares at end of year	**1,000**	1,000

The shares held in treasury consist of 1,000 shares of the Albanian issue which were suspended in 1977.

18. 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 5 and 6.

Other equity accounts comprise:

As at 31 March

SDR millions	**2013**	2012
Securities revaluation account	362.3	417.8
Gold revaluation account	3,380.4	3,448.2
Total other equity accounts	**3,742.7**	3,866.0

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	**2013**	2012
Balance at beginning of year	417.8	121.3
Net valuation movement		
Net gain on sales	(82.7)	(24.7)
Fair value and other movements	27.2	321.2
	(55.5)	296.5
Balance at end of year	**362.3**	417.8

The table below analyses the balance in the securities revaluation account, which relates to government and other securities:

SDR millions	Fair value of assets	Historical cost	Securities revaluation account	Gross gains	Gross losses
As at 31 March 2013	13,913.1	13,550.8	**362.3**	362.3	–
As at 31 March 2012	13,478.6	13,060.8	417.8	422.7	(4.9)

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

SDR millions	**2013**	2012
Balance at beginning of year	3,448.2	2,896.4
Net valuation movement		
Net gain on sales	(29.3)	(78.7)
Gold price movement	(38.5)	630.5
	(67.8)	551.8
Balance at end of year	**3,380.4**	3,448.2

19. 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	**2013**	2012	2011	2010	2009
Present value of obligation	(1,370.7)	(1,264.5)	(1,039.1)	(913.1)	(747.4)
Fair value of fund assets	978.2	929.2	881.9	762.4	619.6
Funded status	(392.5)	(335.3)	(157.2)	(150.7)	(127.8)
Unrecognised actuarial losses	342.0	305.3	134.5	138.6	125.4
Liability at end of year	**(50.5)**	(30.0)	(22.7)	(12.1)	(2.4)

As at 31 March	Directors' pensions				
SDR millions	**2013**	2012	2011	2010	2009
Present value of obligation	(8.9)	(8.6)	(7.2)	(6.5)	(5.7)
Fair value of fund assets	–	–	–	–	–
Funded status	(8.9)	(8.6)	(7.2)	(6.5)	(5.7)
Unrecognised actuarial losses	2.2	2.2	1.3	1.3	0.9
Liability at end of year	**(6.7)**	(6.4)	(5.9)	(5.2)	(4.8)

As at 31 March	Post-employment health and accident benefits				
SDR millions	**2013**	2012	2011	2010	2009
Present value of obligation	(478.9)	(434.3)	(316.7)	(284.2)	(225.4)
Fair value of fund assets	–	–	–	–	–
Funded status	(478.9)	(434.3)	(316.7)	(284.2)	(225.4)
Unrecognised actuarial losses	170.0	151.2	63.3	72.3	40.1
Unrecognised past service cost	(2.5)	(3.9)	(4.9)	(5.6)	(6.3)
Liability at end of year	**(311.4)**	(287.0)	(258.3)	(217.5)	(191.6)

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	Staff pensions			Directors' pensions			Post-employment health and accident benefits		
SDR millions	**2013**	2012	2011	**2013**	2012	2011	**2013**	2012	2011
Present value of obligation at beginning of year	1,264.5	1,039.1	913.1	8.6	7.2	6.5	434.3	316.7	284.2
Current service cost	53.5	45.6	40.1	0.4	0.4	0.3	15.6	11.3	9.4
Employee contributions	6.2	6.0	5.2	–	–	–	–	–	–
Interest cost	24.3	29.5	25.6	0.2	0.2	0.2	8.4	9.0	8.1
Actuarial loss / (gain)	70.9	146.8	(11.8)	0.3	1.0	–	30.1	88.9	(11.9)
Benefit payments	(28.5)	(40.0)	(29.0)	(0.5)	(0.4)	(0.4)	(2.7)	(2.6)	(2.5)
Exchange differences	(20.2)	37.5	95.9	(0.1)	0.3	0.6	(6.8)	11.0	29.4
Present value of obligation at end of year	**1,370.7**	1,264.5	1,039.1	**8.9**	8.6	7.2	**478.9**	434.3	316.7

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			
SDR millions	**2013**	2012	2011
Fair value of fund assets at beginning of year	929.2	881.9	762.4
Expected return on fund assets	45.1	46.2	39.4
Actuarial gain / (loss)	15.0	(23.9)	0.9
Employer contributions	26.5	25.7	22.0
Employee contributions	6.2	6.0	5.2
Benefit payments	(28.5)	(40.0)	(29.0)
Exchange differences	(15.3)	33.3	81.0
Fair value of fund assets at end of year	**978.2**	929.2	881.9

D. Amounts recognised in the profit and loss account

For the financial year ended 31 March	Staff pensions			Directors' pensions			Post-employment health and accident benefits		
SDR millions	**2013**	2012	2011	**2013**	2012	2011	**2013**	2012	2011
Current service cost	53.5	45.6	40.1	0.4	0.4	0.3	15.6	11.3	9.4
Interest cost	24.3	29.5	25.6	0.2	0.2	0.2	8.4	9.0	8.1
Less: expected return on fund assets	(45.1)	(46.2)	(39.4)	–	–	–	–	–	–
Less: past service cost	–	–	–	–	–	–	(1.3)	(1.3)	(1.2)
Net actuarial losses recognised in year	15.4	2.9	4.2	0.2	0.1	0.1	8.8	2.9	3.5
Total included in operating expense	**48.1**	31.8	30.5	**0.8**	0.7	0.6	**31.5**	21.9	19.8

The Bank expects to make a contribution to its post-employment arrangements of SDR 29.9 million in 2013/14.

E. Major categories of fund assets as a percentage of total fund assets

As at 31 March

Percentages	**2013**	2012
European equities	13.8	12.7
Other equities	48.8	30.4
European fixed income	14.3	28.8
Other fixed income	18.1	22.3
Other assets	5.0	5.8
Actual return on fund assets	**6.2%**	2.4%

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	**2013**	2012
Applicable to all three post-employment benefit arrangements		
Discount rate – market rate of highly rated Swiss corporate bonds	1.75%	2.00%
Applicable to staff and Directors' pension arrangements		
Assumed increase in pensions payable	1.50%	1.50%
Applicable to staff pension arrangement only		
Expected return on fund assets	5.00%	5.00%
Assumed salary increase rate	4.10%	4.10%
Applicable to Directors' pension arrangement only		
Assumed Directors' pensionable remuneration increase rate	1.50%	1.50%
Applicable to post-employment health and accident benefit arrangement only		
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 2013 (2012: 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 2012/13 calculation would have the following effects:

