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.

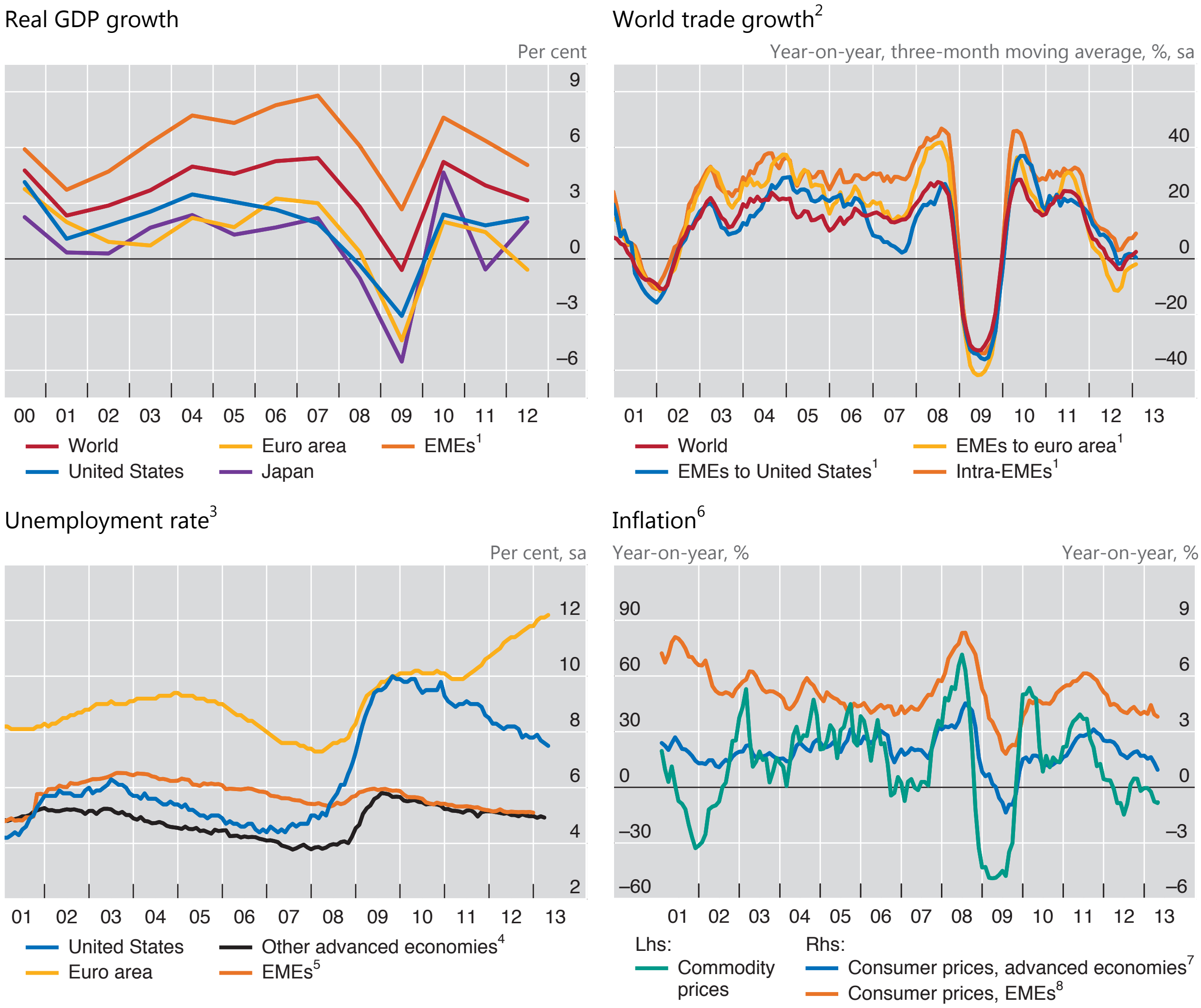
Both as a legacy of the pre-crisis financial boom and as a result of accommodative monetary policies in response to the crisis, the level of private non-financial sector debt remains high globally. Despite some progress in reducing debt, especially in those advanced economies that experienced a significant 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.

