Jacob Gyntelberg Peter Hördahl

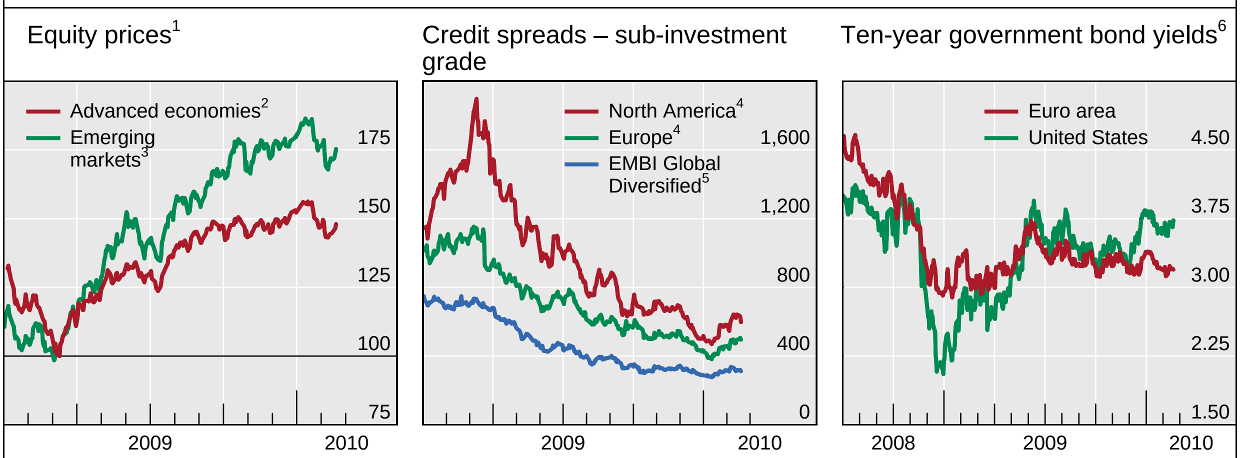
jacob.gyntelberg@bis.org peter.hoerdahl@bis.org

Overview: sovereign risk jolts markets

The rise in risky asset prices ran out of steam at the beginning of 2010. After 10 months of substantial increases, equity prices in both advanced and emerging economies started falling from mid-January (Graph 1, left-hand panel), while credit spreads widened (Graph 1, centre panel). With volatility and risk aversion rising, increased demand for government bonds pushed benchmark bond yields downwards (Graph 1, right-hand panel). Towards the end of the period under review, markets stabilised and some of the losses were reversed.

The apparent reduction of appetite for risky assets seen during much of the period was the result of a number of factors. In an environment where uncertainty about growth prospects persisted, mixed news on the economic recovery in Europe and the United States weakened investors' confidence. The unevenness of the global economic recovery added to the uncertainty. Moreover, concerns about sovereign credit risk intensified as market participants increasingly focused on the fiscal woes of Greece. These worries spilled over to a number of other countries in the euro area, and generally intensified the downward pressure on prices of risky assets. These sudden market pressures served as a warning about the financial risks of prolonged

Major market developments



[1] 3 March 2009 = 100. [2] Average of S&P 500, DJ EURO STOXX, TOPIX and FTSE 100 indices. [3] Average of Asian, European and Latin American emerging market equity indices. [4] Five-year on-the-run credit default swap (CDS) mid-spreads on sub-investment grade (CDX High Yield; iTraxx Crossover) quality, in basis points. [5] Stripped spreads, in basis points. [6] In per cent.

Sources: Bloomberg; Datastream. Graph 1

fiscal deficits. Against this backdrop, the euro fell significantly against other major currencies. In addition, market interpretations of steps and future plans to normalise very expansionary policies seemed to amplify investors' unwillingness to take on risk. Global equity prices fell following decisions by the Chinese authorities to raise the reserve requirement ratio for large depository institutions. Moreover, bond yields rose and equity prices fell after the US Federal Reserve announced an increase in the discount rate in the second half of February.

Asset prices retreat as investors shun risk

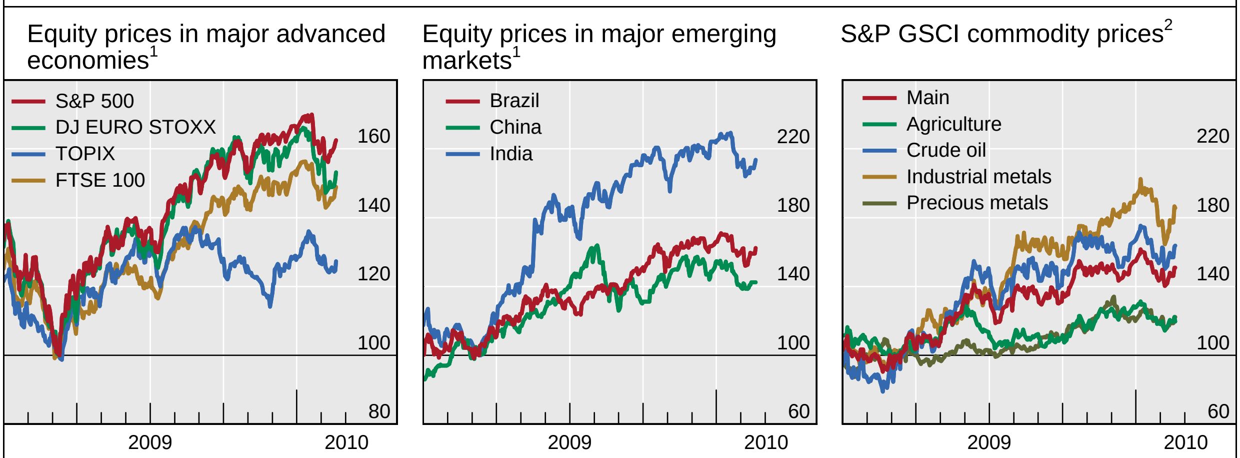
Investors sell off risky assets ...

