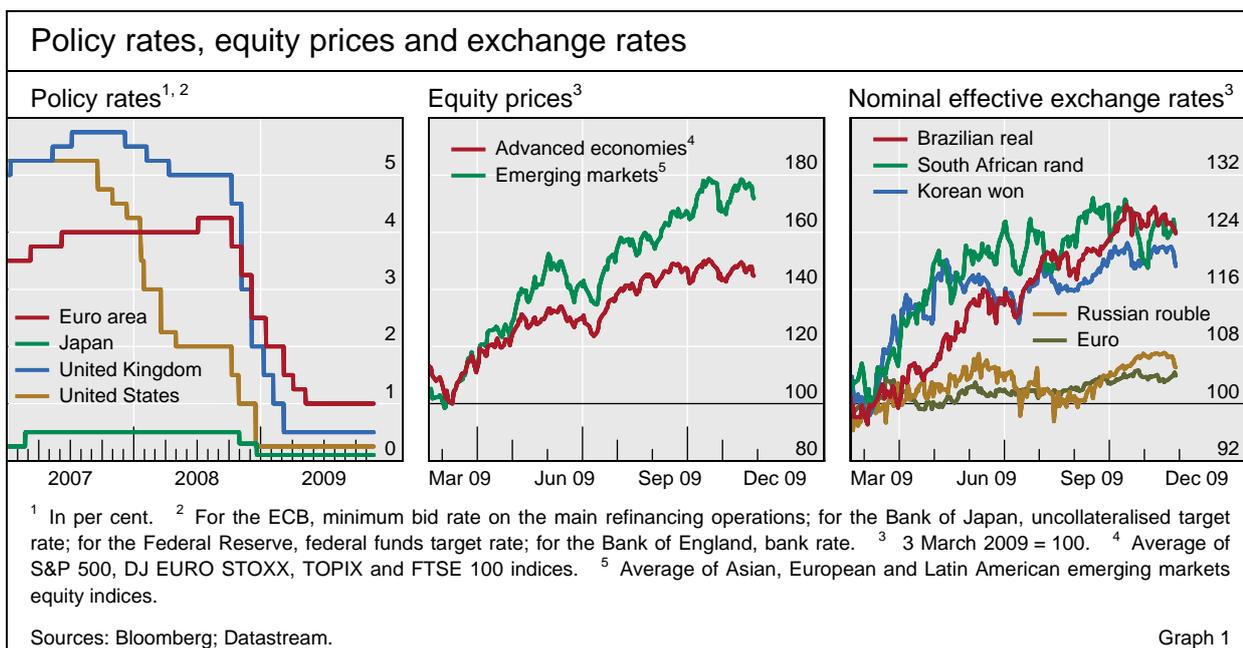


## Overview: continued record low rates spur markets

From early September to late November, a steady stream of mostly positive macroeconomic news reassured investors that the global economy had in fact turned around, but investor confidence remained fragile. This was clearly illustrated towards the end of the period under review, when prices of risky assets dropped sharply as investors reacted nervously to news that government-owned Dubai World had asked for a delay in some payments on its debt.

Market participants expected the recovery to continue, but at times grew wary about its pace and shape due to uncertainty about the timing and speed of withdrawal of monetary and fiscal stimulus as well as the associated risks to future economic activity. The unease was compounded by the unevenness of the recovery among different regions of the world, which in turn was seen as increasing the risk that harmful imbalances could build, thereby adding to challenges for policymakers.

In this environment, market developments continued to be driven to a significant degree by ongoing and expected policy stimulus, and in particular by expansionary monetary policy. As investors priced in expectations that interest rates in major advanced economies would remain low (Graph 1, left-hand



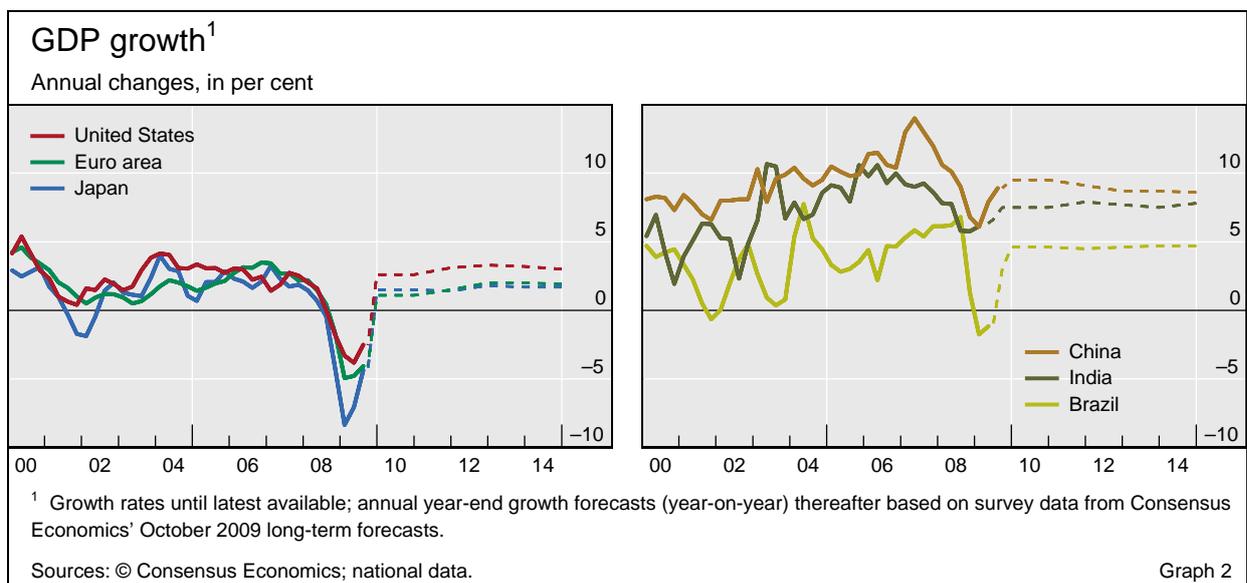
panel), prices of risky assets continued to go up. Equity prices generally rose, in particular in emerging markets (Graph 1, centre panel). Investment grade credit spreads were little changed, while sub-investment grade spreads narrowed further. Meanwhile, both market- and survey-based indicators continued to suggest that price pressures in the largest advanced economies were expected to remain well contained. This, combined with expectations of a prolonged period of low policy rates, contributed to keeping long-term government bond yields down, as did low term premia.