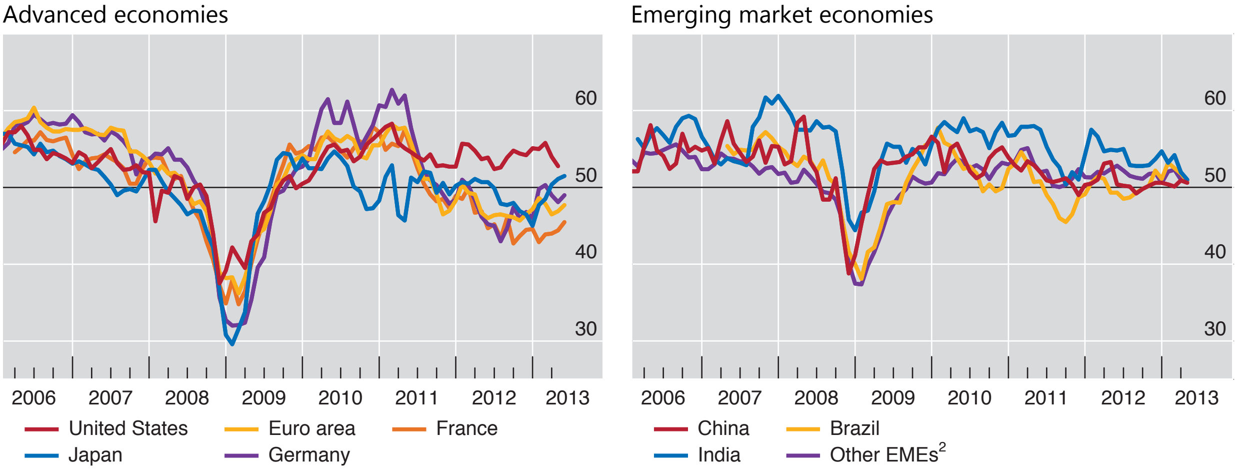
In emerging economies, GDP growth decreased to 5% in 2012 (Graph II.1, top left-hand panel). Nevertheless, economic performance varied across countries. In some, including Indonesia, Peru and the Philippines, GDP growth remained solid, driven by strong fixed investment and consumption, while in others 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

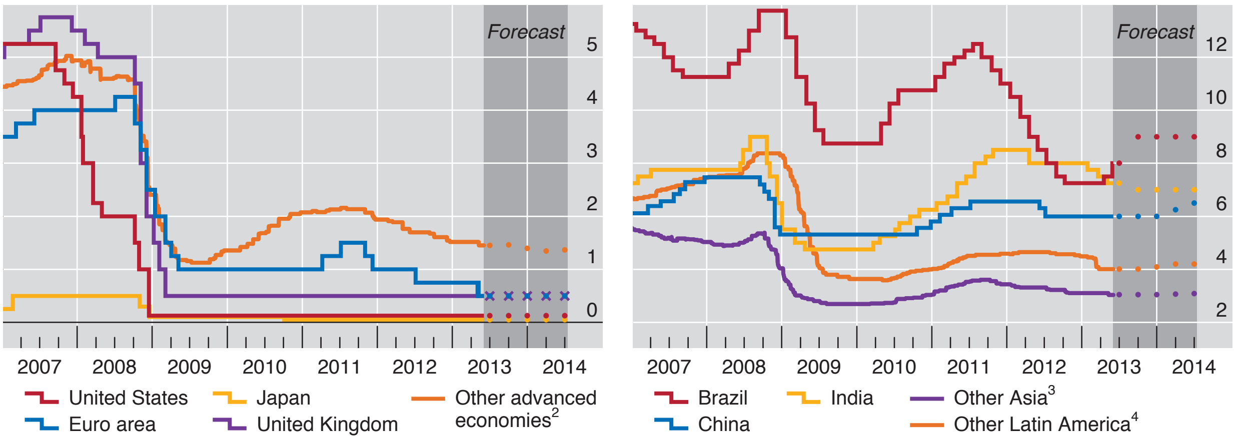
Policy rates[1]

In per cent

Graph II.3

Advanced economies

Emerging market economies



[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.

