



## Global liquidity: selected indicators<sup>1</sup>

### Highlights

Developments since the initial update on global liquidity in April have continued to point to a differentiated picture. While the overall assessment of global liquidity conditions remains broadly unchanged, recent bouts of financial market volatility and revisions to investor expectations of the future path of monetary policy suggest that conditions could soon adjust. Normalisation of the current environment, therefore, raises the risk of pronounced adjustments in financial markets and international financial flows.

Focusing on **flow measures**, global growth in international bank credit remains virtually zero, with declines in aggregate interbank credit offsetting positive growth in credit to non-banks (Graph I.1). This is largely a reflection of muted growth in bank credit in the advanced economies, and is in contrast to developments in key emerging markets, especially in Asia, where cross-border claims continue to surge.

In turn, monetary indicators in advanced economies imply sustained policy accommodation, even though term premia (the extra compensation for bearing a bond's duration risk) and, with them, long-term yields have risen from their earlier lows (Graph II.1; top-right panel). Thus, despite some recent tightening of financial conditions, credit spreads remain compressed and the **price conditions** for risk-taking largely continue to be in place. There are signs, however, that this is may be changing at least for some economies, as suggested by recent exchange rate movements, some unwinding of carry trades (Graph IV.1; lower panels) and adjustments in capital flows (Graph III.3; upper right-hand panel).

At the same time, **stock measures** continue to point to significant adjustment needs going forward. Outstanding domestic and international bank credit is substantially above its pre-crisis levels in every region (Graph I.2; beige and blue shaded areas), and central bank assets in key advanced economies remain at approximately US\$10 trillion (Graph II.1; lower left-hand panel).

Taken together, the various indicators imply that current conditions, and the size and direction of financial flows, could change rather abruptly. The stock of international and domestic credit remains high in advanced economies, suggesting that deleverging is not yet complete. And, despite signs that cross-border credit flows may be easing, vulnerabilities continue to build in some regions, as suggested by sustained credit growth. This lends support to continued private sector deleveraging and balance sheet repair in crisis-affected economies, while calling for macroprudential and broader resilience-enhancing measures elsewhere, including preparations for a possible reversal in capital flows.

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<sup>1</sup> This note provides an update of the BIS's global liquidity indicators, following the initial submission for the April 2013 G20 meetings in Washington DC. For the conceptual framework behind the indicators, please see the appendix.

## Specific observations

- Credit growth to the non-financial sector has been particularly strong in Asia, followed by Latin America (Graph I.2; blue and red lines in the lower-left panel; red line in lower-centre panel). Growth in cross-border credit (blue lines) continues to outpace domestic credit (red lines) in some countries, especially in Asia, a pattern that has been associated with the build-up of vulnerabilities in the past. Issuance of new international debt by EME borrowers remains strong (Graph III.3; lower-right panel), driven in part by the borrowing activity of Brazilian and Chinese corporate issuers in offshore centres.
- Growth in offshore lending (credit to non-residents) denominated in major currencies also continues to outpace domestic credit, but has moderated or, in the case of euro-denominated credit, declined since early 2013 (Graph I.3; blue line in the right-hand panels). Yet, the stocks of these exposures remain high (beige and blue portions of the left-hand panels). For example, dollar credit to non-US residents is estimated to be in excess of US\$7 trillion (about 13% of non-US GDP), while euro credit to non-euro-area residents stands at above US\$2 trillion.

While funding conditions remain generous overall, there are signs that markets have brought forward the effects of future policy tightening and that risk-taking activity has been scaled back, at least temporarily:

- Since April, benchmark long-term yields have risen significantly, led by advanced economies, reversing part of the earlier process of term premia compression (Graph II.1; upper right-hand panel). Short-term real interest rates remain well below zero in advanced economies, but have risen in EMEs (Graph II.1; upper-left panel).
- Bank CDS premia are back to early May levels after a brief increase in the summer (Graph III.1; left-hand panel), while conditions in short-term bank (Graph III.1; right-hand panel) and cross-border funding markets remain broadly unchanged (Graph III.2).
- While issuance of new international debt by EME borrowers has not shown a decline (Graph I.3; lower-right panel), many EMEs have been experiencing slowing inflows and, in some cases, net outflows from both bond and equity funds (Graph III.3; upper-right panel).
- Loan-to-deposit ratios of European banks on average remain above EME counterparts, but have come down to the lowest levels in a decade (Graph III.4; left-hand panel). At the same time, the post-crisis balance sheet expansion of EME banks, as measured by both loan-to-deposit and non-core liabilities (non-deposit funding over total liabilities) ratios, appears to have subsided (Graph III.4; right-hand panel).
- Measures of risk and uncertainty in bond markets, such as the MOVE index, exhibited an increase through Q3, while equity market volatility, as measured by the VIX, has been more muted (Graph IV.1; upper left-hand panel). Earlier declines in carry-to-risk ratios for most currencies have now moderated, suggesting some stabilisation in currency markets. Futures positioning data, in turn, is in line with an unwinding of speculative positions across a number of currencies (Graph IV.1; lower panels).

## Appendix: conceptual background<sup>2</sup>

The term *global liquidity* is used in a variety of ways. Here, it is used to mean the *ease of financing* in global financial markets (or the ease with which perceptions of value can be turned into purchasing power). Defined this way, global liquidity depends primarily on the actions of private investors and financial institutions.

Financial institutions provide market liquidity to securities markets through their trading activities, and provide funding liquidity to borrowers through their lending activities. The conditions under which these intermediaries can fund their own balance sheets, in turn, depend on the willingness of other market participants to interact with them. Macroeconomic and prudential policies are another factor, including the terms and conditions at which central banks provide funding.

It is the interaction between these private and official factors that determines the economy's overall ease of financing that then contributes to the build-up of financial system vulnerabilities in the form of asset price inflation, leverage, or maturity or funding mismatches. Indicators will tend to measure these "footprints" of liquidity rather than global liquidity itself.

On this basis, and seen from a financial stability perspective, *global credit* is among the key indicators of global liquidity. The *stock* of credit outstanding captures the extent to which ease of financing has led to the build up of exposures. In other words, global private sector credit reflects the outcome of financial intermediation activity in global markets. *Changes* in these stocks are closely associated with the build-up of vulnerabilities, providing the financial stability focus. When considering these flows, there is both a domestic and an international element.

Of particular interest for the assessment of global liquidity is the international component of credit (lending across borders to non-residents or lending in foreign currency). It is this cross-border element that regularly provides the marginal source of financing in the run-up to crises. Although often small relative to the total stock of credit, swings in these international components can amplify domestic trends and are highly correlated with booms and busts in global financial conditions.

Assessment of global liquidity conditions requires putting measures of global (bank) credit into perspective. A range of supplementary price and quantity indicators can be used to capture specific aspects of global liquidity that are relevant for financial stability. These include measures of financing conditions in key financial markets and incentives for position-taking across market segments. Key indicators in this regard are proxies of risk appetite, which is a major driver of leverage and the willingness of private investors to provide funding.

Together with measures of global credit, these indicators can help identify unsustainable lending booms or undue risk taking in specific markets or on a global scale. The information content of these indicators changes over time, implying that the approach when assessing global liquidity conditions must remain flexible.

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<sup>2</sup> See, for example, Borio, McCauley and McGuire (2011): "Global credit and domestic credit booms", *BIS Quarterly Review*, September, pp 43–57; CGFS (2011): "Global liquidity – concepts, measurement and policy implications", *CGFS Papers*, no 45, December; Domanski, Fender and McGuire (2011): "Assessing global liquidity", *BIS Quarterly Review*, December, pp 57–71; and Eickmeier, Gambacorta and Hofmann (2013): "Understanding global liquidity", *BIS Working Papers*, no 402, February.