The low interest rates in the advanced economies, combined with the earlier and stronger recovery in a number of emerging economies, continued to drive significant capital inflows into emerging markets, particularly in Asia and the Pacific. Although difficult to quantify, a related development was increasing FX carry trade activity funded in US dollars and other low interest rate currencies. The result was rapid asset price increases in several emerging economies as well as substantial exchange rate appreciation with respect to the US dollar (Graph 1, right-hand panel).

### Rates in major advanced economies remain near zero

Investors remained firmly focused on the progress and prospects of the global economic recovery from early September to late November. Although the outlook remained uncertain, there were clear signs that the global economy had turned around. Preliminary data on US third quarter GDP growth showed that the longest and deepest US recession since World War II had come to an end. Likewise, in the third quarter the euro area economy grew for the first time since early 2008, while that of Japan expanded for a second consecutive quarter. With sizeable monetary and fiscal stimulus gaining traction, analysts' forecasts showed that the G3 economies were expected to grow in 2010 and to remain on steady growth trajectories of around 2–3% in coming years (Graph 2, left-hand panel).

The recession comes to an end ...



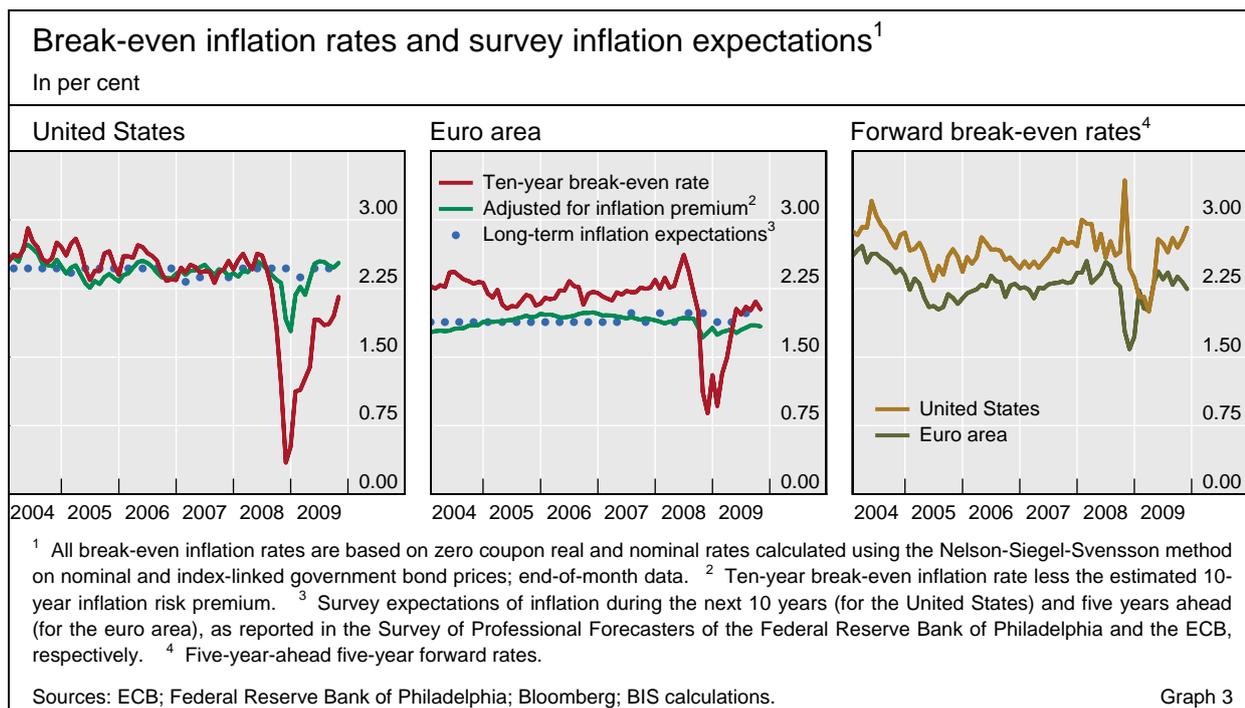
Importantly, major emerging markets, such as China, India and Brazil, whose growth rates had fallen significantly less than those of advanced economies during the crisis, recovered much more quickly and were expected to expand at a substantially more rapid pace in the next five years (Graph 2, right-hand panel). Brisk economic activity in emerging markets could support demand for goods in developed economies, hence raising the likelihood of a sustained recovery also in major advanced economies.

Although recovery remained the central scenario of investors, they were still uncertain about its future shape and strength in the case of advanced economies. Speculation about the timing and pace at which authorities would begin withdrawing stimulus measures added to this uncertainty. Fiscal support has contributed importantly to growth so far in 2009, so there was some anxiety that withdrawal of such stimulus could significantly restrain future economic growth. Moreover, the bifurcation in economic growth between the largest advanced economies and other economies – including major emerging markets – fuelled concerns that this could lead to a build-up of imbalances that might prove unsustainable in the future, as the uneven recovery could also complicate the issue of the timing and speed of withdrawal of fiscal and monetary stimulus. Despite a more rapid turnaround in many emerging economies, investors anticipated that monetary policy would remain accommodative in those countries until recovery was assured in major advanced economies too.

With available data pointing to an ongoing, albeit uneven, recovery, investors' attention turned from the spectre of rising inflation. In the light of record low policy interest rates, widespread unconventional monetary policy measures and outside fiscal stimulus, some market participants voiced concerns about inflationary risks down the road. However, indicators of long-

... but uncertainty remains about the strength of the recovery ...

