2 FINANCIAL MARKETS

Global financial markets have been shaken by bouts of volatility linked to uncertainties regarding the timing of a tapering of the Federal Reserve's asset purchase programme, changes in the growth outlook for advanced and emerging economies, and political challenges in some countries. Adjustments to expectations regarding the timing of a tapering in the Federal Reserve's asset purchase programme triggered a significant increase in yields on US Treasuries, which reverberated globally. Emerging markets were hit hardest, as changes in expectations regarding the monetary stance in the United States and the continued deterioration of the growth outlook contributed to a reversal of some of the strong capital inflows observed since 2009. The rise in US interest rates also had an impact on euro area markets, in particular the money and bond markets. The introduction of forward guidance by the ECB limited contagion, while signs of a strengthening of euro area economic activity supported euro area markets, in particular stressed segments. However, developments within stressed markets diverged according to domestic conditions, with political uncertainty in certain countries offsetting otherwise improving sentiment.

Notwithstanding the adjustments in bond markets over the last few months, yields on higher-rated government bonds and speculative-grade corporate debt securities remain low by historical standards, suggesting scope for further corrections. The possibility of additional adjustments arising from changing expectations regarding a normalisation of monetary policy cannot be ruled out. Experience to date indicates that the impact of shifting expectations regarding the timing of a normalisation of the US monetary policy stance might be broad-based in scope, triggering spillovers via asset prices and capital flows. However, the magnitude of the spillovers on markets will depend on prevailing risk sentiment, the domestic growth outlook, current account deficits and the related reliance on foreign capital. At the same time, low market liquidity in certain bond market segments, combined with depleted cash cushions and low bank inventories of corporate bonds, could amplify future price developments.

2.1 VOLATILITY IN EURO AREA MONEY MARKETS AS A RESULT OF GLOBAL AND DOMESTIC UNCERTAINTIES

Volatility in money market interest rates emerged early in the summer, as evolving expectations regarding the timing of a tapering of the Federal Reserve's asset purchase programme led to pockets of rising pressure in US money markets. The spillover to the euro area was evident in a relatively pronounced correlation between US and euro area rates from late May to early July, and in a sustained upward and steepening trend in the term structure of euro area money market interest rates (see Chart 2.1 and lower quadrant of Chart 2.2). This trend led to a situation in which part of the accommodation introduced by the ECB's earlier monetary action was not being fully transmitted.

Chart 2.1 One-year forward overnight index swap rates over one year in the euro area and the United States

(May 2013 – Nov. 2013; percentages)

Sources: Bloomberg and ECB calculations.

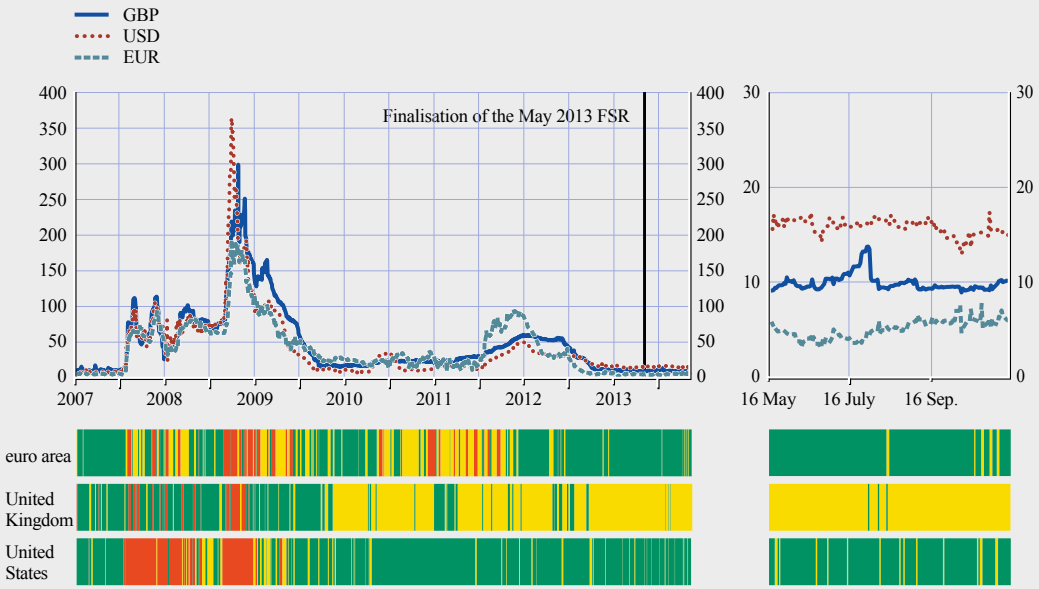
A rise in money market rates and volatility linked to US-related turbulence…

The introduction of forward guidance by the ECB on 4 July resulted in a delinking of US and

… has been allayed by the introduction of the ECB's forward guidance

Chart 2.2 Spreads between unsecured interbank lending and overnight index swap rates

(Jan. 2007 – Nov. 2013; basis points; three-month maturities)