For the financial year ended 31 March

SDR millions	**2013**	2012
Increase / (decrease) of the total service and interest cost		
6% medical inflation	8.8	7.7
4% medical inflation	(6.3)	(5.4)

As at 31 March

SDR millions	**2013**	2012
Increase / (decrease) of the benefit obligation		
6% medical inflation	124.1	104.0
4% medical inflation	(92.3)	(77.6)

20. Interest income

For the financial year ended 31 March

SDR millions	**2013**	2012
Currency assets available for sale		
Government and other securities	218.6	288.9
	218.6	288.9
Currency assets held at fair value through profit and loss		
Treasury bills	91.4	304.6
Securities purchased under resale agreements	50.7	235.8
Loans and advances	106.0	209.0
Government and other securities	738.0	862.9
	986.1	1,612.3
Assets designated as loans and receivables		
Sight and notice accounts	0.7	2.2
Gold investment assets	–	1.0
Gold banking assets	1.1	1.6
Release of impairment provision on repayment in full of related gold banking assets	–	34.7
	1.8	39.5
Derivative financial instruments held at fair value through profit and loss	**947.5**	1,150.5
Total interest income	**2,154.0**	3,091.2

21. Interest expense

For the financial year ended 31 March

SDR millions	**2013**	2012
Liabilities held at fair value through profit and loss		
Currency deposits	1,079.3	1,564.8
Liabilities designated as financial liabilities measured at amortised cost		
Sight and notice deposit accounts	42.4	67.3
Gold deposits	0.8	1.0
	43.2	68.3
Total interest expense	**1,122.5**	1,633.1

22. 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 for the financial year ended 31 March 2012 is a credit loss of SDR 31.9 million relating to a sovereign debt restructuring. There were no credit losses due to restructuring or default in 2013.

For the financial year ended 31 March

SDR millions	**2013**	2012
Currency assets held at fair value through profit and loss		
Unrealised valuation movements on currency assets	192.5	530.1
Realised gains on currency assets	7.9	52.9
	200.4	583.0
Currency liabilities held at fair value through profit and loss		
Unrealised valuation movements on financial liabilities	335.6	(258.0)
Realised losses on financial liabilities	(126.2)	(185.1)
	209.4	(443.1)
Valuation movements on derivative financial instruments	**(426.9)**	(730.2)
Net valuation movement	**(17.1)**	(590.3)

23. Net fee and commission income

For the financial year ended 31 March

SDR millions	**2013**	2012
Fee and commission income	12.8	14.5
Fee and commission expense	(9.7)	(9.8)
Net fee and commission income	**3.1**	4.7

24. Net foreign exchange gain

For the financial year ended 31 March

SDR millions	**2013**	2012
Net transaction gain	14.3	14.4
Net translation gain / (loss)	10.7	(4.7)
Net foreign exchange gain	**25.0**	9.7

25. 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

CHF millions	**2013**	2012
Board of Directors		
Directors' fees	2.0	1.9
Pensions to former Directors	1.2	0.9
Travel, external Board meetings and other costs	1.5	1.2
	4.7	4.0
Management and staff		
Remuneration	132.5	122.2
Pensions	70.0	46.2
Other personnel-related expense	63.9	48.1
	266.4	216.5
Office and other expenses	**72.5**	70.0
Administrative expense in CHF millions	**343.6**	290.5
Administrative expense in SDR millions	239.4	210.0
Depreciation in SDR millions	16.9	16.7
Operating expense in SDR millions	**256.3**	226.7

The average number of full-time equivalent employees during the financial year ended 31 March 2013 was 576 (2012: 554). In addition, at 31 March the Bank employed 57 staff members (2012: 29) on behalf of the Financial Stability Board, the International Association of Deposit Insurers and the International Association of Insurance Supervisors, with the regular ongoing cost of these staff members borne by the associations in accordance with agreements with each association. The Bank makes a direct contribution towards the operational costs of these associations, which is included under office and other expenses in the table above. The Bank also provides logistical, administrative and staffing-related support for them, the cost of which is included within the Bank's regular operating expense categories.

26. Net gain on sales of securities available for sale

For the financial year ended 31 March

SDR millions	**2013**	2012
Disposal proceeds	5,351.0	2,132.0
Amortised cost	(5,268.3)	(2,107.3)
Net gain on sales of securities available for sale	**82.7**	24.7
Comprising:		
Gross realised gains	89.3	39.5
Gross realised losses	(6.6)	(14.8)

27. Net gain on sales of gold investment assets

For the financial year ended 31 March

SDR millions	**2013**	2012
Disposal proceeds	34.1	93.2
Deemed cost (see note 18B)	(4.8)	(14.5)
Net gain on sales of gold investment assets	**29.3**	78.7

28. Earnings and dividends per share

For the financial year ended 31 March	**2013**	2012
Net profit for the financial year (SDR millions)	898.2	758.9
Weighted average number of shares entitled to dividend	558,125.0	552,076.0
Basic and diluted earnings per share (SDR per share)	**1,609.3**	1,374.6
Dividends per share (SDR per share)		
Normal	**315.0**	305.0

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.

29. Cash and cash equivalents

The cash and cash equivalents in the cash flow statement comprise:

As at 31 March

SDR millions	**2013**	2012
Cash and sight accounts with banks	6,884.1	4,077.8
Notice accounts	341.5	186.6
Total cash and cash equivalents	**7,225.6**	4,264.4

30. 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.

31. 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	
	2013	2012	**2013**	2012
USD	**0.667**	0.646	**0.655**	0.636
EUR	**0.855**	0.861	**0.844**	0.875
JPY	**0.00709**	0.00784	**0.00792**	0.00806
GBP	**1.012**	1.033	**1.035**	1.015
CHF	**0.703**	0.715	**0.697**	0.723
Gold (in ounces)	**1,064.3**	1,074.7	**1,083.2**	1,046.3

32. 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	**2013**	2012
Safe custody arrangements	6,590.8	11,167.9
Collateral pledge agreements	35.8	34.7
Portfolio management mandates	12,335.7	11,341.6
Gold bars held under earmark	11,081.2	11,176.2
Total	**30,043.5**	33,720.4

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 2013 gold bars held under earmark amounted to 324 tonnes of fine gold (2012: 323 tonnes).

The financial instruments listed in the above schedule 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 6,532.6 million at 31 March 2013 (2012: SDR 6,253.2 million). The assets in these portfolios are included in the balance sheet under the heading "Currency deposits".

33. Commitments

The Bank provides a number of committed standby facilities for its customers on a collateralised or uncollateralised basis. At 31 March 2013 the outstanding commitments to extend credit under these committed standby facilities amounted to SDR 3,053.8 million (2012: SDR 2,570.6 million), of which SDR 200.1 million was uncollateralised (2012: SDR 193.8 million).