... and about the effects of uneven growth among regions

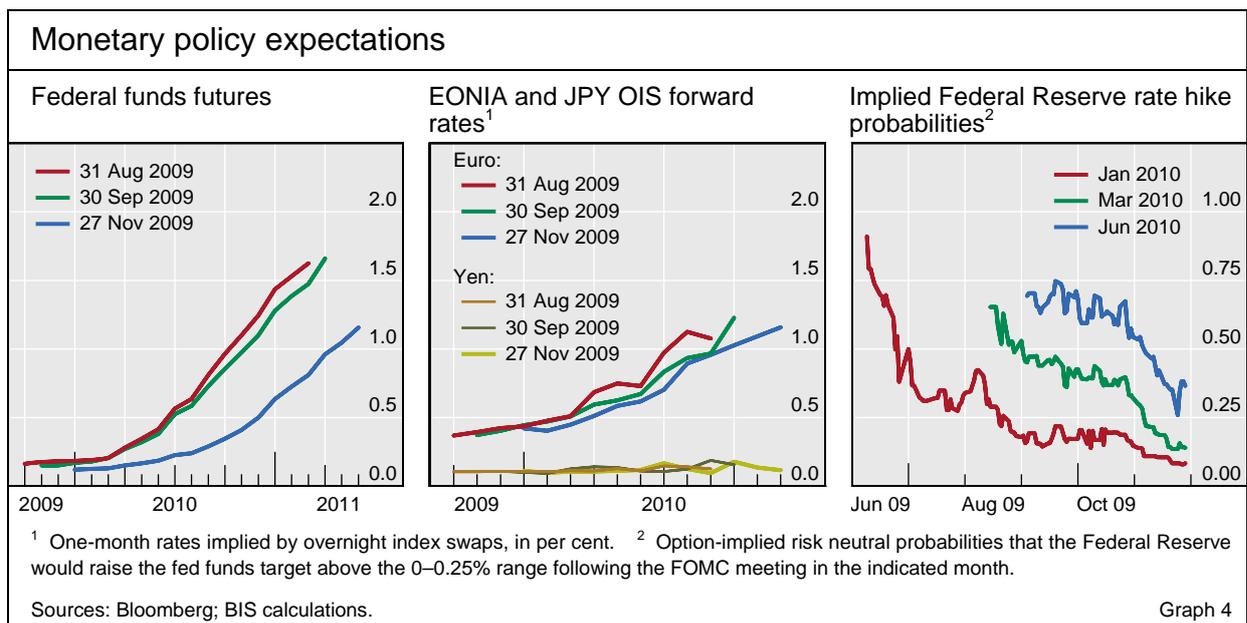


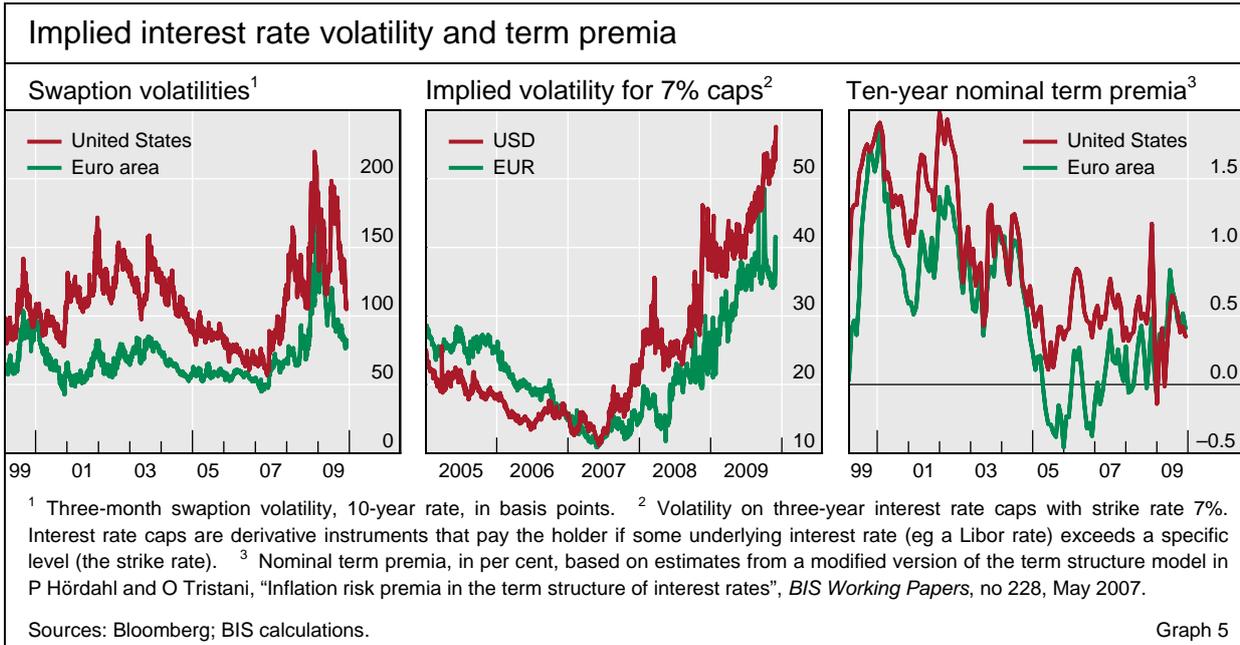
term inflation expectations suggested that this was not the main scenario. Indeed, investors expected price pressures to remain contained in the largest advanced economies. In late November, 10-year break-even inflation rates stood at close to 2% in the United States and the euro area (Graph 3, left-hand and centre panels). Moreover, the corresponding break-even rates adjusted for estimated inflation premia were very close to long-term average inflation expectations obtained from surveys. These survey expectations, in turn, remained steady at the levels seen in the past few years. Five-year forward break-even rates five years ahead, which eliminate effects due to expectations of low short-term price pressures, were steady in the euro area while they rose somewhat in the United States (Graph 3, right-hand panel).

Inflation appears contained in large economies ...

With the economic recovery still in its early stages, at least in major advanced economies, and inflation seeming contained there, investors did not foresee any tightening of monetary policy for some time. Indeed, expectations about the future path of policy rates in the three largest advanced economies, as proxied by implied forward interest rates, pointed to continued low rates well into 2010 (Graph 4, left-hand and centre panels). Supporting these expectations, major central banks signalled that near-term rate hikes were not in the cards. Notably, in mid-November the Chairman of the US Federal Reserve pointed out that headwinds were preventing the economic expansion from being as robust as hoped, and that these conditions would be likely to warrant “exceptionally low levels of the federal funds rate for an extended period”. Following these remarks, US bond yields dropped by 4–8 basis points across the maturity spectrum, sending two-year yields to their lowest levels since January. Moreover, the pricing of options on federal funds futures contracts indicated that the (risk neutral) probability that the Federal Reserve would raise its target from the 0–0.25% range in the first half of 2010 had plunged following the Chairman’s remarks (Graph 4, right-hand panel).