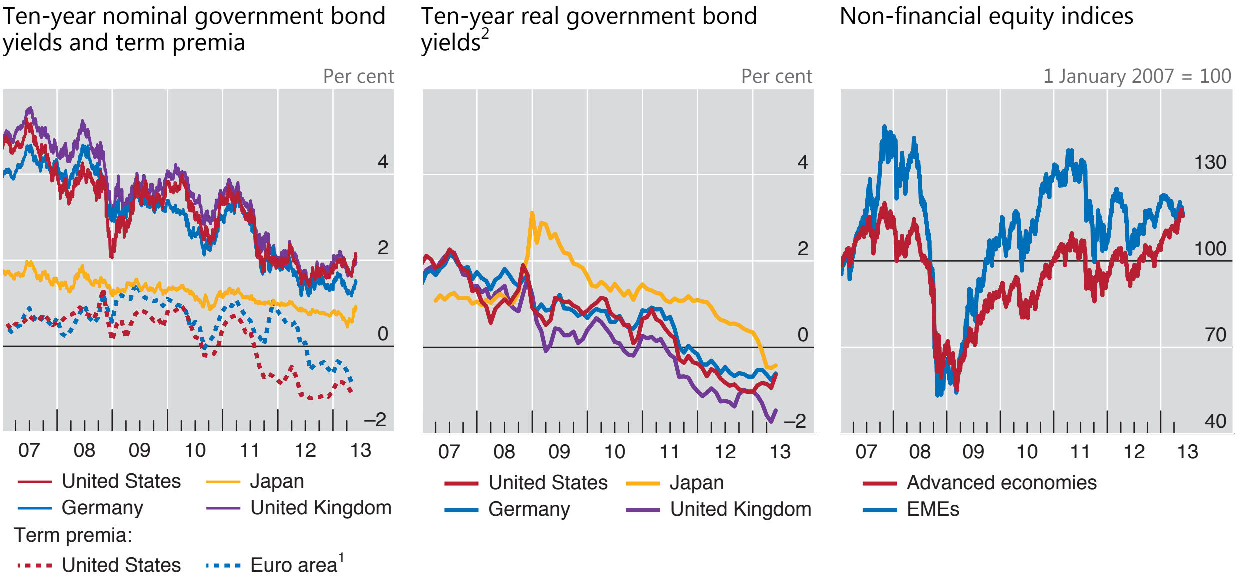
The ECB introduced facilities to conduct Outright Monetary Transactions (OMTs), a backstop that allows unlimited sovereign bond purchases when a member country submits to a macroeconomic adjustment programme. OMTs are designed to address severe distortions in the pricing of sovereign debt in some euro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

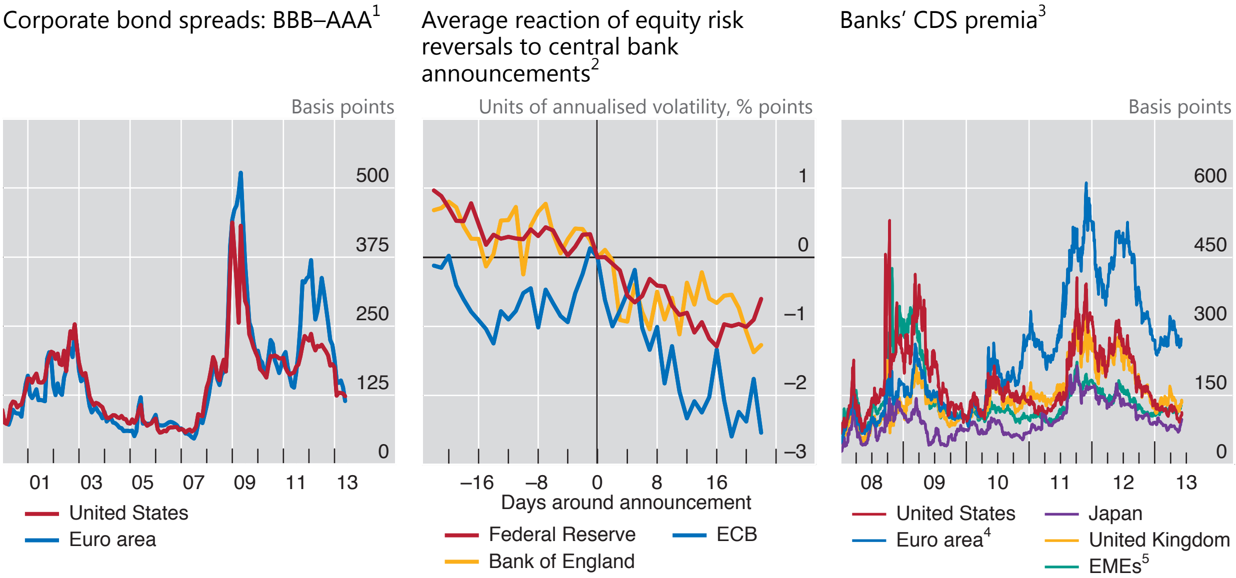
The extensive policy support during the second half of 2012 reduced downside risk and infused financial market participants with renewed optimism. The difference between the interest rate paid on bonds by firms rated BBB and AAA, a proxy for the spread on risky relative to less risky borrowers, decreased 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