The Bank is also committed to supporting the operation of the Financial Stability Board, the International Association of Deposit Insurers and the International Association of Insurance Supervisors. The services provided include premises, equipment, and logistical, administrative and staffing-related support. The BIS support is subject to an annual budgetary decision of the BIS Board, and associated costs are included in the Bank's operating expense as they accrue.

34. 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 – unadjusted quoted prices in active markets for identical financial instruments.

Level 2 – inputs other than those 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 2013

SDR millions	Level 1	Level 2	Level 3	Total
Financial assets held at fair value through profit and loss				
Treasury bills	44,256.4	2,437.7	–	46,694.1
Securities purchased under resale agreements	–	28,469.5	–	28,469.5
Fixed-term loans	–	19,335.3	–	19,335.3
Government and other securities	32,387.5	16,342.6	–	48,730.1
Derivative financial instruments	0.7	5,855.0	–	5,855.7
Financial assets designated as available for sale				
Government and other securities	13,907.2	6.0	–	13,913.2
Total financial assets accounted for at fair value	**90,551.8**	**72,446.1**	**–**	**162,997.9**
Financial liabilities held at fair value through profit and loss				
Currency deposits	–	(153,206.7)	–	(153,206.7)
Derivative financial instruments	(0.2)	(3,402.1)	–	(3,402.3)
Other liabilities (short positions in currency assets)	–	(96.7)	–	(96.7)
Total financial liabilities accounted for at fair value	**(0.2)**	**(156,705.5)**	**–**	**(156,705.7)**

As at 31 March 2012

SDR millions	Level 1	Level 2	Level 3	Total
Financial assets held at fair value through profit and loss				
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
Financial assets designated as available for sale				
Government and other securities	13,361.1	117.5	–	13,478.6
Total financial assets accounted for at fair value	101,308.3	106,138.6	8.3	207,455.2
Financial liabilities held at fair value through profit and loss				
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)
Total financial liabilities accounted for at fair value	(35.6)	(175,564.2)	–	(175,599.8)

The Bank considers published price quotations in active markets as the best evidence of fair value. The financial instruments valued using active market quotes 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 comprised illiquid bonds. At 31 March 2013 the Bank had no financial instruments categorised as level 3.

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 2013

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	8.3	–	8.3
Gains in equity	–	–	–
Disposals	(8.3)	–	(8.3)
Balance at end of year	**–**	**–**	**–**
Gains / (losses) in profit or loss for assets and liabilities held at end of year	–	–	**–**

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
Total gains	1.3	–	1.3
Disposals	(27.4)	–	(27.4)
Transfers out of level 3	(38.0)	–	(38.0)
Transfers into level 3	8.3	–	8.3
Balance at end of year	8.3	–	8.3
Gains / (losses) in profit or loss for assets and liabilities held at end of year	(20.0)	–	(20.0)

35. 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 2013

Percentages	USD	EUR	GBP	JPY	Other currencies
Assets					
Gold loans	–	–	–	–	0.86
Treasury bills	0.15	0.03	–	0.07	1.48
Securities purchased under resale agreements	0.14	0.01	0.36	0.01	–
Loans and advances	0.23	0.07	0.45	0.10	0.15
Government and other securities	1.08	1.79	1.66	0.22	3.58
Liabilities					
Currency deposits	0.51	0.72	0.60	0.02	0.56
Gold deposits	–	–	–	–	0.72
Short positions in currency assets	3.44	–	–	–	–

As at 31 March 2012

Percentages	USD	EUR	GBP	JPY	Other currencies
Assets					
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
Liabilities					
Currency deposits	0.57	0.68	0.72	0.03	0.77
Gold deposits	–	–	–	–	0.42
Short positions in currency assets	4.33	–	–	–	–

36. Geographical analysis

A. Total liabilities

As at 31 March

SDR millions	**2013**	2012
Africa and Europe	58,597.2	80,509.2
Asia-Pacific	86,965.2	99,805.3
Americas	33,208.0	42,594.0
International organisations	14,196.2	14,383.0
Total	**192,966.6**	237,291.5

B. Off-balance sheet items

As at 31 March

SDR millions	**2013**	2012
Africa and Europe	8,076.3	7,972.9
Asia-Pacific	16,158.0	20,144.4
Americas	5,809.2	5,603.1
Total	**30,043.5**	33,720.4

Note 32 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

SDR millions	**2013**	2012
Africa and Europe	256.6	–
Asia-Pacific	2,797.2	2,570.6
Total	**3,053.8**	2,570.6

Note 33 provides further analysis of the Bank's credit commitments.

37. 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;
- 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 19 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	**2013**	2012
Salaries, allowances and medical cover	7.8	7.7
Post-employment benefits	2.1	2.1
Total compensation	**9.9**	9.8
SDR equivalent	6.9	7.1

Note 25 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	**2013**	2012
Balance at beginning of year	24.1	21.7
Deposits taken including interest income (net of withholding tax)	4.2	4.2
Withdrawals	(1.1)	(1.8)
Balance at end of year	**27.2**	24.1
SDR equivalent	19.1	17.2
Interest expense on deposits in CHF millions	0.4	0.5
SDR equivalent	0.3	0.4

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 2013 was SDR 18.6 million (2012: SDR 19.4 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

SDR millions	**2013**	2012
Balance at beginning of year	49,428.8	47,156.3
Deposits taken	118,064.6	290,890.7
Maturities, repayments and fair value movements	(126,159.1)	(289,823.8)
Net movement on notice accounts	(4,606.4)	1,205.6
Balance at end of year	**36,727.9**	49,428.8
Percentage of total currency deposits at end of year	22.1%	25.2%

Gold deposit liabilities from related central banks and connected institutions

For the financial year ended 31 March

SDR millions	**2013**	2012
Balance at beginning of year	13,767.1	15,536.0
Net movement on gold sight accounts	(2,917.4)	(1,768.9)
Balance at end of year	**10,849.7**	13,767.1
Percentage of total gold deposits at end of year	61.7%	70.2%

Securities purchased under resale transactions with related party central banks and connected institutions

For the financial year ended 31 March

SDR millions	**2013**	2012
Balance at beginning of year	5,760.6	5,947.0
Collateralised deposits placed	1,378,767.4	1,569,113.8
Maturities and fair value movements	(1,380,533.7)	(1,569,300.2)
Balance at end of year	**3,994.3**	5,760.6
Percentage of total securities purchased under resale agreements at end of year	14.0%	12.5%

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 2013 was SDR 18,843.4 million (2012: SDR 16,196.5 million).