... and central banks signal that rates will remain low



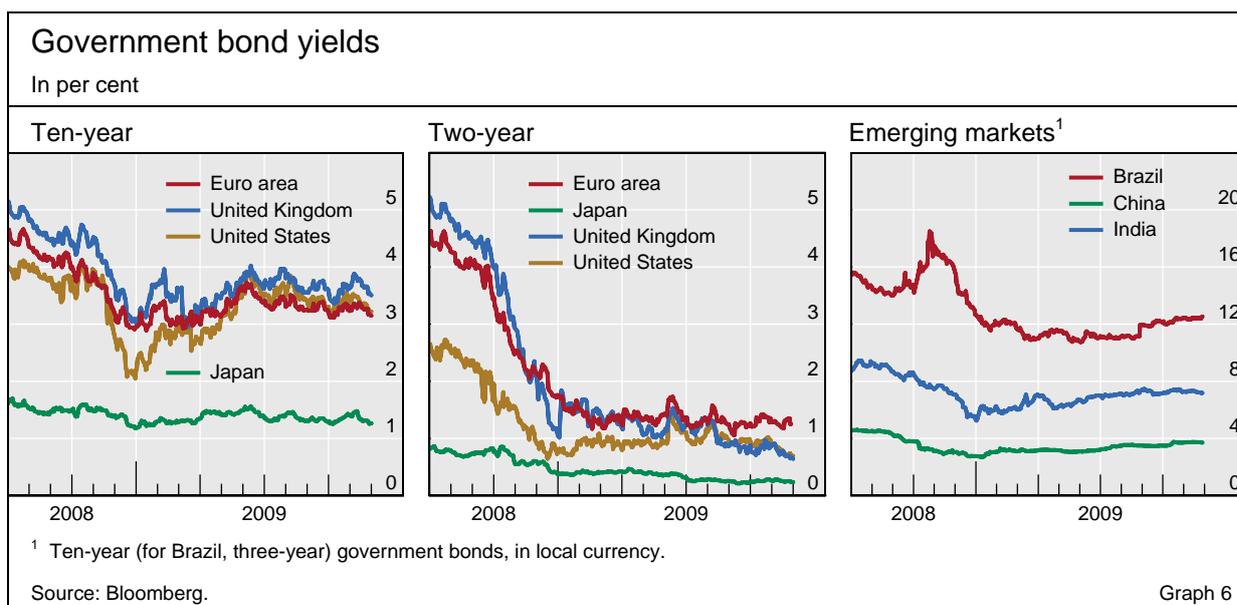


Interest rate uncertainty remains high ...

While uncertainty about the near-term evolution of short-term interest rates appeared relatively low, the picture with respect to long-term interest rates differed to some extent. Although considerably down from the peaks reached at the height of the crisis, implied volatilities on swaptions (ie options on swaps) remained somewhat above past averages (Graph 5, left-hand panel). This probably reflected a continued high degree of uncertainty about the shape and pace of the economic recovery, as well as associated risks to the long-term inflation outlook, both of which are key elements in determining long-term interest rates. Questions about the possible impact of exit from unconventional monetary policy measures, including programmes for outright purchases of government bonds, probably added to the uncertainty in a few markets.

... especially on the upside ...

In particular, there was some concern among market participants about the risk of substantially higher yields as a result of a combination of reduced demand for and increased supply of bonds, in particular for some major advanced economies. Demand for government bonds was seen as likely to decline as central banks and private banks were set to scale down their purchases of such assets, which so far in 2009 have been sizeable. Meanwhile, the supply of government debt was expected to reach record levels in some economies following massive fiscal stimulus coupled with falling tax revenues. This was compounded by perceptions that the risk of sharply higher interest rates was on the rise. Specifically, there were concerns among some investors that central banks might find it necessary to raise policy rates considerably more than currently expected if prices in asset and goods markets turned out to increase at an unsustainably rapid pace. Signs that investors were hedging themselves against such adverse scenarios were evident in the pricing of interest rate derivatives. For example, implied volatilities of out-of-the-money caps – ie options that pay out if interest rates exceed some specific



level well above the current one – continued to rise for US rates and remained relatively high in the case of euro rates (Graph 5, centre panel).

Despite much uncertainty about future long-term interest rates, estimated term premia in long-term bond yields stayed quite low when compared to levels in past years (Graph 5, right-hand panel). While term premia typically can be expected to be elevated in an environment of high uncertainty, they generally tend to decline as economic activity picks up. Moreover, other forces seemed to have compressed estimated premia – for example, continued high demand for government securities by banks, as they acted to offset lower lending volumes and reduce the riskiness of their assets. In some countries, this effect was probably reinforced by central bank purchases of government bonds. On top of this, demand for safe government bonds continued to push term premia down from time to time, most notably following the announcement by Dubai World in late November that it sought to delay payments on its substantial debt (see below).

... but term premia stay low

Taken together, the above-mentioned factors all contributed to keeping long-term bond yields in major advanced economies low and relatively stable between early September and late November (Graph 6, left-hand panel). Bond yields, which represent expected average future short-term interest rates (plus term premia), remained down as monetary policy rates were expected to be very low for some time. This effect was particularly evident at the short end of the yield curve (Graph 6, centre panel). At the long end, forces holding down term premia contributed further. Meanwhile, government bond yields in major emerging markets also remained fairly stable, albeit at levels higher than those in major advanced economies (Graph 6, right-hand panel).