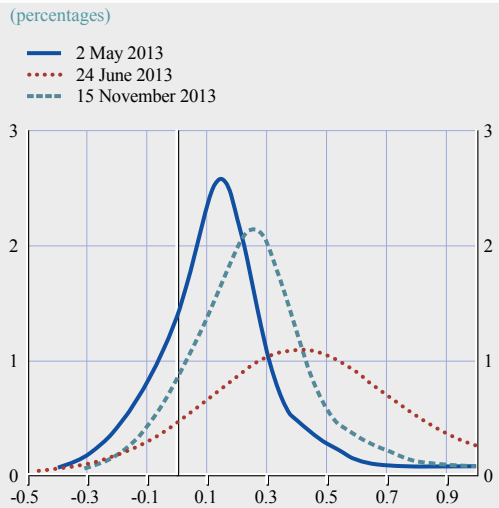


Sources: Bloomberg and ECB calculations.
Notes: Red indicates rising, yellow moderating and green falling pressure in the respective money markets. For more details, see Box 4, entitled "Assessing stress in interbank money markets and the role of unconventional monetary policy measures", in ECB, *Financial Stability Review*, June 2012.

euro area developments, and in a reduction of uncertainty about future euro area money market rates, as confirmed by the changes in option-implied risk-neutral densities for options on three-month EURIBOR futures (see Chart 2.3). In addition, the composite indicator of systemic stress (CISS) in the financial system began to decline, falling to the lowest level on record in September and remaining at low levels since (see Chart 2.4). Following decisions of the Federal Open Market Committee (FOMC) to maintain asset purchases at their current level, and the ECB's decision of November to cut the main refinancing rate, euro area money market rates have declined, yield curves have flattened and market volatility has decreased.

Chart 2.3 Risk-neutral densities of 12-month options on the three-month EURIBOR

(percentages)



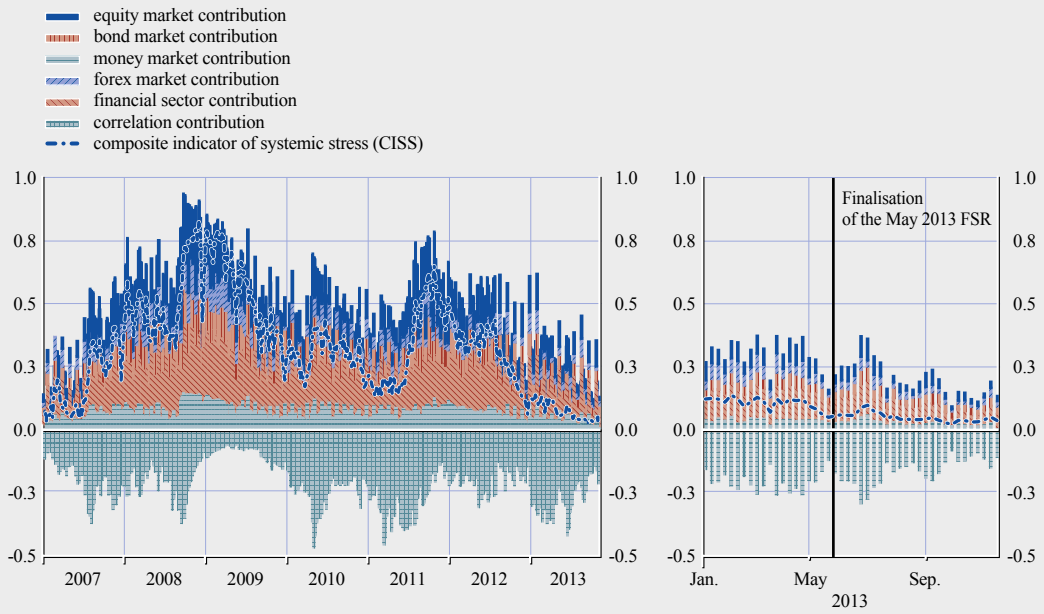
Source: LIFFE-NYSE Euronext.

Persistent declines in excess liquidity have not contributed to rising pressures on rates

Money market rates remained low despite further declines in excess liquidity, which fell to below €200 billion in October (see Chart 2.5). The limited direct bearing of the prevailing level of excess liquidity on the evolution of money market rates suggests that the level below which declines in liquidity can trigger shifts in money market rates is positively related

Chart 2.4 Composite indicator of systemic stress for the euro area and contributions of its components

(Jan. 2007 – Nov. 2013)

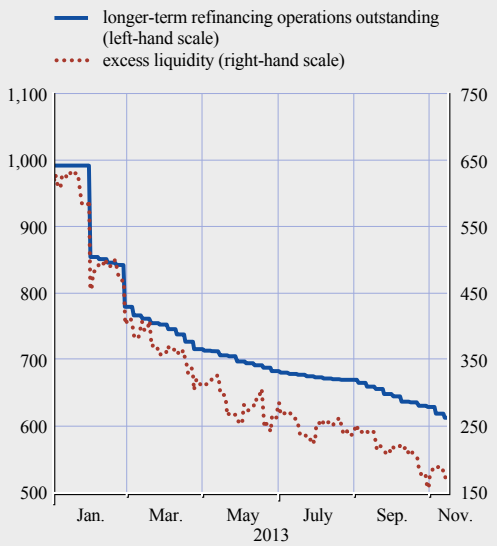


Sources: Bloomberg and ECB calculations.
Note: For further details, see Hollo, D., Kremer, M. and Lo Duca, M., "CISS – a composite indicator of systemic stress in the financial system", *Working Paper Series,* No 1426, ECB, March 2012.

to the degree of fragmentation in the market. Indeed, excess liquidity would be expected to completely dissipate without an observable impact on rates in an extreme case of a fully and perfectly functioning interbank market. Declining excess liquidity has partly been a function of early repayments of longer-term refinancing operations (LTROs), which have reflected an improvement in funding conditions: balance sheet data show an increase in lending by monetary financial institutions (MFIs), excluding the Eurosystem, located in non-stressed euro area countries to MFIs located in stressed euro area countries in the first half of 2013. The pace of LTRO repayments was slower in the summer months, perhaps reflecting a cautious management of liquidity or the aforementioned difficulties in repo markets, as well as indications of a decline in cross-border non-repo interbank funding, but has picked up since September, in line with improving conditions in funding markets (see Section 3).