Other balances and transactions with related party central banks and connected institutions

The Bank maintains sight accounts in currencies with related party central banks and connected institutions, the total balance of which was SDR 6,858.1 million as at 31 March 2013 (2012: SDR 4,061.8 million). Gold held with related party central banks and connected institutions totalled SDR 35,074.5 million as at 31 March 2013 (2012: SDR 34,816.2 million).

During the year ended 31 March 2013 the Bank acquired SDR 22.4 million of securities issued by related party central banks and connected institutions (2012: SDR 34,276.9 million). A total of SDR 1,109.0 million of such securities matured or were sold during the financial year (2012: SDR 36,724.0 million). At 31 March 2013 the Bank held SDR 81.2 million of related party securities (2012: SDR 1,167.8 million).

During the financial year, the Bank purchased third-party securities from central banks and connected institutions amounting to SDR 7,061.0 million, all of which were subsequently disposed of before the end of the year (2012: SDR 131.1 million).

The Bank provides committed standby facilities for customers and as of 31 March 2013 the Bank had outstanding commitments to extend credit under facilities to related parties of SDR 285.7 million (2012: SDR 261.5 million).

38. Contingent liabilities

In the opinion of the Bank's Management there were no significant contingent liabilities at 31 March 2013.

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	**2013**	2012
Share capital	698.9	698.9
Statutory reserves per balance sheet	13,647.7	13,057.2
Less: shares held in treasury	(1.7)	(1.7)
Tier 1 capital	**14,344.9**	13,754.4
Profit and loss account	898.2	758.9
Other equity accounts	3,742.7	3,866.0
Total equity	**18,985.8**	18,379.3

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 credit risk, market 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	**2013**	2012
Credit risk	6,283.6	6,886.2
Market risk	2,308.6	3,287.9
Operational risk	700.0	700.0
Other risks	300.0	300.0
Total economic capital utilisation	**9,592.2**	11,174.1

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		**2013**			2012		
SDR millions	Approach used	Amount of exposure	Risk-weighted assets (A)	Minimum capital requirement (B)	Amount of exposure	Risk-weighted assets (A)	Minimum capital requirement (B)
Credit risk							
Exposure to sovereigns, banks and corporates	Advanced internal ratings-based approach, where (B) is derived as (A) x 8%	131,684.4	8,934.3	714.7	153,430.0	10,041.9	803.4
Securitisation exposures, externally managed portfolios and other assets	Standardised approach, where (B) is derived as (A) x 8%	1,823.5	1,142.6	91.4	1,853.2	1,107.8	88.6
Market risk							
Exposure to foreign exchange risk and gold price risk	Internal models approach, where (A) is derived as (B) / 8%	–	11,748.1	939.8	–	16,005.8	1,280.5
Operational risk	Advanced measurement approach, where (A) is derived as (B) / 8%	–	4,612.5	369.0	–	4,270.3	341.6
Total			**26,437.5**	**2,114.9**		31,425.8	2,514.1

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

SDR millions	**2013**	2012
Tier 1 capital	**14,344.9**	13,754.4
Expected loss	(20.8)	(24.3)
Tier 1 capital net of expected loss (A)	**14,324.1**	13,730.1
Total risk-weighted assets (B)	26,437.5	31,425.8
Tier 1 capital ratio (A) / (B)	**54.2%**	43.7%

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. The Bank had no impaired financial assets at 31 March 2013 or 31 March 2012. Note 2B to the financial statements provides details of the impairment provision. 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. VaR models depend on statistical assumptions and the quality of available market data and, while forward-looking, they extrapolate from past events. VaR models may underestimate potential losses if changes in risk factors fail to align with the distribution assumptions. VaR figures do not provide any information on losses that may occur beyond the assumed confidence level.

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 credit risk, market 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 2013 the Bank did not have any financial assets that were considered to be impaired (31 March 2012: nil). As at 31 March 2013 no financial assets were considered past due (31 March 2012: nil). During the period ended 31 March 2012 the Bank recorded a credit loss of SDR 31.9 million due to a sovereign debt restructuring. No credit loss was recognised for the financial year ended 31 March 2013.

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, without taking into account any collateral held or other credit enhancements available to the Bank. "Public sector" includes international and other public sector institutions.

As at 31 March 2013

SDR millions	Sovereign and central banks	Public sector	Banks	Corporate	Securitisation	Total
On-balance sheet exposures						
Cash and sight accounts with banks	6,861.0	–	22.2	0.9	–	6,884.1
Gold and gold loans	–	–	292.6	–	–	292.6
Treasury bills	46,694.1	–	–	–	–	46,694.1
Securities purchased under resale agreements	3,994.3	–	24,475.2	–	–	28,469.5
Loans and advances	3,134.8	507.3	16,034.7	–	–	19,676.8
Government and other securities	39,559.3	11,847.7	4,897.7	5,395.0	943.6	62,643.3
Derivatives	166.6	148.9	5,539.7	0.5	–	5,855.7
Accounts receivable	145.9	147.7	103.7	8.7	–	406.0
Total on-balance sheet exposure	**100,556.0**	**12,651.6**	**51,365.8**	**5,405.1**	**943.6**	**170,922.1**
Commitments						
Undrawn unsecured facilities	200.1	–	–	–	–	200.1
Undrawn secured facilities	2,853.7	–	–	–	–	2,853.7
Total commitments	**3,053.8**	**–**	**–**	**–**	**–**	**3,053.8**
Total exposure	**103,609.8**	**12,651.6**	**51,365.8**	**5,405.1**	**943.6**	**173,975.9**

As at 31 March 2012

SDR millions	Sovereign and central banks	Public sector	Banks	Corporate	Securitisation	Total
On-balance sheet exposures						
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
Total on-balance sheet exposure	117,095.8	16,457.8	74,156.4	4,478.8	1,005.0	213,193.8
Commitments						
Undrawn unsecured facilities	193.8	–	–	–	–	193.8
Undrawn secured facilities	2,376.8	–	–	–	–	2,376.8
Total commitments	2,570.6	–	–	–	–	2,570.6
Total exposure	119,666.4	16,457.8	74,156.4	4,478.8	1,005.0	215,764.4

Default risk by geographical region

The following tables represent the exposure of the Bank to default risk by asset class and geographical region, without taking into account any collateral held or other credit enhancements available to the Bank. 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 2013