## Equity market rebound continues

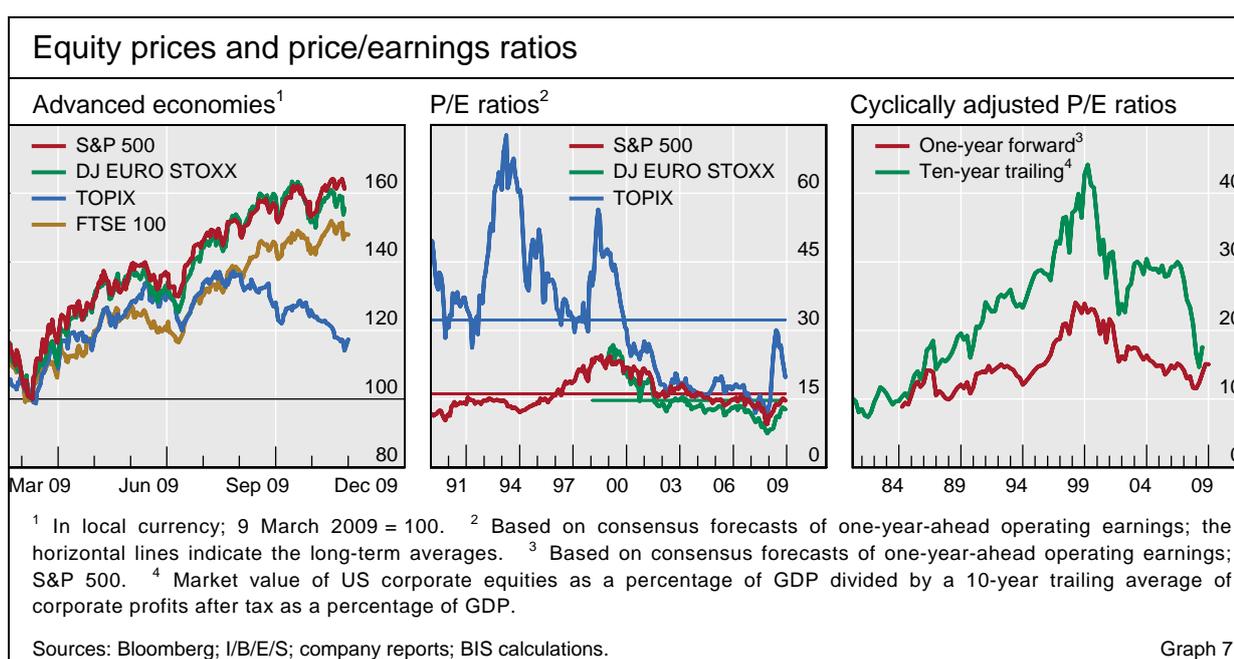
Developments in global equity and credit markets between early September and late November clearly reflected continued global monetary and fiscal stimulus. However, market volatility increased for short periods following

macroeconomic data releases and statements by policymakers about policy paths, suggesting that despite the recovery there was continued investor uncertainty about the impact of the withdrawal of monetary and fiscal stimulus on global economic growth.

In this environment, markets reacted with alarm when at the end of November Dubai World, one of Dubai's three government strategic investment vehicles, unexpectedly announced that it was seeking a standstill on its debt payments during negotiations to extend debt maturities. Most equity markets initially dropped several percentage points, with a more pronounced reaction in emerging markets. Equity prices also fell sharply for banks and companies thought to be more exposed to Dubai and the Middle East. The five-year sovereign credit default swap (CDS) premium for Dubai debt increased more than 300 basis points, to over 640 basis points, and sovereign CDS premia across the Middle East also rose sharply.

The combination of economic growth recovery, exceptionally low policy rates across the globe and fiscal stimulus in the major advanced economies continued to drive the post-crisis rebound in global equity markets, although at a slower pace than previously (Graph 7, left-hand panel). The S&P 500 rose by more than 9%, the Dow Jones EURO STOXX by almost 5% and the FTSE 100 by 9% during the period. The Japanese market remained an important exception to this global pattern, with the TOPIX ending the period under review almost 17% lower. The decline in Japanese equity prices was driven by declining exports and weaker than expected corporate earnings. The latter concern was reflected in earnings revisions for Japanese companies becoming less optimistic starting in September. Price/earnings ratios for Japanese stocks remained well above the levels seen during the last five to 10 years. (Graph 7, centre panel). In contrast, equity valuations in the US and European markets still appear to be in line with longer-term levels, and in the case of the United

Low rates continue to drive equity rebound



States, also more in line with cyclically adjusted price/earnings ratios (Graph 7, right-hand panel).

Equity market investors continued to focus on macroeconomic data releases, and equity prices increased on the steady stream of macroeconomic news confirming that the major economies had returned to positive growth in the third quarter. They also rose after statements in mid-November by the Federal Reserve Chairman suggesting that policy rates were likely to remain low for some time. However, there were also negative reactions to disappointing data releases, some of which raised concerns about the impact of higher unemployment, consumption and households' ability to service their mortgages. These reaction patterns were consistent with market commentary during the period, which suggested that investors were becoming more and more uneasy about the possible impact of tighter global monetary and fiscal policies.

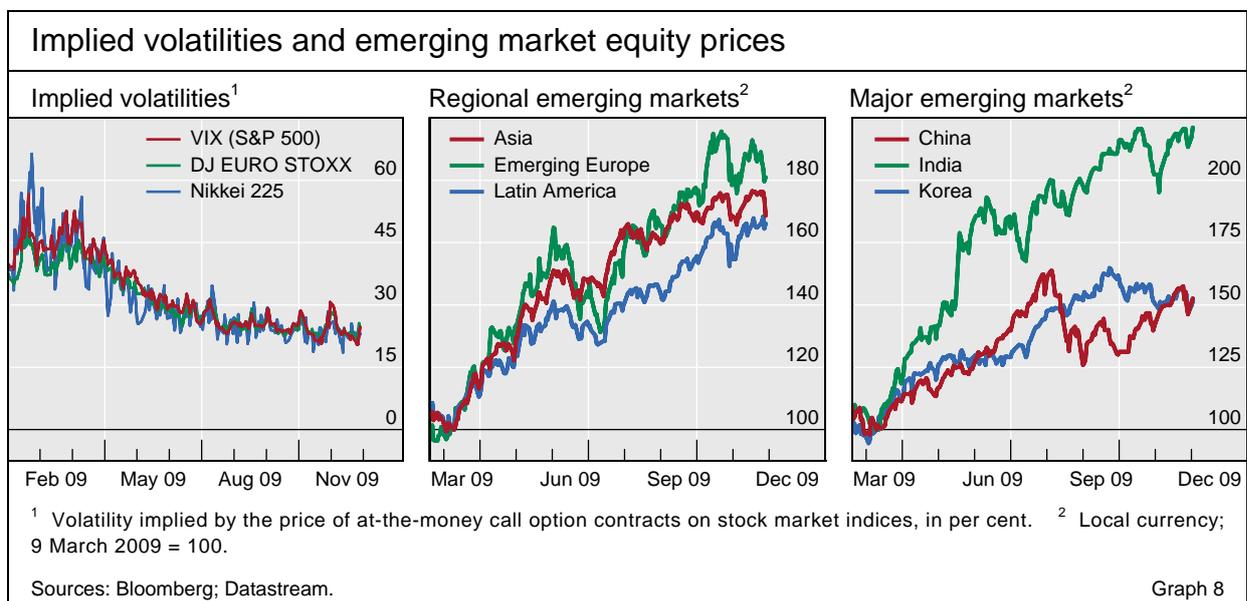
Investors focus on positive macro news ...