While prices of risky assets generally continued to rise until around mid-January 2010, a broad-based pullback subsequently took place. Equity prices fell throughout the major advanced economies and larger emerging markets (Graph 2, left-hand and centre panels). Towards the end of the period under review, markets stabilised and recovered some of these losses. Still, by 17 February, stock indices in both advanced and emerging economies were more than 5% lower on average than their local peak levels in mid-January. These declines were, however, relatively minor compared with the surge in equity prices seen since early March 2009, which – up until mid-January – amounted to around 55% in the advanced economies and 85% in the emerging markets. Credit markets were also affected, with spreads widening across the board. Commodity prices, which had risen strongly throughout much of 2009, fell back in tandem with other markets, but recovered somewhat towards the end of the period (Graph 2, right-hand panel).

... as uncertainty and risk aversion rise

Perceptions of greater uncertainty about future market price developments and higher aversion to risk among investors were important ingredients in recent market dynamics. Implied equity index volatilities, which by around mid-January had dropped to their lowest levels since the Lehman collapse, subsequently spiked up by about 5–10 percentage points in advanced as well as emerging market economies, before decreasing again gradually in February

Equity and commodity markets

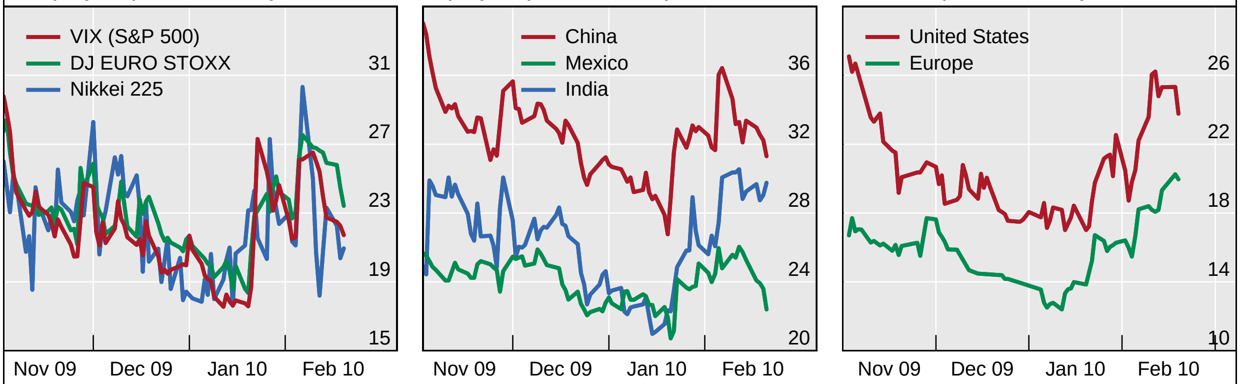


[1] In local currency; 9 March 2009 = 100. [2] Goldman Sachs Commodity Index; 9 March 2009 = 100.

Sources: Bloomberg; Datastream. Graph 2

Implied volatility

Equity implied volatility[1] | Equity implied volatility[1] | Credit implied volatility[2]



[1] Volatility implied by the price of at-the-money call option contracts on stock market indices, in per cent. [2] Volatility implied by the price of at-the-money one- to four-month option contracts on CDS indices (CDX High Yield; iTraxx Crossover), in basis points.

Sources: Bloomberg; BIS calculations. Graph 3

(Graph 3, left-hand and centre panels). In credit markets, implied CDS index volatilities edged upwards from mid-January after almost a year of more or less steady declines (Graph 3, right-hand panel).

Euro area sovereign debt concerns

Concerns about the market implications of large fiscal deficits came to the fore in late 2009 and early 2010. Investors' attention was first drawn to the issue of sovereign risk by the financial difficulties encountered by the government-owned Dubai World in late November. More recently, the focus has shifted to the euro area, where large budget deficits led to the prospect of rapidly increasing government debt/GDP levels in several countries (Graph 4, left-hand panel).

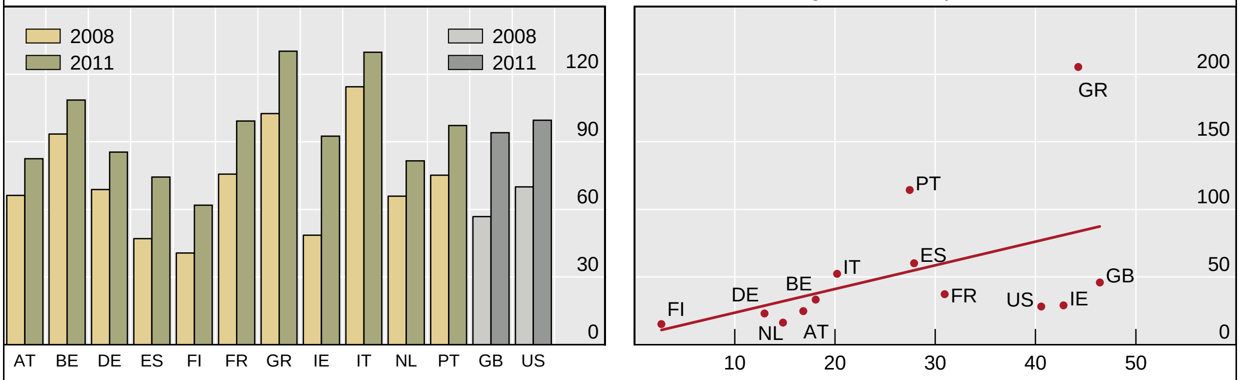
Greek fiscal difficulties drive sovereign spreads higher

Worries about the difficult fiscal situation in Greece, soon followed by similar concerns about Portugal and Spain, led to much wider credit spreads in both bond and CDS markets for these sovereign borrowers (Graph 4, right-hand panel). The credit spreads for some other euro area sovereign borrowers also rose. The more pronounced spread widening for Greece and, to a lesser degree, Portugal clearly reflected more imminent investor concerns. In contrast, Irish, UK and US spreads have changed little over recent months.