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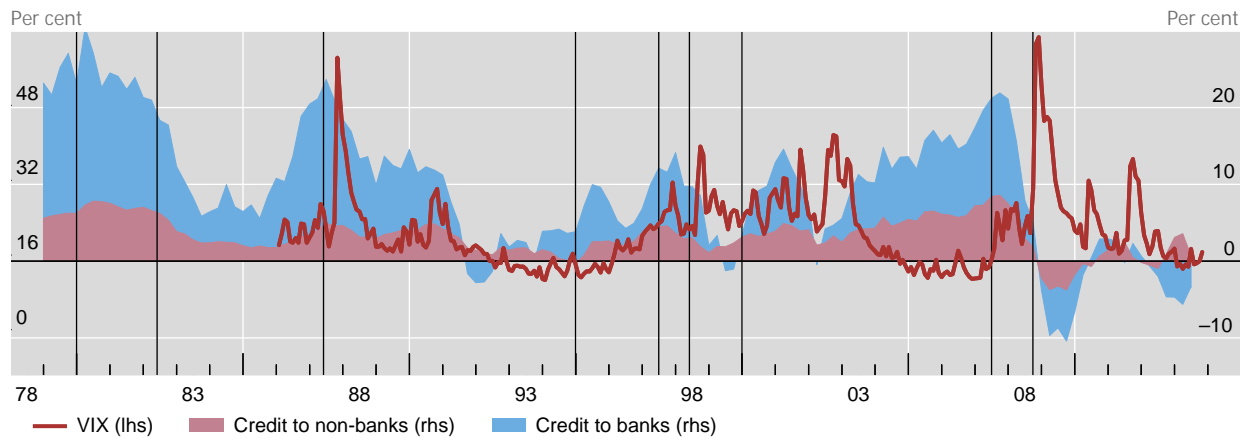
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# I. Credit aggregates

Year-on-year rate of growth in international claims<sup>1</sup>

Graph I.1



The vertical lines indicate: 1979 second oil shock; 1982 Mexican default; 1987 stock market correction; 1994 Mexican peso devaluation; 1997 Asian financial crisis; 1998 Russian default and LTCM; 2000 Nasdaq peak; 2007 beginning of global financial crisis; 2008 collapse of Lehman Brothers.

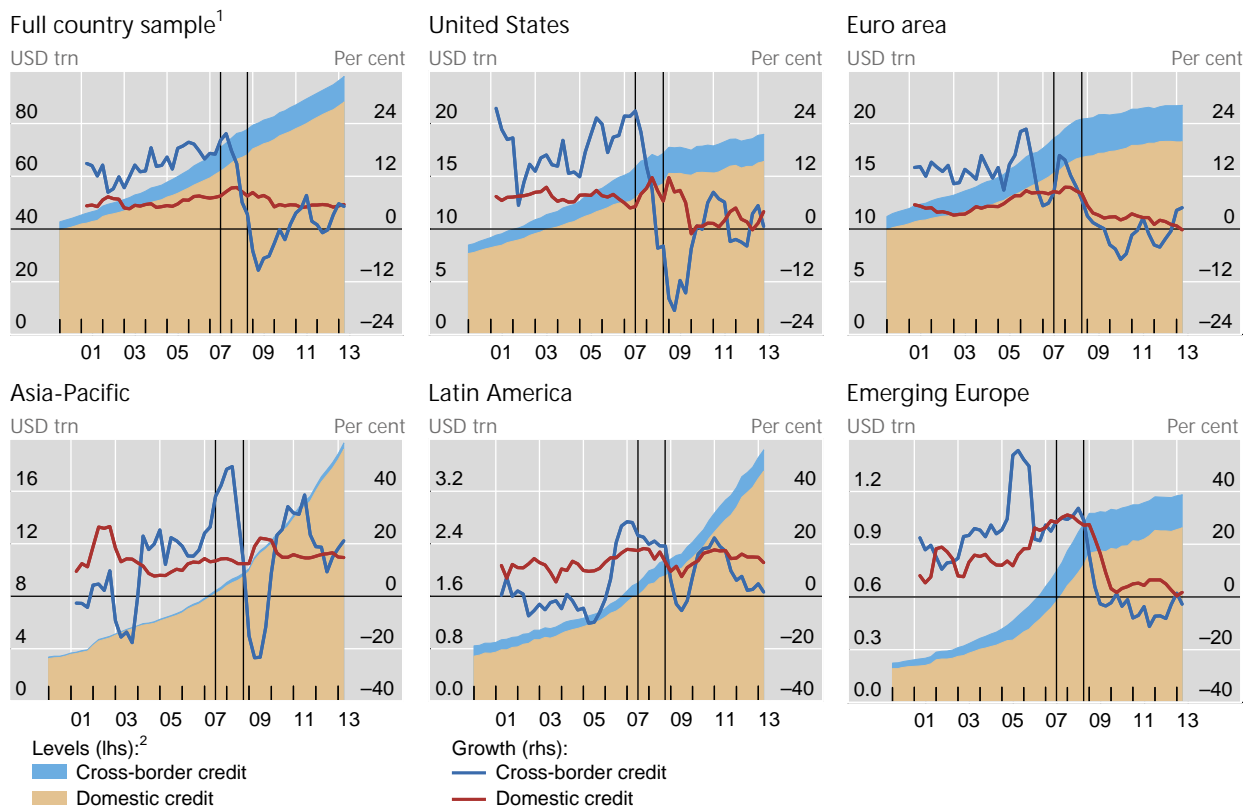
<sup>1</sup> Includes all BIS reporting banks' cross-border credit and local credit in foreign currency.