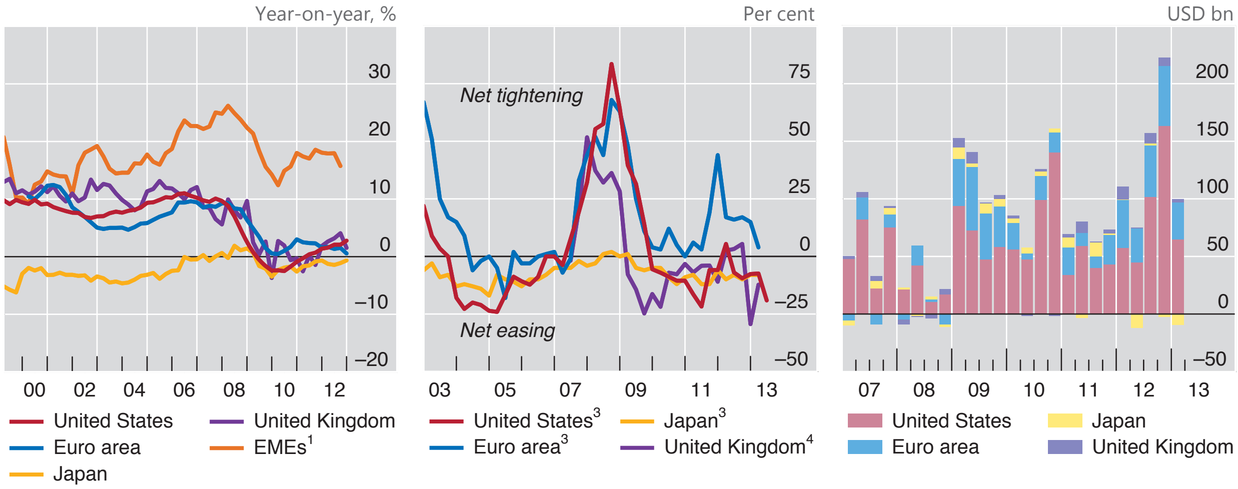
Credit conditions varied greatly across countries. Graph II.6 (left-hand panel) shows that, in the context of lower interest rates and stronger domestic demand, total credit (bank loans and bonds) to the private non-financial sector grew in 2012 at a rate above 15% in EMEs. Among major advanced economies, 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

Total credit to the private non-financial sector | Lending surveys: business loans[2] | Net issuance of non-financial corporate bonds[5]



[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).