Activity in the CDS market for developed country sovereign debt increased significantly as investors adjusted their exposure to sovereign risk. This market was virtually non-existent only a few years back, when sovereign CDS were mostly on emerging market economies, but has since grown rapidly. This increase in activity resulted in significantly higher outstanding volumes of CDS contracts (Graph 5, left-hand panel). Nevertheless, the amount of sovereign risk which is actually reallocated via CDS markets is much more limited than the gross outstanding volumes would suggest. The sovereign reallocated risk is captured by the net outstanding amount of CDS contracts, which takes into account that many CDS contracts offset each other and therefore do not result in any actual transfer of credit risk. Net CDS positions on Portugal amounted to

Government debt, deficits and sovereign credit premia

Government debt/GDP[1] | Deficits vs changes in CDS premia[2]



AT = Austria; BE = Belgium; DE = Germany; ES = Spain; FI = Finland; FR = France; GB = United Kingdom; GR = Greece; IE = Ireland; IT = Italy; NL = Netherlands; PT = Portugal; US = United States.

[1] Actual data for 2008 and projections for 2011. [2] Horizontal axis shows the sum of government deficit as percentage of GDP for 2007–11; vertical axis represents change in CDS premia between 26 October 2009 and 17 February 2010. Actual data for 2007–09 and projections for 2010–11 for government deficit as percentage of GDP.

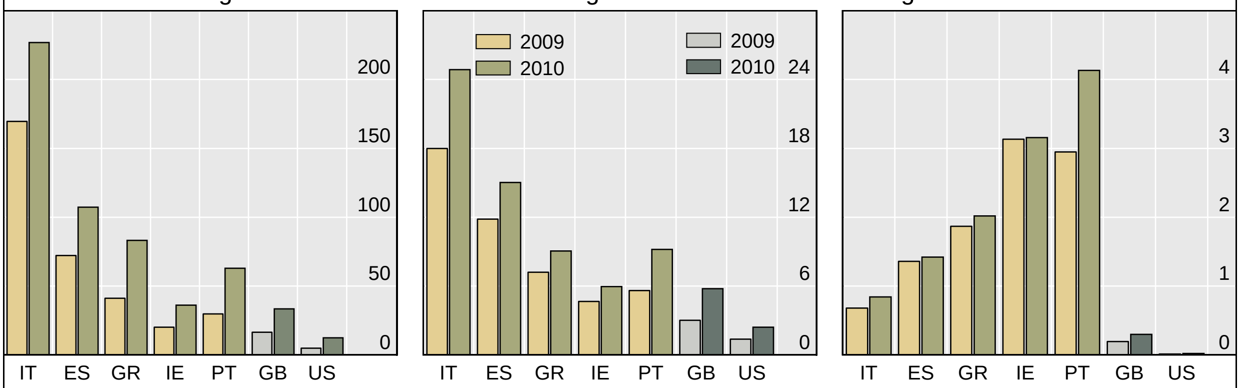
Sources: OECD; Markit; national data. Graph 4

only 5% of outstanding Portuguese government debt. For other countries, including Greece, the ratio of sovereign CDS contracts to government debt was even lower (Graph 5, right-hand panel).

Investor attention was first drawn to the fiscal situation in Greece in October 2009, when it became clear that the budget deficit for 2009 would be significantly higher than expected. This prompted rating agencies to reassess the outlook for Greek public finances. Moody's initiated a review for a possible downgrade in late October and S&P followed suit on 7 December. On the following day, Fitch downgraded Greece's government debt to BBB+ from A– with a negative outlook. Downgrades by the other two agencies followed later in the month, with S&P and Moody's downgrading Greek government bonds to

Gross sovereign CDS

Gross outstanding volume[1] | Net outstanding volume[2] | CDS/government debt[3]

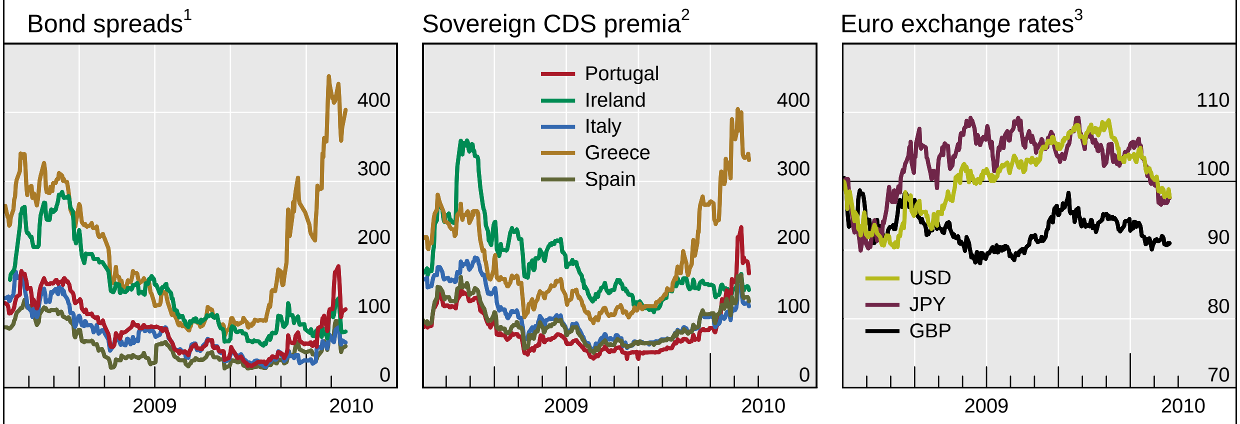


For country codes, see Graph 4.