Uncertainty about the robustness of the recovery in the major advanced economies was also reflected in implied volatilities for equity options. After a long period of decline from the all-time highs during the crisis, implied volatilities rose briefly towards the end of October as investors faced a mix of positive earnings news and negative news related to the US housing and job markets (Graph 8, left-hand panel). Volatilities decreased after a statement by G20 finance ministers and central bank Governors in early November, in which they "agreed to maintain support for the recovery until it is assured".

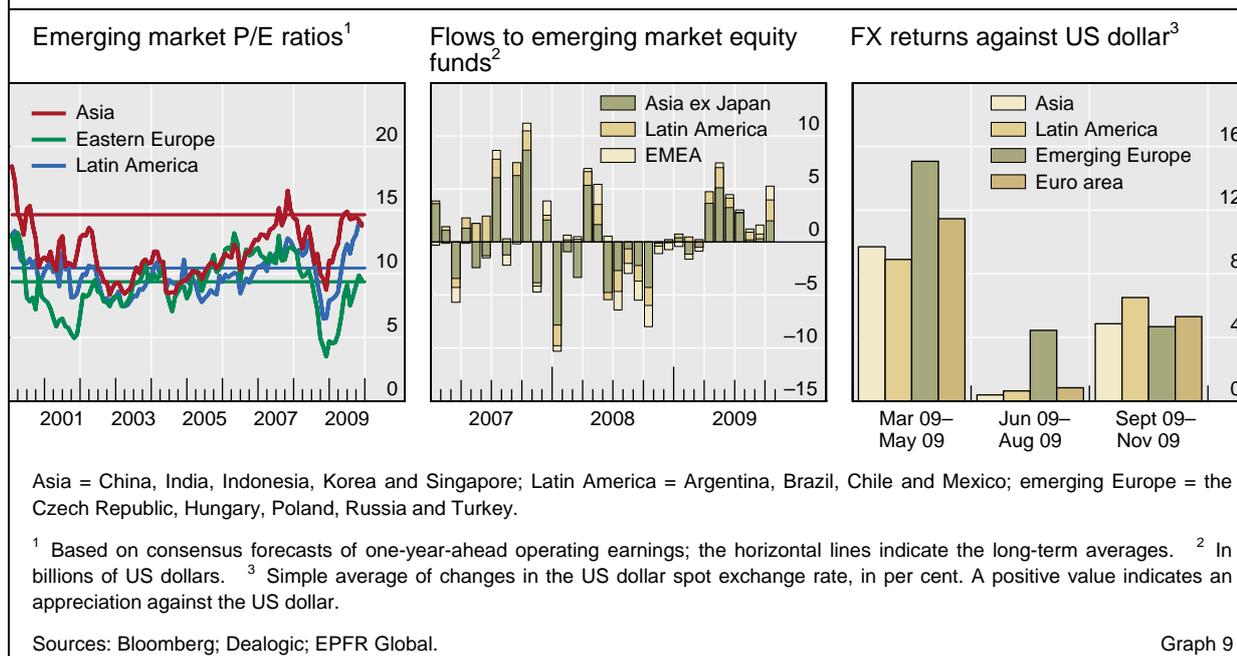
... due to uncertainty about the US recovery

Record low policy rates in the major advanced economies and the divergence in economic growth patterns between emerging and advanced economies continued to encourage positive capital inflows into emerging markets. As a result, equity prices in emerging economies increased even more than in the advanced economies (Graph 8, centre and right-hand panels). Increasing commodity prices also contributed to the significant rise in emerging market equity prices. Between early September and end-November, Asian equity prices grew by almost 5% on average, with increases well above 15% in Chinese equity markets. Prices in emerging Europe also rose by nearly 10%

Emerging market equity prices increase



## Price/earnings ratios, capital inflows and exchange rate returns



during the period, and those in Russia by more than 15%. Latin American equity prices ended around 17% higher. Despite the rapid increase in equity prices, however, higher earnings meant that price/earnings ratios for many emerging market equities remained in line with longer-term levels (Graph 9, left-hand panel).

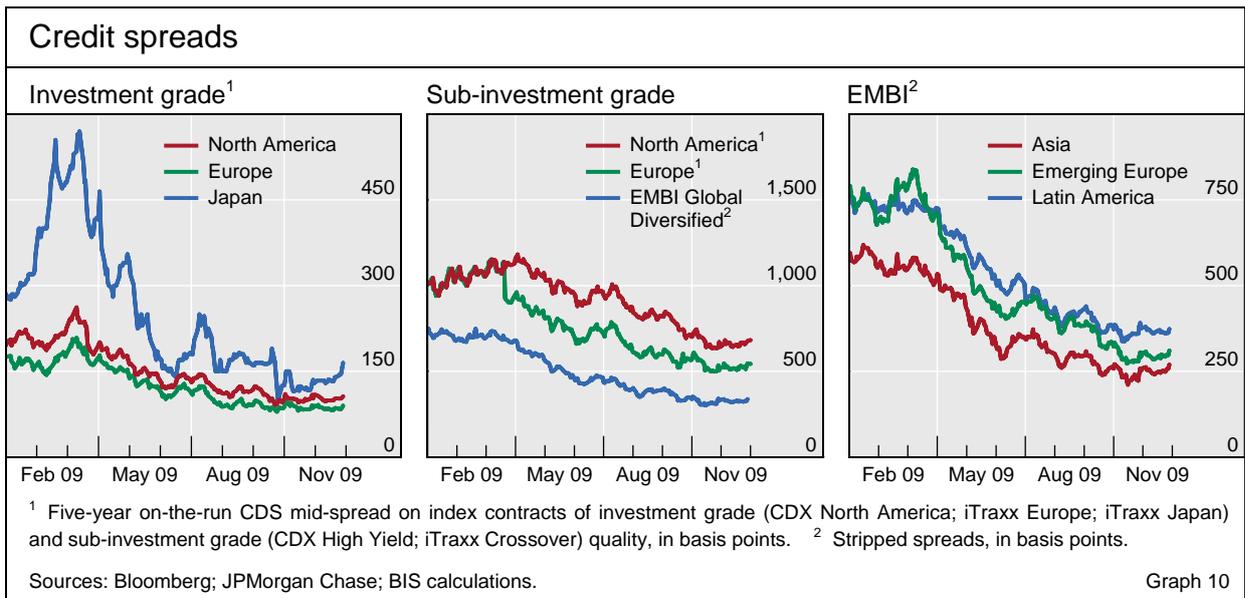
Capital inflows drive appreciation and asset price increases