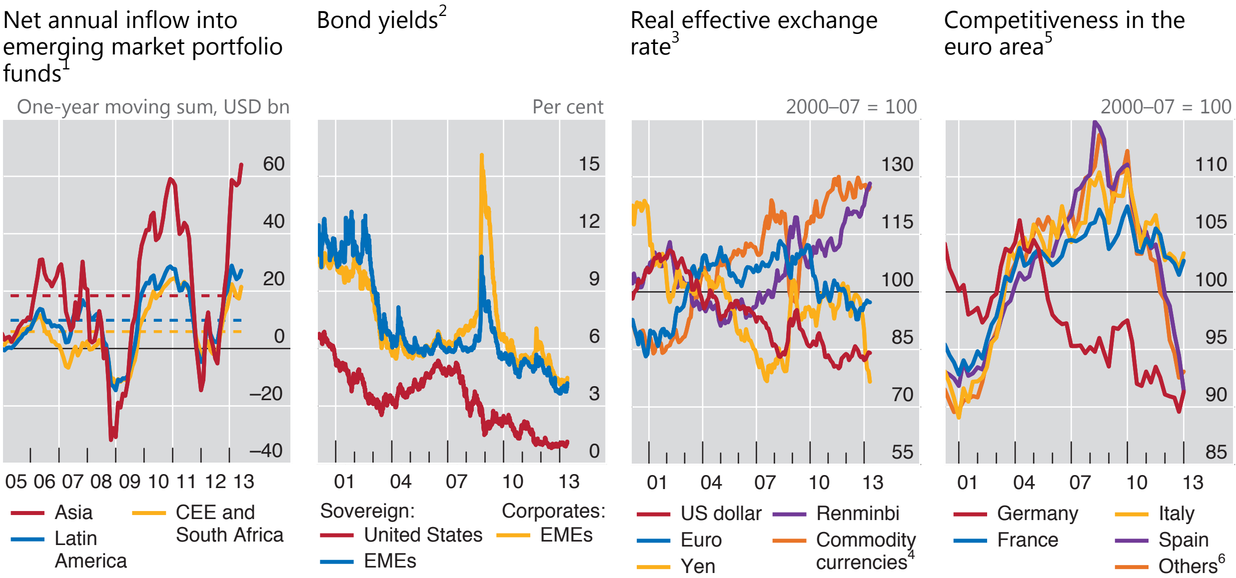
In Japan, although credit supply conditions remained accommodative, total credit to the private non-financial sector declined slightly in 2012 (and stagnated in real terms). However, figures for the first quarter of 2013 indicate an increase in bank credit, mainly related to stronger demand from firms 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*
	2007	2008	2009	2010	2011	2012	*(Dec 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).

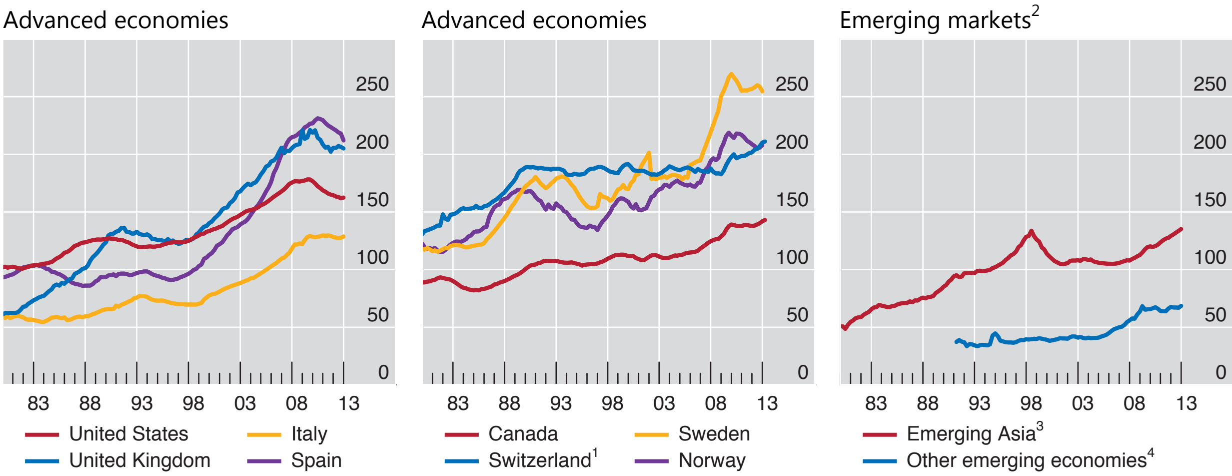
Private non-financial sector debt is still high

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.