[1] Gross notional values are the sum of CDS contracts bought or sold for all warehouse contracts in aggregate; in billions of US dollars. [2] Net notional values are the sum of net protection bought by net buyers; in billions of US dollars. [3] Net notional CDS volume as a percentage of government debt.

Sources: OECD; Depository Trust & Clearing Corporation. Graph 5

Sovereign bond yields, CDS premia and euro exchange rates



[1] Spread between five-year nominal yields and German five-year yields, in basis points. [2] In basis points. [3] Exchange rate against euro; 1 January 2009 = 100.

Sources: Bloomberg; Markit; BIS calculations. Graph 6

BBB+ and A2, respectively. In the days following the Fitch downgrade, the credit spread for bonds as well as Greek sovereign CDS premia increased significantly, with five-year CDS premia for Greece widening by around 30 basis points to more than 200 basis points (Graph 6, left-hand and centre panels).

Rating downgrades for Greece and Greek banks …

The lowering of Greece's sovereign rating was accompanied by rating cuts for a number of Greek banks. The combined impact of these downgrades was clearly visible in equity markets, where equity prices for major Greek banks declined by almost 20% in one week. One concern was that Greek banks – which, according to analysts and rating agencies, depended more on ECB funding than institutions in other countries did – would no longer be able to post Greek government bonds as collateral in the ECB's refinancing operations. At present, the ECB requires a minimum rating of BBB– for its collateral, but the ECB has indicated that it is likely to revert to the pre-crisis level of A– at the end of the year. The current A2 rating from Moody's ensures that Greek government bonds would still be acceptable as collateral even after such a change, but this would no longer hold in the case of further downgrades.

… increase counterparty risk concerns

The possible loss of this funding source for Greek banks pushed up CDS premia and yield spreads on Greek government debt even further, as it increased the perceived financial risks for the government. On 25 January, the Greek government sold €8 billion of five-year bonds at 380 basis points above German government bonds and 30 basis points above similar outstanding Greek government bonds. The issue was highly oversubscribed, with bids totalling €25 billion. This was viewed as a positive development by investors, and resulted in a brief drop in the CDS premia. The respite was, however, only temporary. Despite new plans to cut the budget deficit and other efforts by policymakers to reassure markets, investor confidence remained fragile.

Clear signs of wider market impact by late January …

Market reactions were not confined to Greece. By late January, there were clear signs of spillover effects to other markets as stock prices of European banks declined and sovereign spreads widened for a number of other

European countries. Portugal and Spain were the most directly affected, but the impact was felt more broadly. A small but unsuccessful auction of Portuguese government debt in early February accentuated concerns. Equity prices fell around the globe and corporate credit spreads increased, while safe haven flows pushed down the government bond yields of several major countries. Sovereign credit spreads on a number of other countries widened. The sovereign CDS index for western Europe (which measures the cost of insuring against the risk of default for a basket of western European sovereigns) rose above 100 basis points for the first time amid increased activity in the sovereign CDS market. The growing unease also weighed on the euro, which by early February had declined against other major currencies to levels not seen since early or mid-2009 (Graph 6, right-hand panel). Markets did, however, calm down in the weeks that followed, leading to a fall in Greek, Portuguese and Spanish credit spreads from their previous highs. Nevertheless, uncertainty remained despite EU governments pledging "determined and coordinated action" to ensure financial stability in the euro area. This uncertainty was perhaps most clearly reflected in continued high sovereign credit spreads for a number of euro area countries.

… lead to a weaker euro

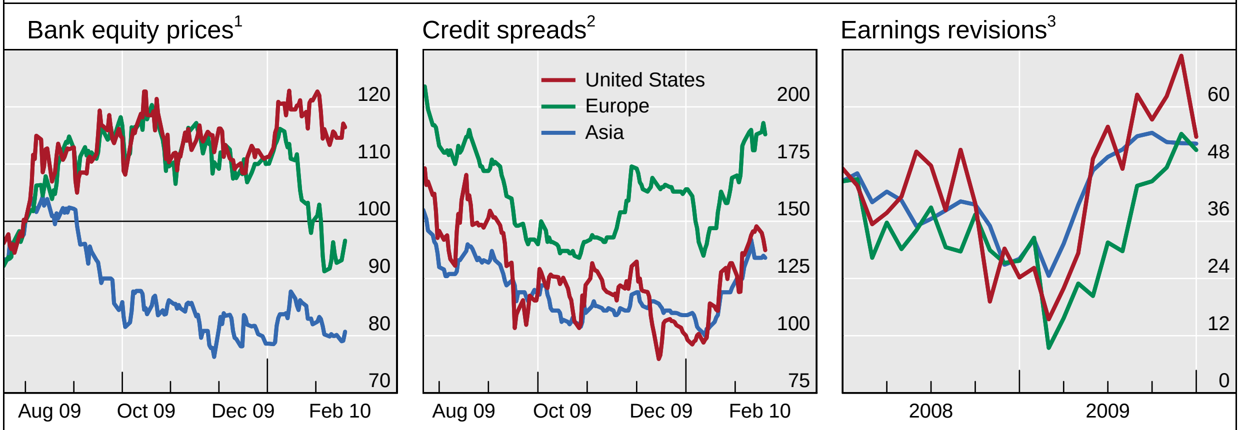
Banks, sovereign risk exposures and post-crisis regulation