SDR millions	Africa and Europe	Asia-Pacific	Americas	International institutions	Total
On-balance sheet exposures					
Cash and sight accounts with banks	6,874.4	2.2	7.5	–	6,884.1
Gold and gold loans	117.5	–	175.1	–	292.6
Treasury bills	7,213.3	32,940.0	6,540.8	–	46,694.1
Securities purchased under resale agreements	21,807.8	3,560.7	3,101.0	–	28,469.5
Loans and advances	11,604.8	6,764.2	1,000.5	307.3	19,676.8
Government and other securities	29,977.4	3,790.8	22,709.4	6,165.7	62,643.3
Derivatives	4,620.6	199.2	1,035.9	–	5,855.7
Accounts receivable	46.4	0.9	358.7	–	406.0
Total on-balance sheet exposure	**82,262.2**	**47,258.0**	**34,928.9**	**6,473.0**	**170,922.1**
Commitments					
Undrawn unsecured facilities	–	200.1	–	–	200.1
Undrawn secured facilities	256.6	2,597.1	–	–	2,853.7
Total commitments	**256.6**	**2,797.2**	**–**	**–**	**3,053.8**
Total exposure	**82,518.8**	**50,055.2**	**34,928.9**	**6,473.0**	**173,975.9**

As at 31 March 2012

SDR millions	Africa and Europe	Asia-Pacific	Americas	International institutions	Total
On-balance sheet exposures					
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
Total on-balance sheet exposure	118,486.6	53,708.3	32,478.0	8,520.9	213,193.8
Commitments					
Undrawn unsecured facilities	–	193.8	–	–	193.8
Undrawn secured facilities	–	2,376.8	–	–	2,376.8
Total commitments	–	2,570.6	–	–	2,570.6
Total exposure	118,486.6	56,278.9	32,478.0	8,520.9	215,764.4

Default risk by counterparty / issuer rating

The following tables show the exposure of the Bank to default risk by class of financial asset and counterparty / issuer rating, without taking into account any collateral held or other credit enhancements available to the Bank. The ratings shown reflect the Bank's internal ratings expressed as equivalent external ratings.

As at 31 March 2013 *SDR millions*	AAA	AA	A	BBB	BB and below	Unrated	Total
On-balance sheet exposures							
Cash and sight accounts with banks	6,804.5	73.9	3.8	0.9	0.3	0.7	6,884.1
Gold and gold loans	–	–	292.6	–	–	–	292.6
Treasury bills	7,818.8	6,067.3	32,183.1	624.9	–	–	46,694.1
Securities purchased under resale agreements	–	433.6	22,625.6	5,410.3	–	–	28,469.5
Loans and advances	1,508.0	1,281.8	16,151.8	535.1	200.1	–	19,676.8
Government and other securities	11,688.0	40,153.8	8,756.5	1,530.7	514.3	–	62,643.3
Derivatives	132.2	527.3	5,107.2	88.2	0.3	0.5	5,855.7
Accounts receivable	–	290.7	71.8	0.9	1.0	41.6	406.0
Total on-balance sheet exposure	**27,951.5**	**48,828.4**	**85,192.4**	**8,191.0**	**716.0**	**42.8**	**170,922.1**
Percentages	*16.4%*	*28.6%*	*49.7%*	*4.8%*	*0.5%*	*0.0%*	*100.0%*
Commitments							
Undrawn unsecured facilities	–	–	–	200.1	–	–	200.1
Undrawn secured facilities	–	842.7	857.1	825.5	328.4	–	2,853.7
Total commitments	**–**	**842.7**	**857.1**	**1,025.6**	**328.4**	**–**	**3,053.8**
Total exposure	**27,951.5**	**49,671.1**	**86,049.5**	**9,216.6**	**1,044.4**	**42.8**	**173,975.9**

As at 31 March 2012 *SDR millions*	AAA	AA	A	BBB	BB and below	Unrated	Total
On-balance sheet exposures							
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
Total on-balance sheet exposure	36,305.3	98,074.8	72,753.8	4,552.7	1,500.0	7.2	213,193.8
Percentages	*17.0%*	*46.0%*	*34.1%*	*2.1%*	*0.8%*	*0.0%*	*100.0%*
Commitments							
Undrawn unsecured facilities	–	–	–	193.8	–	–	193.8
Undrawn secured facilities	–	771.3	784.4	261.4	559.7	–	2,376.8
Total commitments	–	771.3	784.4	455.2	559.7	–	2,570.6
Total exposure	36,305.3	98,846.1	73,538.2	5,007.9	2,059.7	7.2	215,764.4

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).

As at 31 March	**2013**		2012	
SDR millions	Fair value of relevant contracts	Value of collateral	Fair value of relevant contracts	Value of collateral
Collateral obtained for				
Securities purchased under resale agreements	26,457.4	26,686.6	36,567.3	36,960.2
Advances	2,134.1	2,226.7	3,811.0	4,340.4
Derivatives	2,381.0	2,740.9	2,754.7	2,938.2
Total collateral obtained	**30,972.5**	**31,654.2**	43,133.0	44,238.8

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.

At 31 March 2013 the total amount of undrawn facilities which could be drawn down subject to collateralisation by the counterparty was SDR 2,853.7 million (2012: SDR 2,376.8 million).

The Bank may provide cash or securities collateral on its derivatives contracts. At 31 March 2013 the Bank had provided SDR 0.3 million of Treasury bills and cash as collateral in connection with futures and interest rate swap contracts (31 March 2012: SDR 0.3 million).

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). 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	**2013**				2012			
SDR millions	Average	High	Low	At 31 March	Average	High	Low	At 31 March
Economic capital utilisation for credit risk	6,527.8	7,499.0	5,903.7	**6,283.6**	6,504.4	7,131.2	5,602.3	6,886.2

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 derivatives 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 derivatives 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 2013 includes SDR 303.6 million for interest rate contracts (31 March 2012: SDR 421.4 million) and SDR 761.3 million for FX and gold contracts (31 March 2012: SDR 726.5 million).

As at 31 March 2013

Internal rating grades expressed as equivalent external rating grades	Amount of exposure	Exposure-weighted PD	Exposure-weighted average LGD	Exposure-weighted average risk weight	Risk-weighted assets
SDR millions / percentages	*SDR millions*	*%*	*%*	*%*	*SDR millions*
AAA	26,163.8	0.002	35.6	1.0	270.9
AA	45,560.3	0.01	37.4	5.3	2,437.3
A	56,429.9	0.05	42.3	8.6	4,850.0
BBB	3,031.1	0.19	42.4	30.3	919.7
BB and below	499.3	1.24	48.4	91.4	456.4
Total	**131,684.4**				**8,934.3**

As at 31 March 2012

Internal rating grades expressed as equivalent external rating grades	Amount of exposure	Exposure-weighted PD	Exposure-weighted average LGD	Exposure-weighted average risk weight	Risk-weighted assets
SDR millions / percentages	*SDR millions*	*%*	*%*	*%*	*SDR millions*
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
Total	153,430.0				10,041.9

The table below summarises the impact of collateral arrangements on the amount of credit exposure after taking netting into account.