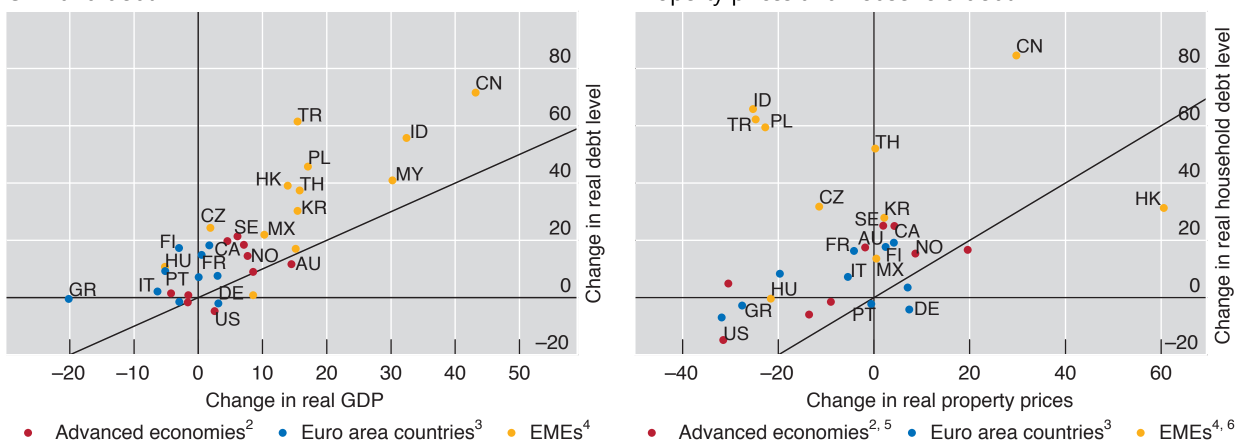
non-financial firms) remains at a high level.[6] Some advanced economies experienced a significant accumulation of debt and misallocation of resources in the boom. In these countries, private non-financial sector debt-to-GDP ratios remain close to historically high levels (Graph II.8, left-hand panel), 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

GDP and debt | Property prices and household debt



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.

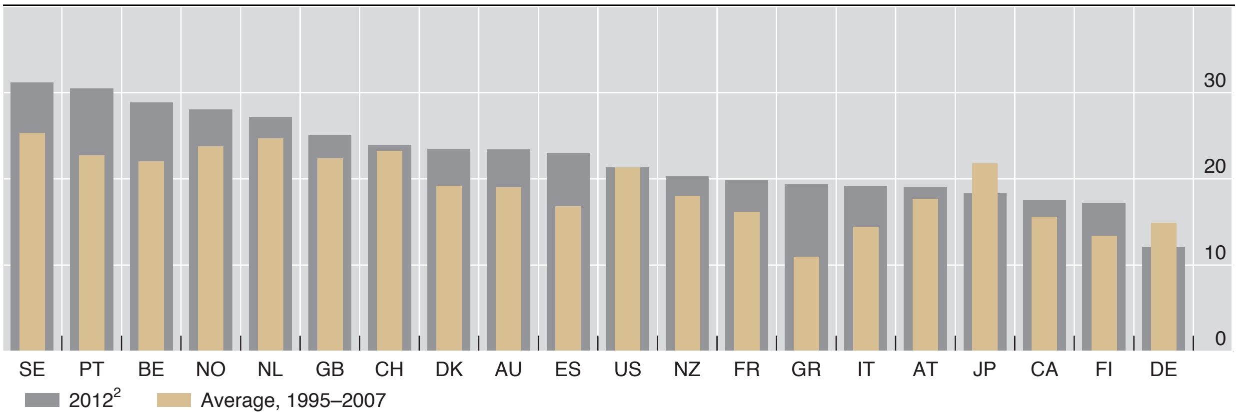
[6] For an analysis of government debt and fiscal sustainability, see Chapter IV.

[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.