Chart 2.5 Excess liquidity and outstanding LTRO loans

(Jan. – Nov. 2013; EUR billions)



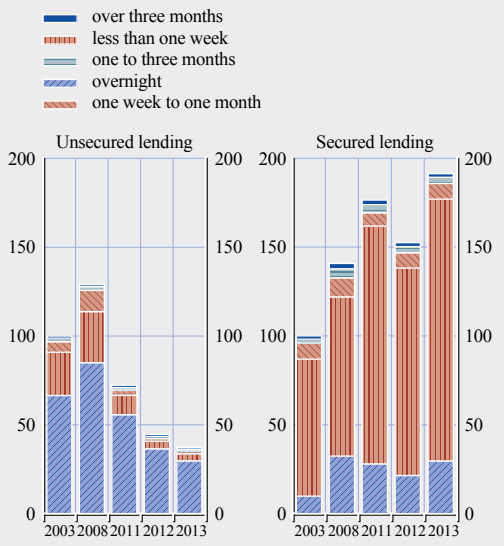
Sources: ECB and ECB calculations.
Note: Excess liquidity refers to deposit facility plus current account holdings less reserve requirements.

Activity in unsecured markets continued to decline and remained limited to a small number of banks…

Activity in **unsecured money markets** remained subdued, limited to a small number of banks and concentrated on maturities of less than one week. The euro area money market survey for the second quarter of 2013 showed a further decline in turnover in the second quarter, and activity has remained broadly stable since then. The survey also indicated that market activity remains highly concentrated, with 20 banks accounting for 86% of total lending and for 80% of total borrowing. Although transactions among stronger euro area banks accounted for the bulk of unsecured activity, willingness to lend at maturities beyond one week appeared limited (see Chart 2.6). In the second quarter, the share of loans with maturities of over one week in total lending remained at half its pre-sovereign debt crisis level. Fragmentation within unsecured markets has deteriorated slightly since the second quarter of 2013, as access for certain banks from stressed countries became more limited in the wake of further rating downgrades.

Chart 2.6 Maturity breakdown for cumulative quarterly turnover in unsecured and secured lending

(index: lending volume in 2003 = 100)



Source: ECB money market surveys.
Notes: The panel consists of 104 credit institutions. The data are for the second quarter of each year displayed.

… while lending in secured markets increased

Activity in **secured money markets** continued to recover from the low levels observed last year. However, lending remained concentrated on maturities of less than one week, and the improvement in fragmentation observed in the first half of this year stalled or, in the case of repo markets, reversed on account of political uncertainties in specific euro area countries during the summer months. The cost of repo funding for Spanish and, to a greater extent, Italian banks rose in June and July, to levels not observed since June 2012. Market access has been challenging for these banks since end-May, on account of either a lack of counterparties for bilateral trades or a high cost of access. In the case of Italian banks, these developments were exacerbated by the decision taken by LCH Clearnet in August in favour of cash settlement in the event of a default by the Italian clearing house Cassa di Compensazione e Garanzia. This measure contributed to a short-lived increase in rates for collateralised funding, with the ability of Italian banks to raise funding through transactions with central counterparties (CCPs) being temporarily affected. According to the ECB's money market survey, transactions via CCPs accounted for roughly two-thirds of total turnover in the euro area repo market in the second quarter of 2013, compared with approximately one-half in 2012.[1] Fragmentation persists in repo markets, but conditions have improved for Italian and Spanish banks since August, reflecting a lower general risk aversion, a re-opening of foreign credit lines and, in the case of Italian banks, improvements in their liquidity situation.

Looking ahead, market sources indicate concerns that the inability to offset repos against reverse repos under the revised Basel III leverage ratio will lead to a retrenchment of activity. According to the balance sheet data for euro area credit institutions, repos only account for a small proportion

1 According to market sources, increasing interactions with CCPs, as well as the decision by LCH Clearnet, have prompted a higher surveillance of CCPs by banks. During systemic events, a lack of risk management by CCPs has the potential to unduly increase liquidity stress for its members and can, in extreme cases, lead to cliff effects. With respect to their increased surveillance, market participants mentioned closer analysis of CCPs' operations, stress testing and regular monitoring, including reports on exposures to senior officials.

of total bank liabilities in the euro area (less than 5%), although the share varies across banking sectors.[2] Moreover, the importance of repo markets lies in the liquidity they provide to the underlying collateral, largely government bonds. A number of market participants have also raised concerns that LCH Clearnet's decision could impact market liquidity for Italian sovereign bonds, especially if risk aversion returns.