SDR millions	Amount of exposure after taking netting into account	Benefits from collateral arrangements	Amount of exposure after taking into account netting and collateral arrangements
As at 31 March 2013	163,153.7	31,469.3	**131,684.4**
As at 31 March 2012	207,533.6	54,103.6	153,430.0

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 2013

SDR millions	External rating	Amount of exposure	Risk weight	Risk-weighted assets
Residential mortgage-backed securities	AAA	33.9	20%	6.8
Residential mortgage-backed securities	A	32.4	50%	16.2
Securities backed by other receivables (government-sponsored)	AAA	797.0	20%	159.4
Total		**863.3**		**182.4**

As at 31 March 2012

SDR millions	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
Total		946.8		201.4

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, subject to an exponential weighting scheme, over a four-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.

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 115 tonnes (2012: 116 tonnes). These gold investment assets are held in custody or placed on deposit with commercial banks. At 31 March 2013 the Bank's net gold investment assets amounted to SDR 3,944.9 million (2012: SDR 4,018.2 million), approximately 21% of its equity (2012: 22%). 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 2013

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	(4.5)	(5.0)	(23.8)	(41.2)	(45.5)	(20.7)	(26.0)
Japanese yen	0.7	(0.8)	(5.5)	(19.3)	(9.9)	(1.4)	–
Pound sterling	(0.6)	(1.1)	(8.0)	(14.5)	(19.8)	(5.4)	13.4
Swiss franc	9.8	(0.2)	(0.4)	(2.5)	(2.7)	(2.1)	7.5
US dollar	12.0	(28.7)	(30.9)	(39.4)	(45.6)	(25.8)	(18.1)
Other currencies	–	(0.3)	(0.6)	(0.4)	1.0	(0.5)	–
Total	**17.4**	**(36.1)**	**(69.2)**	**(117.3)**	**(122.5)**	**(55.9)**	**(23.2)**

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
Total	23.4	(56.0)	(51.5)	(89.8)	(108.3)	(70.8)	(50.8)

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.

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 2013

SDR millions	SDR	USD	EUR	GBP	JPY	CHF	Gold	Other currencies	Total
Assets									
Cash and sight accounts with banks	–	11.4	1,550.5	14.7	–	5,300.6	–	6.9	6,884.1
Gold and gold loans	–	7.9	–	–	–	–	35,359.2	–	35,367.1
Treasury bills	–	5,139.3	7,213.3	–	31,903.8	–	–	2,437.7	46,694.1
Securities purchased under resale agreements	–	4,701.4	11,906.2	8,301.2	3,560.7	–	–	–	28,469.5
Loans and advances	307.3	11,861.2	366.8	3,816.4	835.8	3.1	–	2,486.2	19,676.8
Government and other securities	–	33,379.1	18,879.8	5,890.2	2,115.6	9.9	–	2,368.7	62,643.3
Derivative financial instruments	4,017.8	65,592.1	(21,826.0)	(1,358.1)	(24,267.1)	(4,840.5)	(11,478.1)	15.6	5,855.7
Accounts receivable	–	3,653.1	9.4	2,323.8	35.8	8.6	–	140.5	6,171.2
Land, buildings and equipment	184.6	–	–	–	–	6.0	–	–	190.6
Total assets	**4,509.7**	**124,345.5**	**18,100.0**	**18,988.2**	**14,184.6**	**487.7**	**23,881.1**	**7,455.6**	**211,952.4**
Liabilities									
Currency deposits	(7,311.0)	(125,764.6)	(12,743.4)	(11,912.0)	(2,540.1)	(453.3)	–	(5,435.9)	(166,160.3)
Gold deposits	–	(6.6)	–	–	–	–	(17,574.3)	–	(17,580.9)
Derivative financial instruments	951.9	11,033.1	865.4	(2,212.0)	(10,125.9)	(27.7)	(2,359.9)	(1,527.2)	(3,402.3)
Accounts payable	–	(1,920.7)	(5.5)	(2,901.4)	(42.5)	–	–	(465.2)	(5,335.3)
Other liabilities	–	(97.8)	–	–	–	(389.7)	–	(0.3)	(487.8)
Total liabilities	**(6,359.1)**	**(116,756.6)**	**(11,883.5)**	**(17,025.4)**	**(12,708.5)**	**(870.7)**	**(19,934.2)**	**(7,428.6)**	**(192,966.6)**
Net currency and gold position	**(1,849.4)**	**7,588.9**	**6,216.5**	**1,962.8**	**1,476.1**	**(383.0)**	**3,946.9**	**27.0**	**18,985.8**
Adjustment for gold	–	–	–	–	–	–	(3,946.9)	–	(3,946.9)
Net currency position	**(1,849.4)**	**7,588.9**	**6,216.5**	**1,962.8**	**1,476.1**	**(383.0)**	**–**	**27.0**	**15,038.9**
SDR-neutral position	1,849.4	(7,432.9)	(6,109.7)	(1,896.8)	(1,448.9)	–	–	–	(15,038.9)
Net currency exposure on SDR-neutral basis	**–**	**156.0**	**106.8**	**66.0**	**27.2**	**(383.0)**	**–**	**27.0**	**–**

As at 31 March 2012

SDR millions	SDR	USD	EUR	GBP	JPY	CHF	Gold	Other currencies	Total
Assets									
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	–	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
Total assets	1,560.5	111,574.9	70,668.1	17,258.6	15,592.7	3,969.3	28,963.1	6,083.6	255,670.8
Liabilities									
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)
Total liabilities	(4,046.7)	(104,171.2)	(64,554.6)	(15,258.9)	(13,929.5)	(4,304.3)	(24,941.8)	(6,084.5)	(237,291.5)
Net currency and gold position	(2,486.2)	7,403.7	6,113.5	1,999.7	1,663.2	(335.0)	4,021.3	(0.9)	18,379.3
Adjustment for gold	–	–	–	–	–	–	(4,021.3)	–	(4,021.3)
Net currency position	(2,486.2)	7,403.7	6,113.5	1,999.7	1,663.2	(335.0)	–	(0.9)	14,358.0
SDR-neutral position	2,486.2	(7,019.0)	(6,378.0)	(1,895.0)	(1,552.2)	–	–	–	(14,358.0)
Net currency exposure on SDR-neutral basis	–	384.7	(264.5)	104.7	111.0	(335.0)	–	(0.9)	–