Record low policy rates in the major advanced economies encouraged not only capital inflows into emerging economies but also FX carry trades. The result was substantial exchange rate appreciation and asset price increases in a number of emerging economies (Graph 9). In recent months, this became a significant source of concern with regard to both exports and financial stability. In the case of Brazil, these concerns led to the introduction of a 2% tax on foreign portfolio investments. In a number of other countries, including India, Indonesia, Korea and Chinese Taipei, policymakers hinted that they would consider measures to limit capital inflows. Towards the end of November, the Indonesian rupiah dropped on statements from Bank Indonesia that it was considering measures to curb foreign investment in short-term government debt in order to douse speculative inflows. This reaction points to investors' concerns about the extent to which policymakers in emerging markets might be willing and able to limit capital inflows to prevent further exchange rate appreciation and asset price inflation.

### *Credit markets normalise further*

Credit markets continue to normalise ...

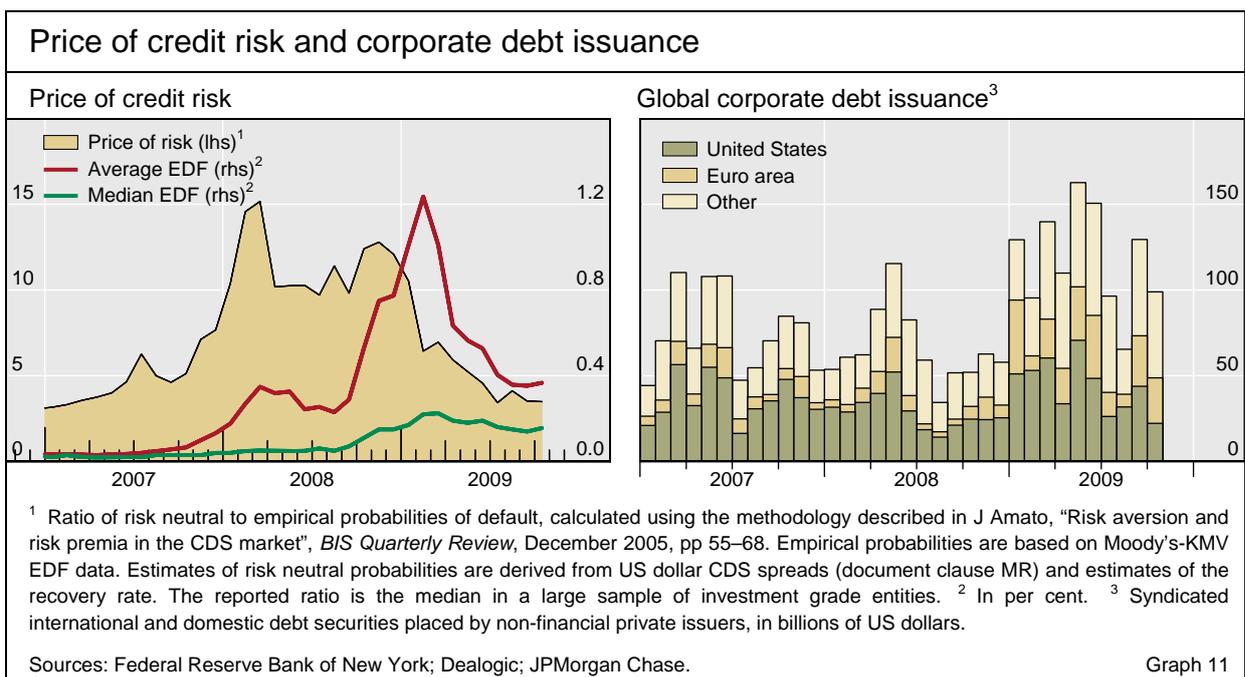
Credit markets continued to normalise and investment grade credit spreads in the advanced economies were fairly stable. US spreads narrowed 25 basis points, while European and Japanese spreads were little changed (Graph 10, left-hand panel). Sub-investment grade spreads, however, continued to tighten: US spreads by around 140 basis points, European spreads by 70 basis points and the EMBI Global diversified spread by about 55 basis points (Graph 10,



centre panel). Emerging market credit spreads also continued to narrow, with Asian spreads declining by almost 30 basis points, emerging European spreads by about 75 basis points and Latin American spreads by more than 60 basis points (Graph 10, right-hand panel). Similarly, the market-implied price of credit risk also continued its downward trend, but to its pre-crisis level (Graph 11, left-hand panel).

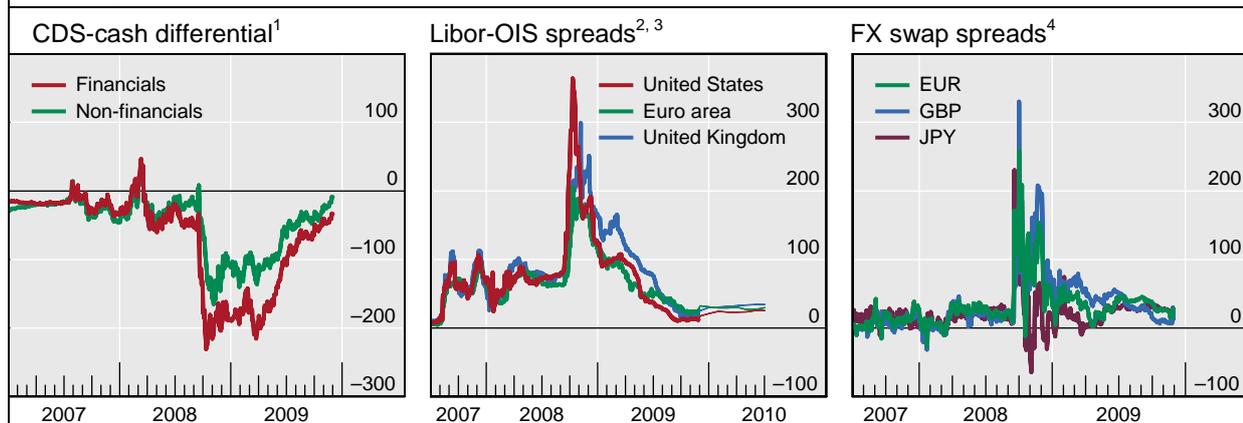
The return to more normal credit market conditions was also reflected in corporate bond issuance (Graph 11, right-hand panel, and Highlights section). Higher issuance of commercial paper by US financials also pointed to improved credit market conditions. In contrast, bank lending to non-financial firms continued to contract in the United Kingdom, the United States and the euro area. In the euro area, the improved credit market conditions led to several ECB Council members indicating that the unlimited 12-month loan auctions