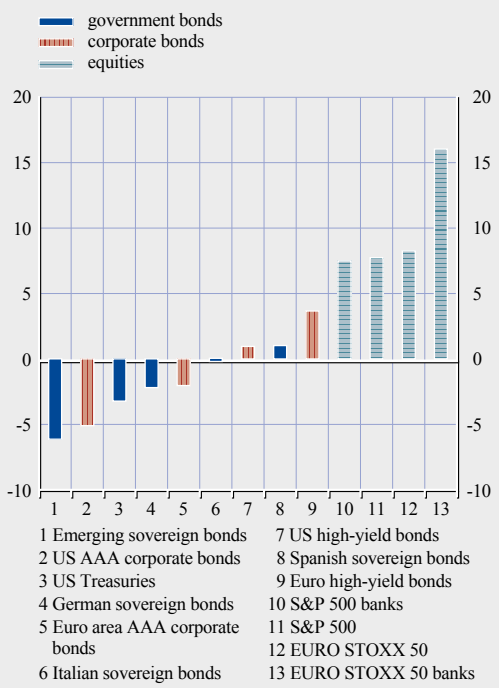
2.2 POTENTIAL FOR FURTHER CREDIT MARKET TURBULENCE DESPITE RECENT CORRECTIONS

Adjustments to market prices varied across regions and segments

Significant price adjustments across a wide range of asset categories accompanied the financial market turbulence that was triggered in the summer by changing market expectations regarding the timing of a phasing-out of US quantitative easing. The shift in expectations coincided with the Federal Reserve Chairman's testimony before the US Congress on 22 May. Adjustments since that date have varied greatly, in terms of magnitude and nature, across regions and market segments (see Chart 2.7). While higher-rated bonds experienced noteworthy declines, the prices of riskier assets, in particular bank equity, increased. In terms of regions, emerging markets were hit hardest, as the key drivers of sustained foreign capital inflows – the accommodative US monetary policy, high growth and interest rate differentials vis-à-vis advanced economies – began to reverse. The declines in broad emerging market equity and bond indices have been more substantial than those of the euro area or the United States. In fact, compared with the United States, euro area markets emerged relatively unscathed from the recent turbulence, largely on account of both the introduction of forward guidance by the ECB, which limited the spillover from global volatility, and a brightening of the euro area growth outlook, which resulted in an improvement in risk sentiment, particularly towards stressed market segments. Recent global adjustments are reminiscent of developments in 1993-94 when a strengthening of the US economy triggered a tightening of monetary policy that coincided with spikes in volatility and significant price corrections in global bond markets, particularly in those for emerging market bonds (see Box 4).

Chart 2.7 Developments in prices of selected global assets

(22 May – 15 Nov. 2013; percentage changes)



Sources: Bloomberg, Bank of America Merrill Lynch, iBoxx, Thomson Reuters and ECB calculations.
Note: Data for high-yield bonds refer to total return rather than price indices.

Among euro area institutional investors, investment funds seem most exposed to recent volatility…

While a precise estimate of the distribution of the losses associated with recent global bond market turbulence is difficult to arrive at, given the unavailability of information on hedging, the nature of market moves suggests that significant losses were most likely to be related to exposures to emerging markets and higher-rated sovereign bonds (see Chart 2.7). Among **euro area institutional investors**, *investment funds* appear to have been most exposed to recent market corrections, given their significant holdings of debt securities in

2 Repos account for 16%, 8% and 7% of the funding of banks located in Malta, France and Finland respectively.

the order of 40% of their balance sheets, almost half of which is accounted for by non-euro area bonds, which experienced the sharpest price declines during recent turbulences (see Chart 2.7). Nonetheless, these funds continued to increase their exposure to non-euro area bonds in the third quarter of 2013, albeit at a slower pace. By contrast, balance sheet data for euro area hedge funds indicate a swift reaction to the changing environment; these entities reduced their overall holdings of non-euro area debt securities in the second quarter of 2013 and decreased their exposure to US bonds in the third quarter. Data on investment returns indicate that most hedge fund strategies, in particular directional strategies, suffered losses in June.

… although balance sheet data imply some losses for MFIs and ICPFs

As a percentage of total assets, investment by euro area *monetary financial institutions* (MFIs) in bonds is comparatively low, at 18%, although substantial heterogeneity is evident across national banking sectors. Moreover, among euro area institutional investors, these entities hold the largest proportion of euro area government and corporate bonds. MFI data on revaluation adjustments imply that euro area banks experienced larger than average losses on fixed income portfolios in May and June. During this period, MFIs continued to reduce their non-financial corporate bond holdings, but increased their holdings of domestic government bonds, which remain high despite recent reductions. Similar to investment funds, euro area *insurance corporations and pension funds* (ICPFs) have large exposures to bond markets, equivalent to almost 40% of their balance sheets. However, in contrast to the investment funds, the bulk of these assets are euro area bonds, evenly split between the government and corporate segments. Financial results for the second and third quarters of 2013 indicate that the increase in yields on high-rated government debt securities since May resulted in a decline in the capital buffers of large, in particular internationally active, euro area insurers, although they remain comfortable (see Section 3.2 for further details).

Box 4

CHANGING EXPECTATIONS OF US MONETARY POLICY AND GLOBAL ASSET PRICES: WHAT CAN WE LEARN FROM THE 1994 EPISODE?

The global asset market volatility that accompanied changing expectations regarding a tapering-off of the Federal Reserve's asset purchases since May resembled previous episodes when the withdrawal of accommodative US monetary policy was associated with significant global market sell-offs. From a financial stability perspective, one past episode stands out, namely that of developments in 1993-94. During this period, an abrupt change in US monetary policy caught financial markets by surprise, resulting in sharp adjustments to expectations regarding the US monetary policy stance that led to considerable bond market turbulence.[1] Although much has changed since 1994 – central bank communication has improved significantly and monetary policy tools have become more complex – an examination of the mechanics of the 1993-94 episode, and a comparison with recent events, can provide some useful insights into potential vulnerabilities associated with changing expectations regarding the US monetary policy stance.