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	**2013**				2012			
SDR millions	Average	High	Low	At 31 March	Average	High	Low	At 31 March
Economic capital utilisation for market risk	2,787.8	3,341.9	2,274.8	**2,308.6**	3,232.7	3,716.0	2,734.0	3,287.9

The table below provides a further analysis of the Bank's market risk exposure by category of risk:

For the financial year	**2013**				2012			
SDR millions	Average	High	Low	At 31 March	Average	High	Low	At 31 March
Gold price risk	2,263.8	2,540.9	1,913.6	**1,913.6**	2,345.6	2,741.6	1,835.5	2,501.3
Interest rate risk	1,193.0	1,607.0	893.4	**893.4**	1,565.2	1,660.6	1,463.6	1,560.4
Foreign exchange risk	763.2	911.3	628.1	**632.3**	923.0	1,095.7	788.9	894.2
Diversification effects	(1,432.1)	(1,687.5)	(1,130.7)	**(1,130.7)**	(1,601.1)	(1,809.2)	(1,403.8)	(1,668.0)

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	**2013**			2012		
SDR millions	VaR	Risk-weighted assets (A)	Minimum capital requirement (B)	VaR	Risk-weighted assets (A)	Minimum capital requirement (B)
Market risk, where (A) is derived as (B) / 8%	313.3	11,748.1	**939.8**	426.8	16,005.8	1,280.5

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 95% (2012: 91%) of its total liabilities. At 31 March 2013 currency and gold deposits originated from 168 depositors (2012: 172). 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 (2012: five 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 2013

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
Assets									
Cash and sight accounts with banks	6,884.1	–	–	–	–	–	–	–	6,884.1
Gold and gold loans	35,086.8	–	–	–	282.1	–	–	–	35,368.9
Treasury bills	11,036.4	23,042.0	9,643.5	2,994.5	–	–	–	–	46,716.4
Securities purchased under resale agreements	21,795.6	4,664.6	–	–	–	–	–	–	26,460.2
Loans and advances	10,034.4	8,640.8	318.9	–	–	–	–	–	18,994.1
Government and other securities	1,576.3	5,590.8	8,649.6	10,677.1	11,246.0	23,018.8	1,951.0	1,062.8	63,772.4
Total assets	**86,413.6**	**41,938.2**	**18,612.0**	**13,671.6**	**11,528.1**	**23,018.8**	**1,951.0**	**1,062.8**	**198,196.1**
Liabilities									
Currency deposits									
Deposit instruments repayable at 1–2 days' notice	(7,383.7)	(10,649.5)	(17,483.0)	(19,696.1)	(14,744.0)	(23,859.4)	(67.9)	–	(93,883.6)
Other currency deposits	(40,783.3)	(19,228.9)	(7,980.9)	(2,603.5)	–	–	–	–	(70,596.6)
Gold deposits	(17,301.9)	–	–	–	(280.5)	–	–	–	(17,582.4)
Securities sold short	82.8	13.2	(0.9)	(1.7)	(3.4)	(10.3)	(17.2)	(149.6)	(87.1)
Total liabilities	**(65,386.1)**	**(29,865.2)**	**(25,464.8)**	**(22,301.3)**	**(15,027.9)**	**(23,869.7)**	**(85.1)**	**(149.6)**	**(182,149.7)**
Derivatives									
Net settled									
Interest rate contracts	(1.2)	107.8	133.1	199.8	238.0	94.6	(17.0)	–	755.1
Gross settled									
Exchange rate and gold price contracts									
Inflows	32,788.8	46,454.6	17,827.6	5,835.2	–	–	–	–	102,906.2
Outflows	(31,785.2)	(46,067.1)	(17,536.6)	(5,623.4)	–	–	–	–	(101,012.3)
Subtotal	1,003.6	387.5	291.0	211.8	–	–	–	–	1,893.9
Interest rate contracts									
Inflows	114.2	133.6	115.4	84.3	475.8	365.3	–	–	1,288.6
Outflows	(114.5)	(156.1)	(128.0)	(107.9)	(518.1)	(402.6)	–	–	(1,427.2)
Subtotal	(0.3)	(22.5)	(12.6)	(23.6)	(42.3)	(37.3)	–	–	(138.6)
Total derivatives	**1,002.1**	**472.8**	**411.5**	**388.0**	**195.7**	**57.3**	**(17.0)**	**–**	**2,510.4**
Total future undiscounted cash flows	**22,029.6**	**12,545.8**	**(6,441.3)**	**(8,241.7)**	**(3,304.1)**	**(793.6)**	**1,848.9**	**913.2**	**18,556.8**

As at 31 March 2012

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
Assets									
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
Total assets	92,739.7	52,497.7	19,324.8	24,223.1	10,137.1	22,987.5	3,470.0	983.5	226,363.4
Liabilities									
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)
Total liabilities	(78,691.7)	(46,110.2)	(26,752.1)	(18,124.8)	(14,967.7)	(23,969.4)	(218.4)	(124.3)	(208,958.6)
Derivatives									
Net settled									
Interest rate contracts	20.1	179.9	313.3	333.4	391.9	240.9	(31.8)	–	1,447.7
Gross settled									
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)
Subtotal	450.7	816.6	187.9	64.8	–	–	–	–	1,520.0
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)
Subtotal	0.8	(9.9)	(6.5)	(90.6)	(64.6)	(107.4)	–	–	(278.2)
Total derivatives	471.6	986.6	494.7	307.6	327.3	133.5	(31.8)	–	2,689.5
Total future undiscounted cash flows	14,519.6	7,374.1	(6,932.6)	6,405.9	(4,503.3)	(848.4)	3,219.8	859.2	20,094.3

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:

Written options

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
As at 31 March 2013	(0.1)	(0.2)	–	–	–	(1.1)	–	–	**(1.4)**
As at 31 March 2012	(0.2)	–	–	–	(0.2)	(2.8)	–	–	(3.2)

The table below shows the contractual expiry date of the credit commitments as at the balance sheet date:

Contractual expiry date

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	Maturity undefined	Total
As at 31 March 2013	–	–	256.6	200.1	–	–	–	2,597.1	**3,053.8**
As at 31 March 2012	–	–	–	193.8	–	–	–	2,376.8	2,570.6

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	**2013**				2012			
SDR millions	Average	High	Low	At 31 March	Average	High	Low	At 31 March
Economic capital utilisation for operational risk	700.0	700.0	700.0	**700.0**	700.0	700.0	700.0	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	**2013**			2012		
SDR millions	VaR	Risk-weighted assets (A)	Minimum capital requirement (B)	VaR	Risk-weighted assets (A)	Minimum capital requirement (B)
Operational risk, where (A) is derived as (B) / 8%	369.0	4,612.5	**369.0**	341.6	4,270.3	341.6

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 of the balance sheet as at 31 March 2013, the related profit and loss account, statement of comprehensive income, statement of cash flows and movements in the Bank's equity for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's responsibility

Management is responsible for the preparation and fair presentation of the financial statements in accordance with the accounting principles described in the financial statements and the Statutes of the Bank. This responsibility includes designing, implementing and maintaining an internal control system relevant to the preparation of financial statements that are free from material misstatement, whether due to fraud or error. Management is further responsible for selecting and applying appropriate accounting policies and making accounting estimates that are reasonable in the circumstances.