Sovereign risk exposures weigh on bank equity prices …

… particularly for European banks

Investor concerns about sovereign exposures weighed on banks' equity prices in late 2009 and early 2010, particularly in Europe (Graph 7). That said, bank credit spreads and equity prices also reflected financial statements posted in January and February that continued to report positive, albeit moderate, profits. Sovereign risk had the strongest impact on equity prices and credit spreads for banks in Greece, Portugal and Spain, but other euro area banks were also affected (Graph 8). An important aspect was the extent to which a bank was exposed to Greek, Portuguese or Spanish sovereign risk. Overall, BIS data suggest that euro area banks are markedly more exposed than non-euro area

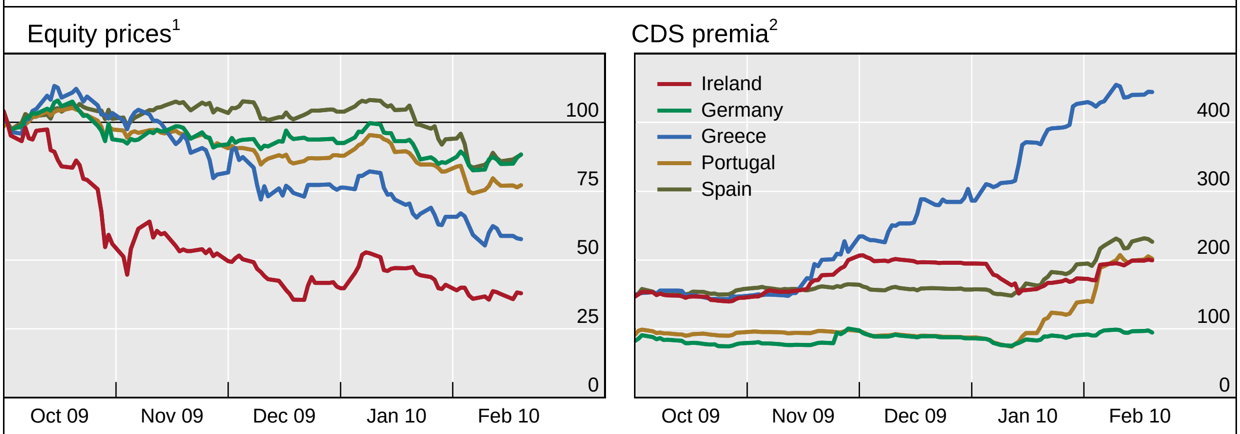
Bank equity prices, CDS premia and earnings revisions



[1] In local currency; 31 July 2009 = 100. [2] Equally weighted average senior five-year CDS spreads for the banking sector. [3] Diffusion index of monthly revisions in forecast earnings per share, calculated as the percentage of companies for which analysts revised their earnings forecast upwards plus half of the percentage of companies for which analysts left their forecast unchanged.

Sources: Bloomberg; Datastream; I/B/E/S; JPMorgan Chase; Markit. Graph 7

Bank equity prices and CDS premia



[1] 1 October 2009 = 100. [2] Equally weighted average CDS premia for major banks in each country, in basis points.

Sources: Datastream; Markit; BIS calculations. Graph 8

institutions to the public sector debt of these countries (Graph 9; see also Highlights section).

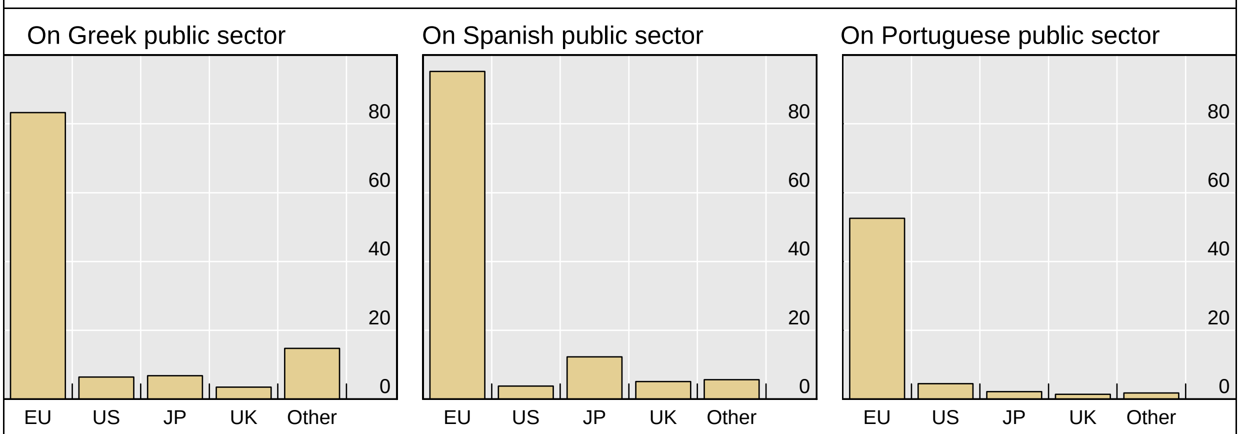
Basel proposals for post-crisis bank regulation …

Market reaction to new information on the likely post-crisis regulatory framework for banks was mixed. On 17 December, the Basel Committee on Banking Supervision published an important set of proposals designed to strengthen the sector's resilience.[1] Analysts took these proposals to mean that banks would be required in future to operate with more capital and less leverage. In principle, this would in the long run reduce their return on equity but also diminish the credit risk. However, the immediate impact on bank equity prices and credit spreads was slight. European banks, thought to be more affected by simple limits on leverage, saw a brief dip in their stock prices after the announcement. Meanwhile, stock prices for US banks, which are already subject to such limits, hardly moved at all.