The US economic recovery gained strength in late 1993, triggering a tightening of monetary policy that went hand in hand with spikes in volatility and significant price corrections in global bond markets. The Federal Reserve's policy rate rose by 300 basis points in seven steps from

1 See also Box 1, entitled "Interest rate risk and the Federal Reserve's tightening cycle: comparison with the events of 1994", *Financial Stability Review*, ECB, June 2010.

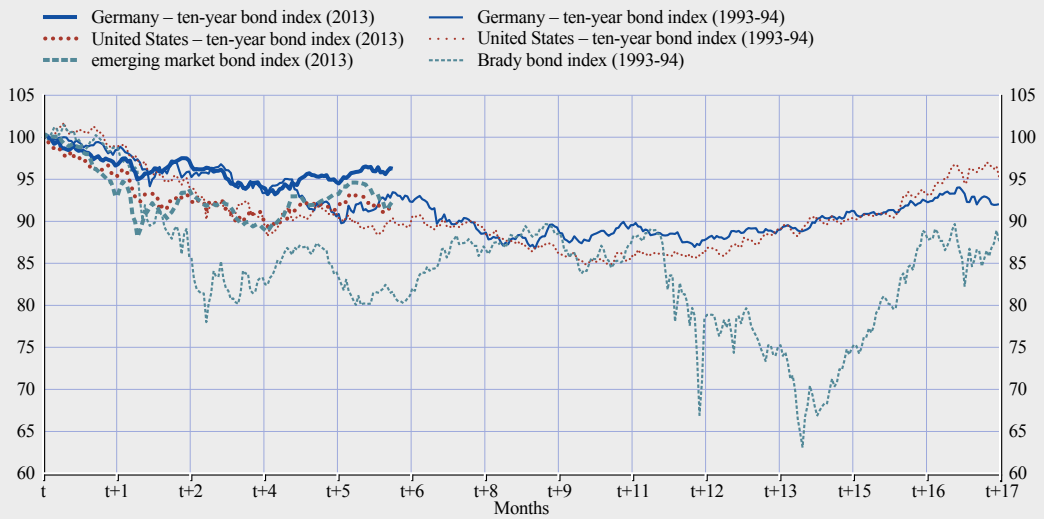
early 1994 to early 1995, and US Treasuries followed suit: yields on one-year and ten-year US government bonds increased by 320 basis points and 200 basis points respectively. The ten-year US Treasury benchmark lost 15% of its value between the end of 1993 and mid-1994. Developments in US Treasuries quickly spilled over to other bond markets, in particular US corporate bond markets, as well as to advanced and emerging market government bond markets (see the chart).

Between the end of 1993 and mid-1994, the price of the ten-year gilt had fallen by almost 20%, while prices of ten-year German, Swiss and Japanese government bonds had declined by around 10%. Similar to recent developments, the most marked price corrections were observed in emerging markets. US dollar-denominated bonds in Latin America (so-called "Brady bonds") had lost almost 25% of their value by March 1994, and tighter financial conditions linked to the Mexican crisis brought the total price decline to 35% by early 1995.

Although recent developments have been more muted than those observed in 1994, there appear to be some parallels between the two events (see the chart below). In May 2013, a change in expectations regarding a tapering of the Federal Reserve's bond purchase programme was associated with large-scale sales of assets across the globe, particularly of emerging market assets. Similar to events in 1994, developments in the United States appear to have been a catalyst for bond market corrections, although the magnitude of the adjustment was clearly linked to underlying domestic vulnerabilities, in particular a deteriorating growth outlook, combined with large current account deficits. Price adjustments in emerging bond and equity markets in the period from late May to early July amplified those of advanced markets. In particular, the euro area emerged relatively unscathed from the recent financial market turbulence. While a deteriorating growth outlook for emerging markets has amplified adjustment challenges,

Sovereign bond indices during the 1993-94 and 2013 market turbulences

(indices: Dec. 1993 = 100; May 2013 = 100)



Sources: Thomson Reuters Datastream and ECB calculations.
Note: With respect to the period 1993-94, t refers to December 1993, while it refers to May 2013 in the case of the year 2013.

improving growth prospects have mitigated the impact of global financial turbulence on the advanced economies.

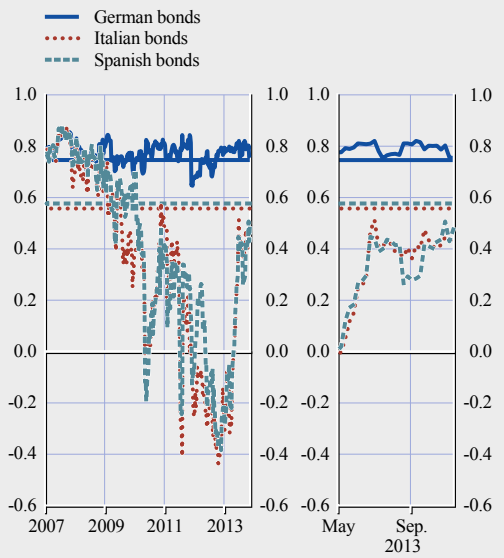
These episodes illustrate how reassessments of the US monetary policy stance can have significant global consequences, particularly for regions where domestic vulnerabilities are high. While the exit from quantitative easing may lead to some volatility and investor portfolio shifts at the global level, determining the extent of these shifts and their impact on yields remains an arduous task. Estimates by some market participants that point to a low impact of a tapering of the Federal Reserve's asset purchase programme on asset prices seem to contrast with the sharp interest rate movements observed over last summer, perhaps indicating that recent fluctuations embedded in expectations regarding rate increases (conventional policy) may have been equally or even more important for markets than those regarding the tapering (unconventional policies). It should be noted that history suggests that the strength of global spillovers from changing US monetary policy expectations depend on country-specific vulnerabilities, notably unsustainable external positions.