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 responsibilities and plan and perform the audit to obtain reasonable assurance 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 the internal control system relevant to the entity's preparation 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 system. An audit also includes evaluating the appropriateness of the accounting policies used and the reasonableness of accounting estimates made, 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 for the year ended 31 March 2013 give a true and fair view of the financial position of the Bank for International Settlements and of its financial performance and its cash flows for the year then ended in accordance with the accounting principles described in the financial statements and the Statutes of the Bank.

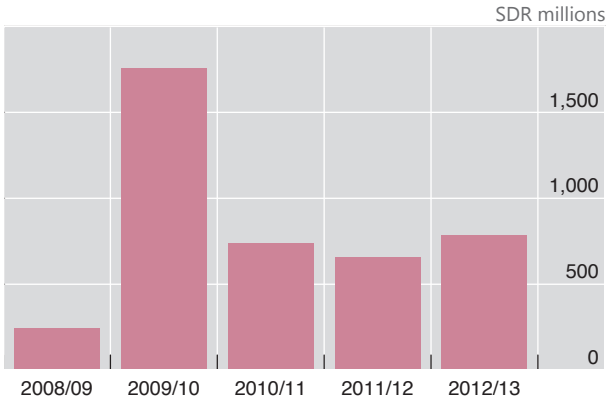
Ernst & Young Ltd

Victor Veger John Alton

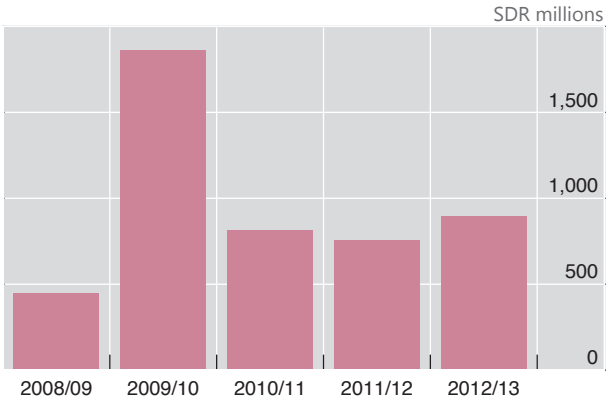
Zurich, 13 May 2013

Five-year graphical summary

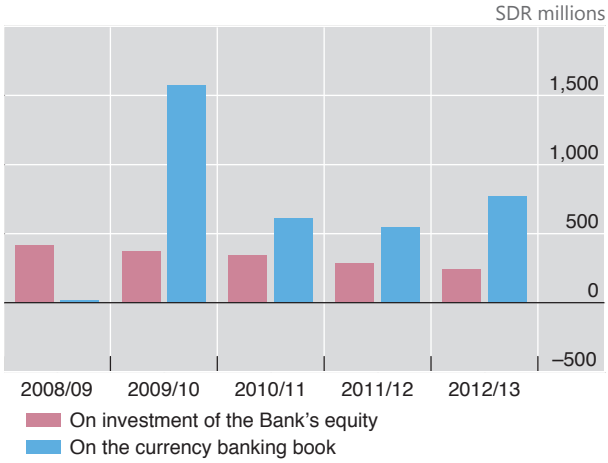
Operating profit



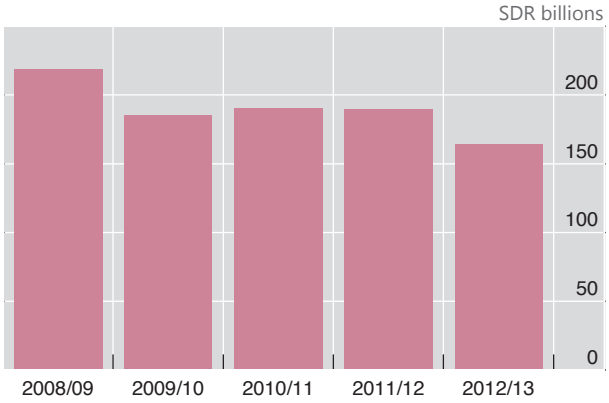
Net profit



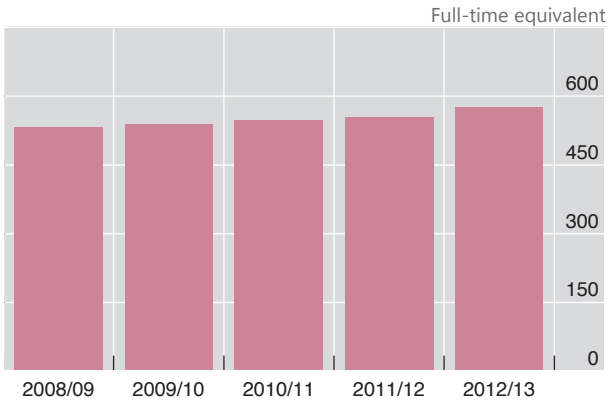
Net interest and valuation income



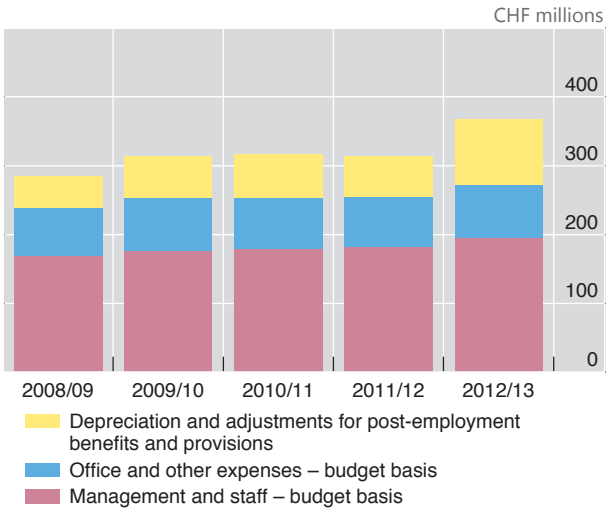
Average currency deposits (settlement date basis)



Average number of employees



Operating expense



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