Sources: Bloomberg; BIS locational banking statistics by residence.

## Global bank credit aggregates, by borrower region

At constant end-Q1 2013 exchange rates

Graph I.2



The vertical lines indicate the 2007 beginning of the global financial crisis and the 2008 collapse of Lehman Brothers.

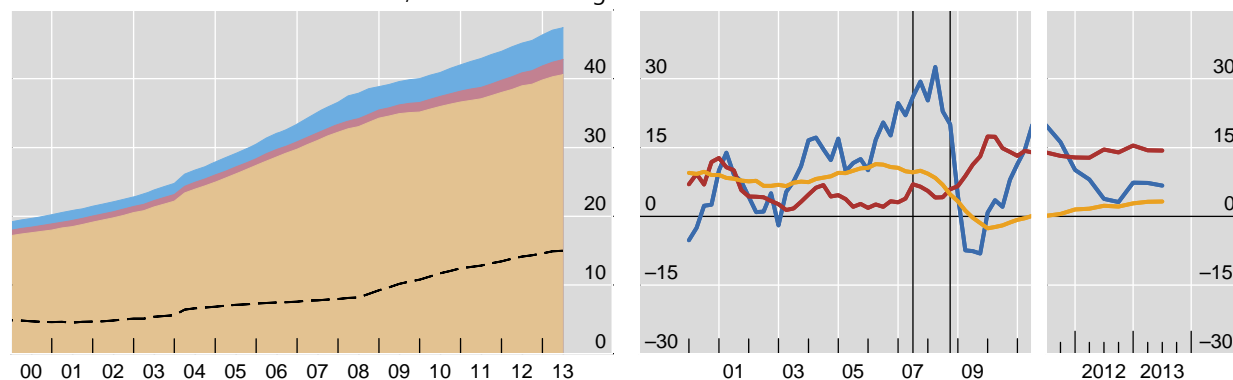
<sup>1</sup> Aggregate for a sample of 56 reporting countries. <sup>2</sup> Total bank credit to non-bank borrowers (including governments), adjusted using various components of the BIS banking statistics to produce a breakdown by currency for both cross-border credit and domestic credit.

Sources: IMF, *International Financial Statistics*; BIS international banking statistics; BIS calculations.