Movements in yields of higher-rated euro area sovereign bonds have been closely correlated with those of US Treasuries…

Movements in the yields on **higher-rated euro area government bonds** reflected developments in money market rates, and have thus closely mirrored those of US Treasuries, with an increase in correlations evident after the sharp adjustment in late May of market expectations regarding a tapering of the Federal Reserve's asset purchase programme (see Chart 2.8). Although the introduction of forward guidance triggered some decoupling between rates, correlations remain elevated. Some of this may relate to a parallel improvement in economic conditions on both sides of the Atlantic, which contributed to a further rise in the yields on US Treasuries and higher-rated euro area sovereign bonds. Despite these increases, yields on ten-year German government bonds remain low – roughly half their historical average. Measures of modified duration – which expresses the change in the value of a security in response to a change in interest rates – for German government bond portfolios have generally declined since May, implying that investors are slightly less sensitive to rate adjustments than they were in May. However, these measures are quite elevated for both German bond and US Treasury portfolios in comparison with their respective 20-year averages (see Chart 2.9).

Chart 2.8 Correlations between government bonds in the United States and selected euro area countries

(Jan. 2007 – Nov. 2013; correlation coefficient)



Sources: Thomson Reuters and ECB calculations.
Notes: Correlations in ten-year instruments, extracted from dynamic conditional correlation (DCC) models. Averages for Germany refer to the period from January 1994 to October 2013. Averages for Spain and Italy refer to the period from July 1996 to November 2013.

… while developments in stressed segments have reflected prevailing levels of risk aversion and domestic vulnerabilities

Since the outbreak of the sovereign crisis, developments in the **stressed segments of the euro area government bond market** have become less correlated with movements in higher-rated bonds and more reflective of prevailing levels of risk aversion and domestic conditions (see Charts 2.10 and S.2.1). During the initial bond market sell-off from late May to late June, movements in the yields on stressed

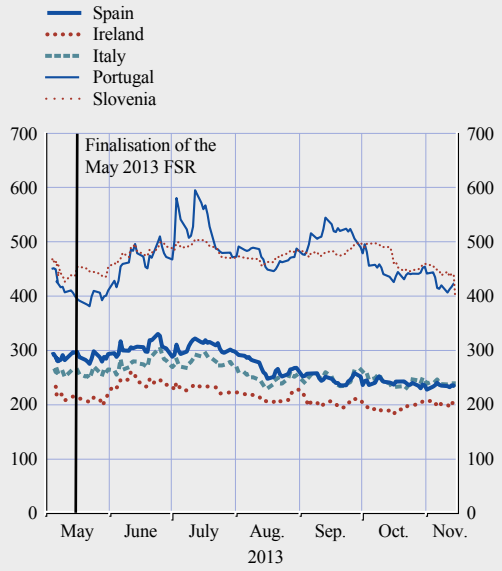
Chart 2.9 Developments in the duration of higher-rated government bond portfolios

(Jan. 2007 – Nov. 2013; duration in number of years; 30-day averages)

Sources: Bank of America Merrill Lynch, iBoxx, Thomson Reuters and ECB calculations.
Note: Historical averages refer to the period from January 1999 to November 2013.

Chart 2.10 Government bonds in stressed euro area countries vis-à-vis German Bunds

(May – Nov. 2013; ten-year spreads in basis points)



Sources: Bloomberg and ECB calculations.

government bonds amplified developments in US Treasuries as concern about the global growth outlook led to a retrenchment in risk-taking. The release of better than expected economic data in the United States and the euro area, and forward guidance from major central banks, resulted in an increase in risk appetite, in particular for stressed euro area bonds. For most segments, spreads vis-à-vis German government bonds narrowed. Conditions across national markets varied, however, according to domestic vulnerabilities. In particular, political uncertainty in Italy and Portugal, combined with bank closures in Slovenia, weighed on those domestic markets.

Yields on high-rated global sovereign bonds have increased, but remain below historical averages

Outside the euro area, yields on other **benchmark global government bond markets** – including those in the United States, the United Kingdom and Japan – remain low by historical standards (see Chart S.2.5). Although changing expectations regarding a tapering of the Federal Reserve's asset purchase programme were not linked to any actual policy change, the yield on the ten-year Treasury is quite perceptibly higher than its level on 22 May. Nonetheless, the nominal yield remains quite low at close to half its long-run average, while the real yield is negative. The spillover from the increase in the yield on US Treasuries was evident in rising yields on UK gilts, with the interest rate on the ten-year gilt hitting a two-year high in early September, before falling back to historically low levels. In contrast to other high-rated government bond markets, yields on Japanese government bonds decreased when those on US Treasuries were rising. This development reflected a decline in market volatility from a relatively high level earlier in the year when the Bank of Japan announced a programme of "quantitative and qualitative easing".[3]

3 "Quantitative and qualitative easing" involves a doubling of the monetary base, an extension of the expected average maturity of Japanese government bond purchases and an increase in the Bank of Japan's purchases of risky assets.