… evoke limited market reaction …

Claims on public sector in Greece, Spain and Portugal by nationality of banks[1]

End-Q3 2009; in billions of US dollars



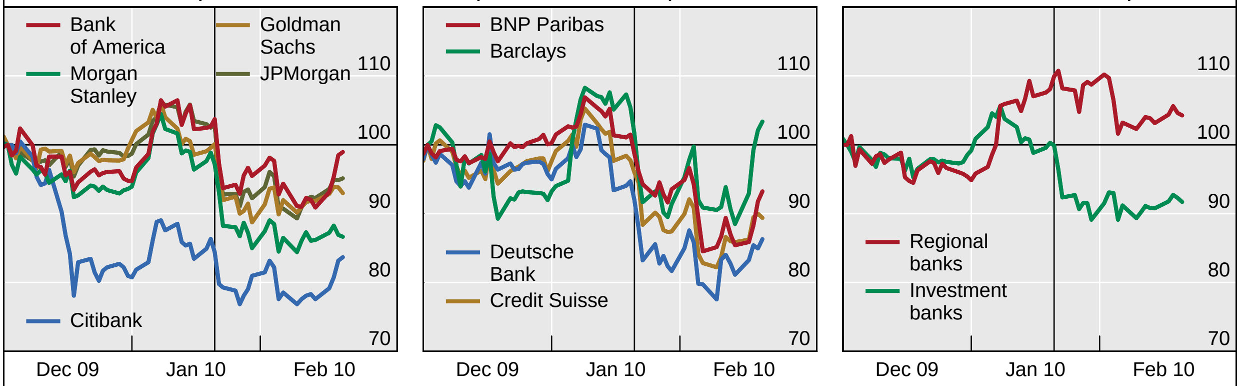
[1] Public sector comprises general government sector, central banks and multilateral development banks; claims on the public sector of each country are assumed to be denominated in the currency of the respective country.

Source: Consolidated international banking statistics (ultimate risk basis). Graph 9

[1] See www.bis.org/press/p091217.htm.

Bank prices and the “Volcker rule”

In local currency; 1 December 2009 = 100



Vertical lines indicate 21 January 2010.

Source: Bloomberg. Graph 10

A speech given by the US President on 21 January elicited a more notable market response. The proposals put forward – quickly labelled the “Volcker rule” – envisaged that commercial banks with a large deposit base should face limits to their proprietary trading and similar activities. The proposals also provide for limits on the size of individual firms relative to the overall system. The shares of large banks with significant earnings from US financial market activities, whether or not they were headquartered in the United States, tended to weaken (Graph 10, left-hand and centre panels). In contrast, equity prices for US regional banks – which rely less on earnings from financial market activities – were less affected (Graph 10, right-hand panel).

… while “Volcker rule” elicits stronger response

Divergent monetary policies reflect the uneven recovery

A number of emerging market countries took initial steps to tighten monetary policy or signalled that such steps were forthcoming. This reflected increased credit expansion and growing inflationary pressures amid brisk economic growth (Graph 11, left-hand panel). It also demonstrated that the recovery in these countries was well ahead of the cycle in mature economies.

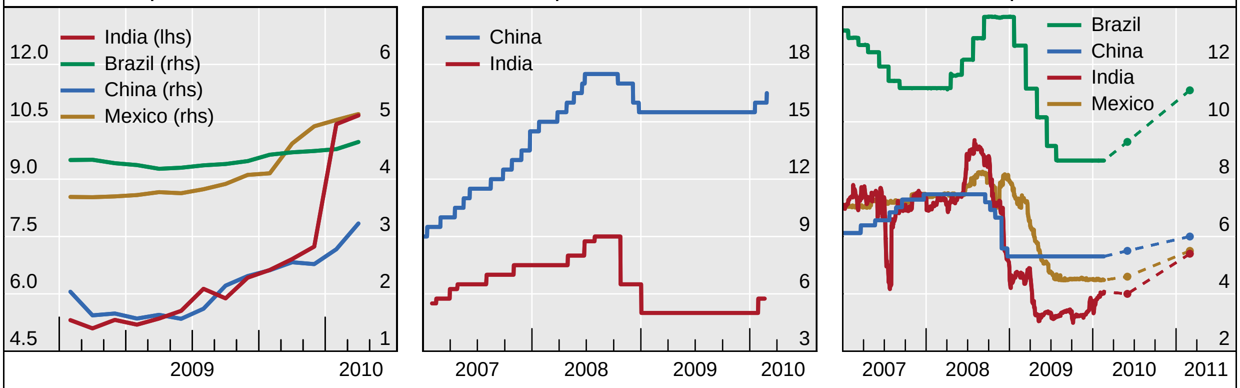
Emerging market countries take tightening steps …

In some countries, such as China and India, a strong expansion of bank credit combined with rising asset prices prompted monetary tightening. The People’s Bank of China announced on 12 January that it would raise the renminbi reserve requirement ratio for large depository financial institutions by 50 basis points (Graph 11, centre panel). Following the announcement, the Shanghai Composite Index fell by 2.3%. One month later, the Bank announced a second tightening of the reserve requirement, again of 50 basis points. While Chinese stock markets were closed at the time for the new year holiday, equities elsewhere dropped significantly following this news. On 29 January, the Reserve Bank of India announced that it was increasing banks’ cash reserve ratio by 75 basis points, in order to reduce excess liquidity and help anchor inflation expectations (Graph 11, centre panel). In addition to these moves, market analysts expected short-term interest rates to rise significantly

Expected inflation and monetary policy in major emerging markets

In per cent

Inflation expectations for 2010[1] | Reserve requirement ratio | Interest rate expectations[2]



[1] Based on survey data from Consensus Economics. [2] For China, one-year lending rate; for India, 91-day treasury bill rate; for Brazil, SELIC overnight interest rate; for Mexico, 28-day CETES. Dashed lines represent approximate interest rate expectations based on survey forecasts for rates in May 2010 and February 2011 (indicated as dots), as reported by Consensus Economics.