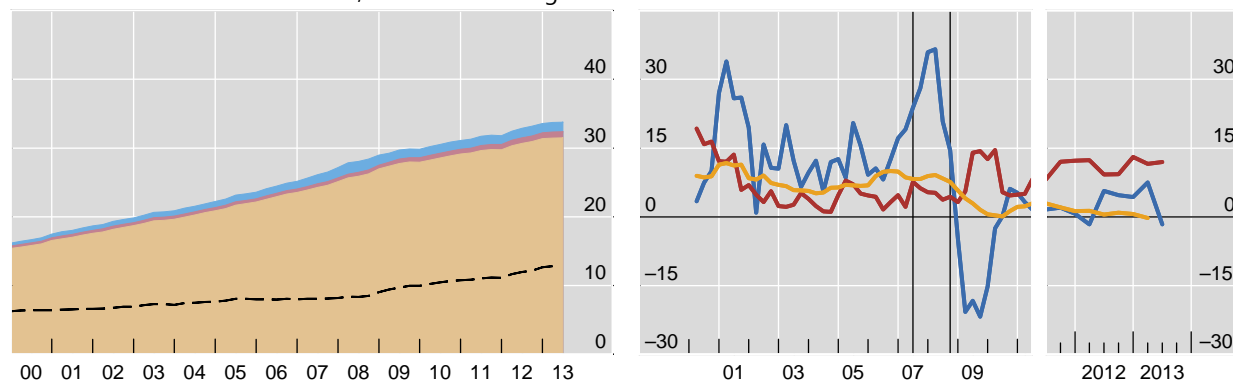
Stocks, in trillions of US dollars

Year-on-year growth, in per cent

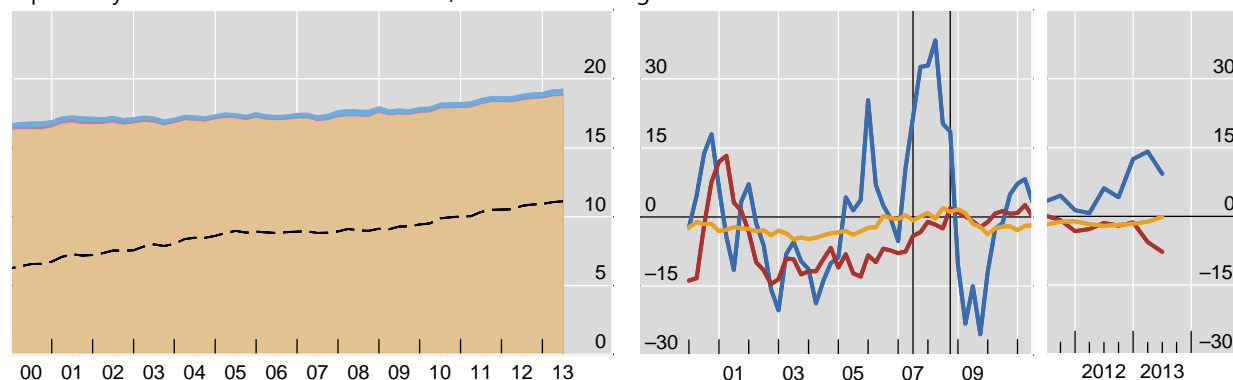
US dollar credit to non-financial firms, households and governments



Euro credit to non-financial firms, households and governments<sup>1</sup>



Japanese yen credit to non-financial firms, households and governments<sup>1</sup>



Credit to residents<sup>2</sup>
 Credit to non-residents: Debt securities  
 Bank loans<sup>3</sup>  
 Of which: credit to government

Businesses and households: Credit to residents  
 Credit to non-residents: debt securities  
 Credit to non-residents: bank loans

The vertical lines indicate the 2007 beginning of the global financial crisis and the 2008 collapse of Lehman Brothers.

<sup>1</sup> At constant end-Q2 2013 exchange rates. <sup>2</sup> Credit to non-financial sector residents in the United States/euro area/Japan from national flow of funds, excluding identified credit to these borrowers in non-domestic currencies (ie cross-border and locally-extended loans and outstanding international bonds in non-domestic currencies). <sup>3</sup> Cross-border and locally extended loans to non-banks outside the United States/euro area/Japan. For China and Hong Kong SAR, locally extended loans are derived from national data on total local lending in foreign currencies on the assumption that 80% are denominated in US dollars. For other non-BIS reporting countries, local US dollar/euro/Japanese yen loans to non-banks are proxied by all BIS reporting banks' gross cross-border US dollar/euro/Japanese yen loans to banks in the country, on the assumption that these funds are then extended to non-banks.

Sources: IMF, *International Financial Statistics*; Datastream; BIS international debt statistics and locational banking statistics by residence.