... as market conditions improve



## CDS vs bond credit spreads, Libor-OIS spreads and FX swap spreads

In basis points



<sup>1</sup> CDS-cash measures, approximated by the difference between the iTraxx Europe (non-) financials five-year on-the-run CDS mid-spread and the iBoxx (non-) financials cash market spread. <sup>2</sup> Three-month Libor rates minus corresponding overnight index swap (OIS) rates (for the euro area, EONIA swap). <sup>3</sup> Thin lines show forward spreads, calculated as the difference between three-month forward rate agreement (FRA) rates and corresponding implied OIS rates, as at 27 November 2009. <sup>4</sup> Spread between three-month FX swap-implied dollar rate and three-month Libor; the FX swap-implied dollar rate is the implied cost of raising US dollars via FX swaps using the funding currency. For details on calculation, see N Baba, F Packer and T Nagano, "The spillover of money market turbulence to FX swap and cross-currency swap markets", *BIS Quarterly Review*, March 2008, pp 73–86.

Sources: Bloomberg; JPMorgan Chase, BIS calculations.

Graph 12

introduced during the crisis could soon be phased out as part of efforts to gradually withdraw emergency liquidity measures. The ECB also announced that from March 2011 it will require at least two ratings from an accepted external credit assessment institution for all asset-backed securities used as collateral, where the second best rating must be at least single-A.

There were also clear indications that the dysfunctions seen in global credit markets during the crisis had more or less disappeared by end-November. The spread differentials between cash and CDS prices had essentially returned to pre-crisis levels, at least for non-financial borrowers (Graph 12, left-hand panel). Libor-OIS spreads, a frequently used indicator of short-term credit market stress, had gone back to levels only slightly above their pre-crisis levels (Graph 12, centre panel). Finally, FX swap spreads had declined to their pre-crisis levels by end-November (Graph 12, right-hand panel).

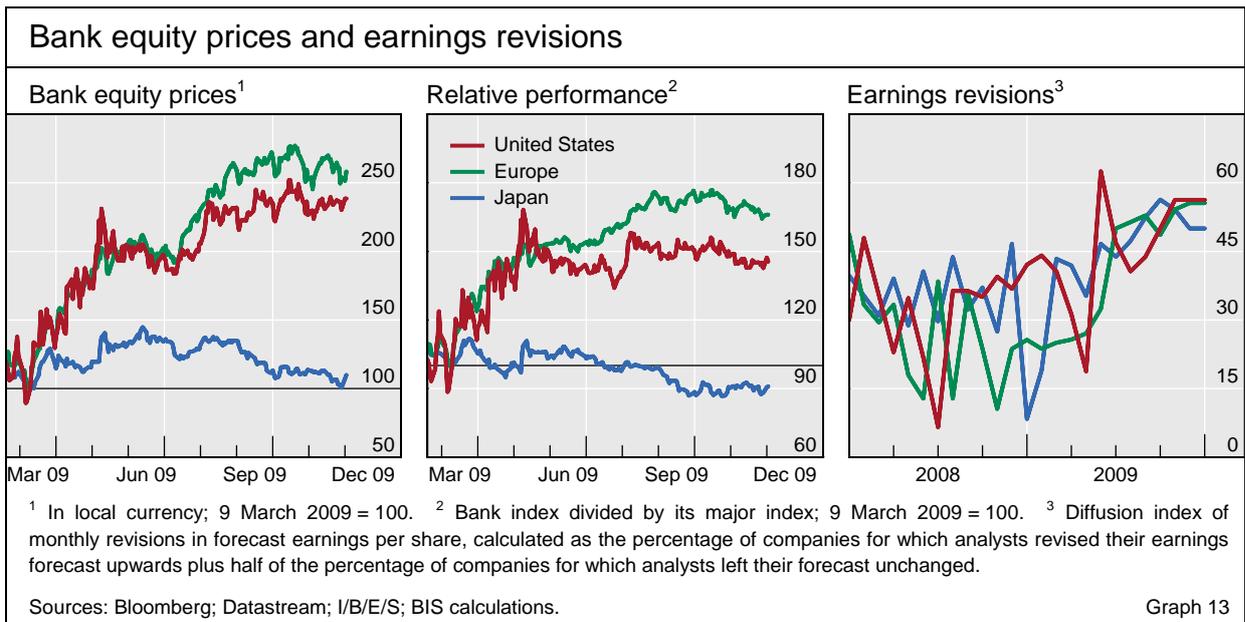
### *Banks continue to repair balance sheets*

Bank equity prices move with market

Bank stocks posted further gains during the period under review, at least in Europe and the United States (Graph 13, left-hand panel). Even so, bank equity prices in these two economies fell relative to the broader market and remained well below their pre-crisis levels. Japanese equity prices dropped slightly in recent months, both in absolute terms and relative to the broader market (Graph 13, centre panel).

Bank credit spreads tighten as banks continue to repair balance sheets

Following overall market developments, bank credit spreads tightened further, reflecting improved earnings and continued efforts to strengthen banks' capital positions (Graph 14, left-hand and centre panel). Following large equity issues by US banks in the first half of the year, many European banks also



raised new capital. As a consequence, the total amount of capital raised finally caught up with writedowns (Graph 14, right-hand panel). Tier 1 capital ratios increased by around 1 percentage point in the first 11 months of 2009. Particularly noteworthy in this context was a large rights issue by Lloyds Banking Group in late November. Lloyds, whose balance sheet had suffered due to the firm's takeover of HBOS last year, issued new shares at a discount of almost 60% compared to the market price, to raise £13.5 billion. In addition, it was the first bank to issue contingent convertible bonds (CoCo bonds or enhanced capital notes), convertible debt securities that are automatically turned into equity if the Tier 1 ratio falls below a specific level. The concept of such contingent capital has received much attention in recent months, but it remains to be seen if other banks will issue similar types of securities.