A persistent search for yield and attempts to avoid duration are keeping yields on speculative-grade corporate debt at historical lows

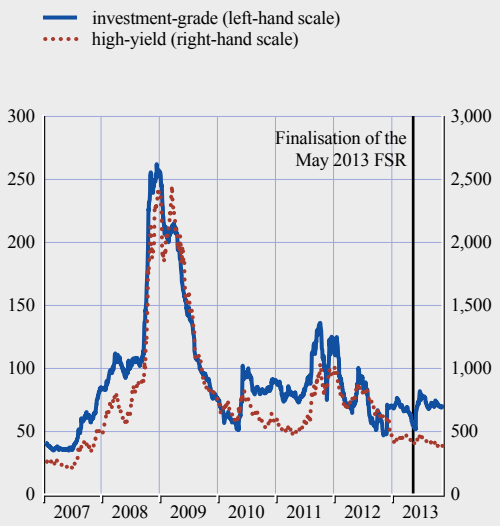
While spreads on investment-grade **bonds issued by non-financial corporations** (NFCs) have increased in line with global market corrections, spreads on high-yield debt securities have continued to fall (see Chart 2.11). The persistent decline is likely to reflect demand factors as issuance by NFCs in both the investment-grade and high-yield market segments has been comparable with that in the same period in 2012. Further declines in speculative-grade corporate bond spreads are consistent with a continuous decline in expected default frequencies (EDFs) at the euro area level, the level in July 2013 marking the lowest recorded in almost two years (with yields on speculative-grade debt securities falling consistently since then).[4] The improvement in the euro area growth outlook has contributed to a further decline in EDFs and additional downward pressure on yields owing to increased risk appetite for euro area assets. In recent months, the decline in spreads on high-yield bonds of euro area NFCs was more marked than that of their US counterparts, despite the relatively more favourable outlook for growth in the United States and the resulting lower EDFs for US firms. This development may reflect efforts by investors to avoid interest rate risk in the light of recent market fluctuations, as measures of modified duration of euro area bond portfolios are lower than their US counterparts (see Chart 2.12).

Lower market depth/liquidity could amplify the ramifications of a snapback in interest rates…

Persistent imbalances in higher-rated government and lower-rated NFC bond markets raise concerns regarding the possibility of a sharp adjustment in yields, which could be amplified by a number of vulnerabilities in financial markets. Perhaps the most concerning of these relates to market liquidity. Ongoing changes owing to the reassessment of credit risk and regulatory initiatives may be affecting the ability and willingness of market participants to provide market-making and similar liquidity-enhancing services. While the stock of US and euro area corporate debt securities has

Chart 2.11 Spreads of bonds issued by euro area non-financial corporations

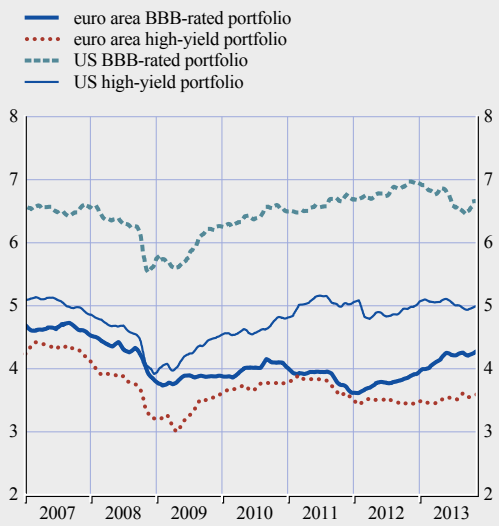
(Jan. 2007 – Nov. 2013; basis points)



Sources: Bank of America Merrill Lynch and Thomson Reuters Datastream.

Chart 2.12 Duration of bonds issued by US and euro area non-financial corporations

(Jan. 2007 – Nov. 2013; duration in number of years; 30-day averages)

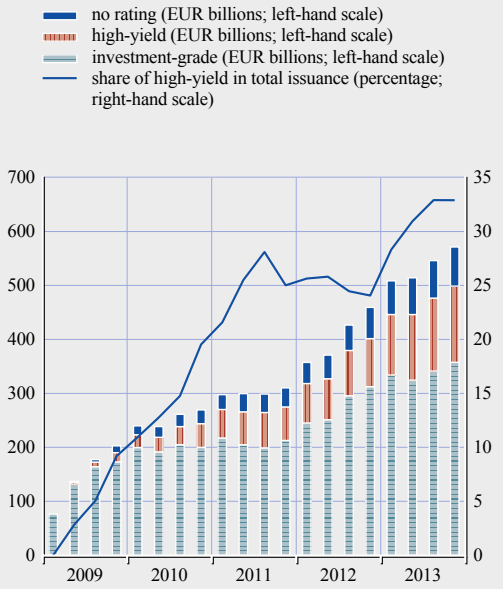


Sources: Bank of America Merrill Lynch, iBoxx and Thomson Reuters Datastream.
Note: Euro area high-yield portfolio refers to bonds issued by non-financial corporations.