Sources: Bloomberg; © Consensus Economics. Graph 11

in these and other major emerging economies (Graph 11, right-hand panel). Nevertheless, the timing of possible interest rate hikes still remained uncertain. A key complication in this regard is the risk that rising interest rates might have destabilising effects in those countries where capital inflows are already high.

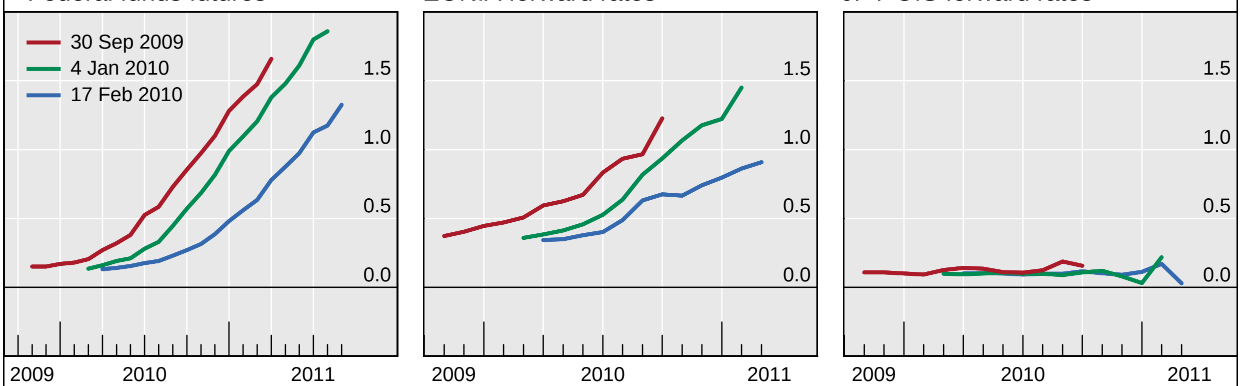
… in contrast to major developed countries …

In recent months, by contrast, market participants generally revised their expectations about monetary policy in major mature economies such that rate hikes were expected to occur later or at a slower pace than previously thought (Graph 12). This was partly because major central banks continued to signal that interest rate increases were not to be expected in the near term. Moreover, investors' policy expectations also reflected a perception that the recovery in major advanced economies was still in its early stages.

With investor confidence on the retreat, market participants were more sensitive to unfavourable than to positive economic news. In the United States, recent labour market figures were seen as less encouraging than markets had

Implied forward curves

Federal funds futures | EONIA forward rates[1] | JPY OIS forward rates[1]



[1] One-month rates implied by overnight index swaps.

Sources: Bloomberg; BIS calculations. Graph 12 anticipated: initial jobless claims remained stubbornly high and non-farm payrolls continued to decline, albeit at a much reduced pace. Moreover, although fourth quarter US real GDP growth surprised on the upside, consumer spending growth, viewed as an important ingredient for the recovery in the United States, slowed to an anaemic 0.1% in the last month of 2009. Europe also saw its share of weak economic data. Retail sales and industrial production figures fell short of expectations, and fourth quarter GDP figures were weaker than expected in the euro area and the United Kingdom, triggering declines in European equity prices and benchmark bond yields following the release of these statistics.

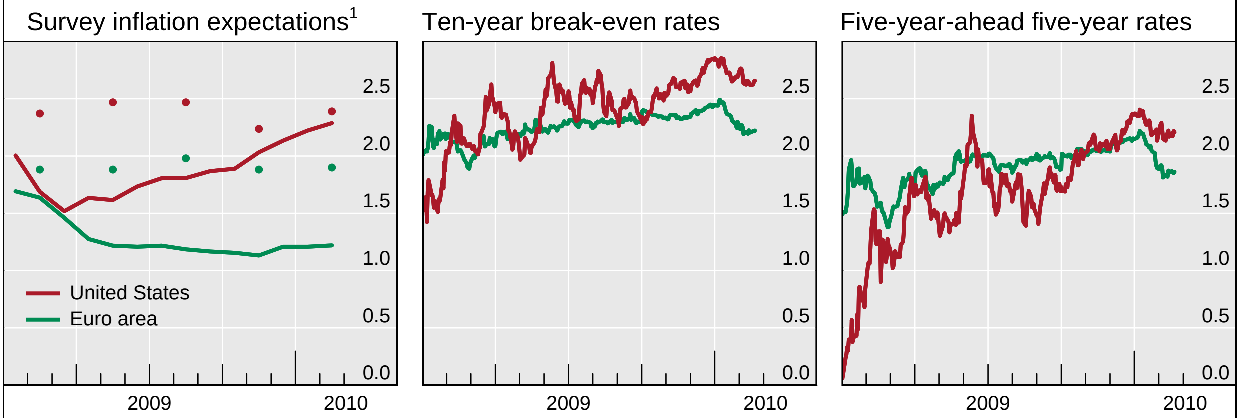
In line with investors' monetary policy expectations, the inflation outlook remained benign. Survey data pointed to well contained inflation expectations in the United States and in the euro area, both in the near term and over longer horizons (Graph 13, left-hand panel). The pricing of inflation swap contracts seemed to be broadly consistent with this information. Both long-term spot and distant forward break-even rates had gradually risen in the course of 2009, as market conditions normalised. However, at the beginning of 2010 these rates dipped downwards again (Graph 13, centre and right-hand panels). Hence, despite unprecedented monetary and fiscal stimulus in recent months, market participants showed few signs of concern that long-term inflation expectations might become unanchored.