4 The EDFs for euro area firms continued to decline from July.

Chart 2.13 Cumulative net issuance of debt securities by non-financial corporations in the euro area

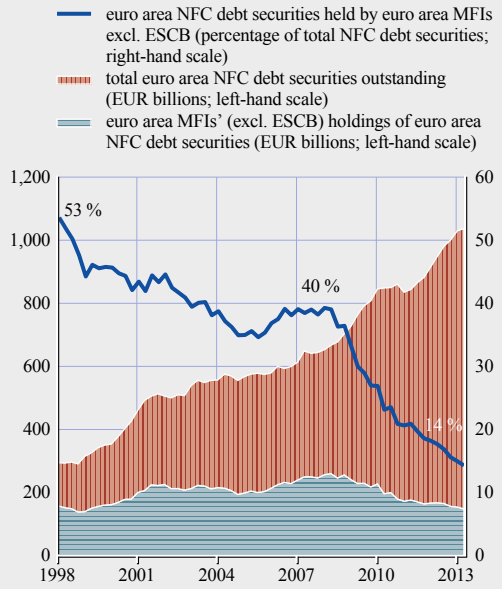
(Q1 2009 – Q4 2013)



Sources: Dealogic and ECB calculations.
Note: Q4 data refer to the period up to 15 November.

Chart 2.14 Debt securities issued by euro area non-financial corporations and amounts held by euro area MFIs (excluding the European System of Central Banks)

(Q1 1998 – Q2 2013; percentages)



Sources: ECB and ECB calculations.

expanded significantly during the crisis, US and euro area banks' holdings of NFC debt securities have been falling, raising concerns that market liquidity may not be as high as it was before the crisis (see Charts 2.13 and 2.14). Market feedback suggests a number of interrelated reasons why bond inventories of euro area banks have fallen, including more conservative risk management, carrying risk associated with potential rating downgrades, implications of higher volatility for risk-absorption capacities and reduced hedging possibilities due to, for example, short-selling restrictions and lower correlations, thereby increasing base risk. The decline in bank inventories has been accompanied both by lower trading turnover and by indications of a bifurcation of liquidity conditions, with conditions for larger and more recently issued bonds being more favourable than those for smaller, off-the-run issues. Tensions in illiquid markets can quickly spill over into more liquid markets, for instance if trading in liquid advanced economy markets acts as a substitute for more illiquid emerging market exposure in order to meet redemptions. Low market liquidity also adds to NFC bonds' rollover risk as investors who have been forced to hold onto illiquid corporate debt securities until maturity may be unwilling to re-invest.

… along with changes in the investor universe, heightened duration and low cash buffers for funds

Additional developments that could also amplify price movements include the increased importance of bond-oriented mutual and exchange-traded funds, heightened investor sensitivity to interest rate adjustments and low cash buffers for bond funds following recent market adjustments. Global mutual funds and exchange-traded funds (ETFs) have been among the largest buyers of global corporate debt securities in recent years. To the extent that investors in these funds are sensitive to total returns, redemptions may drive sales of underlying bonds in the event of an increase in interest rates, leading to further price corrections. Regarding investor sensitivity, measures of modified duration for higher-rated US and euro area government bond portfolios and speculative-

grade US bond portfolios are above their long-term averages, suggesting that investors are now more sensitive to interest rate adjustments than in the past. Finally, a J.P. Morgan client survey of global asset managers indicates that, following redemptions over summer, cash cushions of bond funds are modest or, in the case of emerging market funds, worryingly low (3% above the record post-Lehman low).[5] Low cash buffers could mean that future interest rate shocks are amplified as a result of an increased pressure to sell bonds in order to generate cash to meet redemptions.

Demand for corporate hybrids remains strong, but investors may be mispricing risk

Issuance of euro-denominated **hybrid instruments by non-financial corporations** has remained strong, with year-to-date issuance by euro area NFCs already twice as high as total issuance over the previous five years. However, the size of the market, at around €50 billion, is still small when compared with broader debt and equity markets. Hybrids offers a high-yield exposure to investment-grade firms, but cause investors to incur extension risk, i.e. the probability that, given high refinancing costs on the call date or issuers finding it difficult to access alternative sources of funding, they may not be called on their first call date. In a scenario marked by a significant widening of spreads, or by a general rise in the level of interest rates, investors not only face the risk of immediate losses, but could also end up holding securities with longer duration and higher interest rate risk than initially assumed. A significant test case might occur in 2015 when a large volume of hybrids issued over the past decade (more than €8 billion) will become callable.

Continued growth in equity prices, supported by increased risk appetite

Supported by increased global risk appetite and better than expected economic data, prices in **global equity markets** continued along the upward trend observed since mid-2012 (see Chart S.2.10). The persistent rally in global equities has defied bouts of geopolitical tensions, as well as political uncertainty. Within the euro area, a broad-based increase was observed across all large national equity markets, owing to an improving euro area growth outlook, along with higher global risk appetite. Despite differences in the outlook for growth in individual countries, inflows into euro

Chart 2.15 Developments in US and euro area bank stock prices relative to overall equity markets

(July 2012 – Nov. 2013; 1 July 2012 = 1)

Sources: Bloomberg and ECB calculations.

Chart 2.16 Investment by euro area investment funds in euro area shares and other equity

(Q1 2010 – Q3 2013; EUR billions; four-quarter moving sum)

Sources: ECB and ECB calculations.

5 See J.P. Morgan, "Flows and Liquidity", 28 June 2013.

area equity funds for both stressed and non-stressed markets have been sustained (see Chart 1.9). Bank equities continued to outperform the general market, perhaps reflecting banks efforts to increase provisions for bad assets, as price-to-book ratios rose (see Chart 2.15). Euro area institutional investors have been increasing their holdings of euro area equities over the past year, with annual purchases in June reaching pre-sovereign crisis levels (see Chart 2.16). The sustained inflows did not reflect a relocation of funds from bonds or non-euro area equities, although the pace of investment by euro area investors in non-euro area markets did decelerate in the second and third quarters of 2013.