… where record low rates fuel yield curve carry trades

Expectations that exceptionally low policy rates would prevail for some time in major developed economies meant that banks and other investors could continue to exploit cheap funding and invest in higher-yielding assets. In fixed income markets, yield curves remained extraordinarily steep, highlighting the potential profit from investing long-term with short-term financing (Graph 14, left-hand panel). The taking of such positions may also have contributed to recent downward pressure on long-term yields. Implied volatilities on interest rate derivatives contracts declined further, suggesting that the perceived risk associated with such investments continued to drop (Graph 14, centre panel).

Inflation expectations and inflation swap break-even inflation rates

In per cent

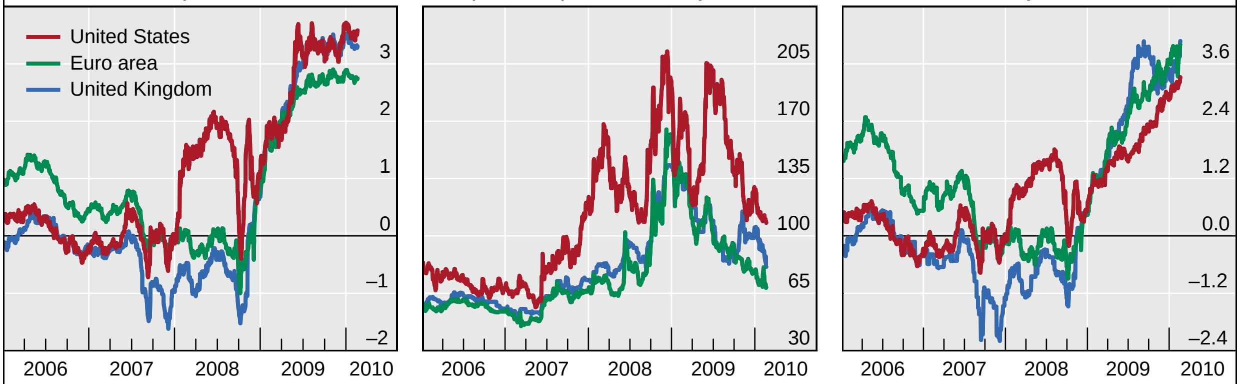


[1] The dots correspond to survey expectations of inflation during the next 10 years (for the United States) and five years ahead (for the euro area), as reported in the Survey of Professional Forecasters of the Federal Reserve Bank of Philadelphia and the ECB, respectively. The lines correspond to 2010 inflation expectations based on survey data from Consensus Economics.

Sources: ECB; Federal Reserve Bank of Philadelphia; Bloomberg; © Consensus Economics; BIS calculations. Graph 13

Interest rate spreads, implied volatilities and carry-to-risk

Interest rate spread[1] | Swaption implied volatility[2] | Interest rate carry-to-risk[3]



[1] Ten-year swap rates minus three-month money market rates, in per cent. [2] Volatility implied by three-month swaptions on 10-year swap contracts, in basis points. [3] Defined as the differential between 10-year swap rates and three-month money market rate divided by the three-month/10-year swaption implied volatility.

Sources: Bloomberg; BIS calculations. Graph 14

The combination of higher returns and lower risk meant that such positions were gaining in attractiveness from a risk-adjusted perspective too. Notably, measures of "carry-to-risk", which gauges return in relation to a risk measure, reached new highs for this type of position (Graph 14, right-hand panel). Given such incentives, one concern was that financial institutions could be taking on excessive duration risk. Once expectations change and interest rates begin to rise, the unwinding of such speculative positions could reinforce repricing in fixed income markets and result in yield volatility.

Central banks gradually withdraw emergency support

Emergency liquidity measures are scaled back …

Further improvements in the functioning of financial markets, and, in particular, in money market conditions, meant that monetary authorities were able to gradually continue withdrawing extraordinary support (see also the discussion by P Gerlach in this issue). Accordingly, a number of major central banks announced in late January that they would discontinue the temporary liquidity swap lines with the Federal Reserve on 1 February. The ECB conducted its last 12-month refinancing operation in mid-December 2009 and decided to carry out its last six-month operation at the end of the first quarter of 2010. The US Federal Reserve proceeded with the planned closing of the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, the Commercial Paper Funding Facility, the Primary Dealer Credit Facility and the Term Securities Lending Facility on 1 February. The scaling-back of extraordinary measures also extended beyond liquidity support schemes; the Federal Reserve confirmed plans to end the process of purchasing $1.25 trillion of agency mortgage-backed securities and $175 billion of agency debt by the end of the first quarter, and to wind down its Term Auction Facility and the Term Asset-Backed Securities Loan Facility in the course of the first half of 2010. Meanwhile, the Bank of England's Monetary Policy Committee decided in early February not to increase the Bank's programme of asset purchases beyond the total of £200 billion that had already been completed.

This scaling-back of supportive monetary measures was widely anticipated, in line with earlier announcements or signalling by central banks. As a result, it had no significant impact on asset prices. However, investors did react to new statements about possible future policy action. Specifically, UK gilt yields fell sharply on 10 February – by as much as 10 basis points at the short end of the maturity spectrum – following remarks by the Governor of the Bank of England that it was "far too soon" to conclude that no further central bank purchases will be needed in sterling bond markets. On the same day, Federal Reserve Chairman Bernanke mentioned in testimony to Congress that an increase in the spread between the discount rate and the target federal funds rate might be considered "before long", and he discussed the sequence of steps that the Federal Reserve might follow to exit from its very accommodative policy stance. Following these statements, US Treasury yields rose by some 5 basis points across the curve. Despite this signalling, markets were surprised by the Federal Reserve's 18 February announcement of a 25 basis point increase in the discount rate, which was intended as a step towards further normalising its lending facilities. After the announcement, bond yields rose and equity prices fell.

… and largely anticipated by markets …

… although other actions surprise investors