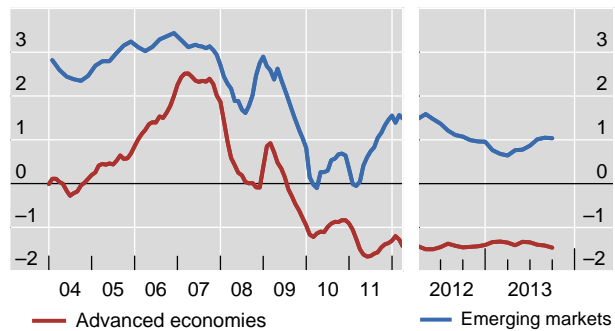


## II. Monetary liquidity

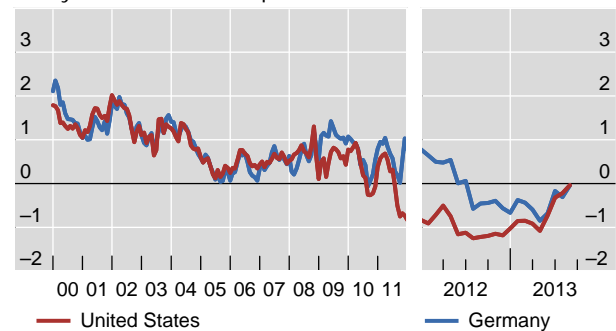
### Indicators of monetary liquidity

Graph II.1

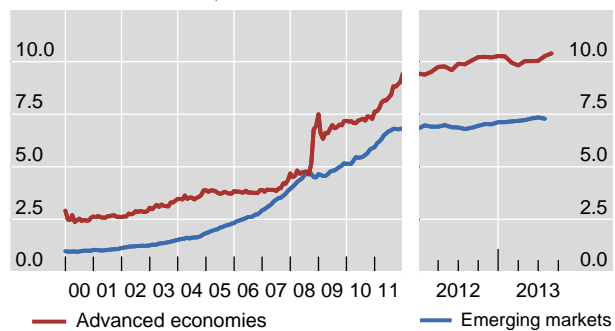
Global real short-term interest rates<sup>1</sup>



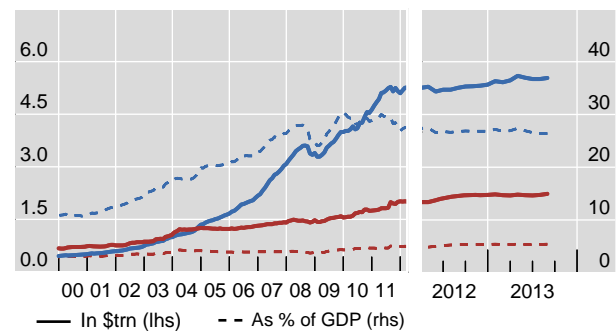
Ten-year nominal term premium<sup>2</sup>



Central bank assets, in USD trillions



Official FX reserves



The vertical lines indicate: 2007 Q2 beginning of global financial crisis; 2008 Q3 collapse of Lehman Brothers.

<sup>1</sup> Based on the 12-months ahead average inflation expectations. <sup>2</sup> Ten-year nominal term premium (the sum of the real risk premium and the inflation risk premium) as derived from econometric term structure models.

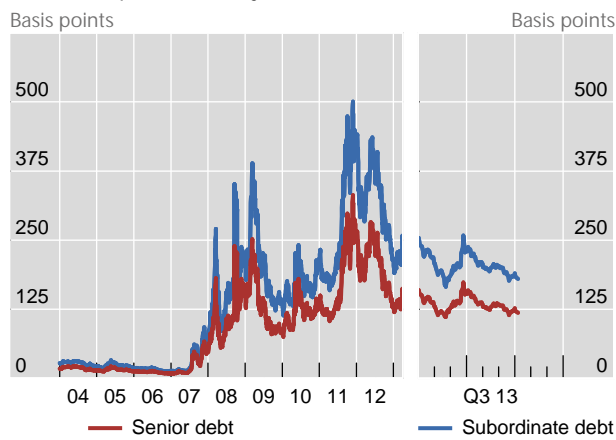
Sources: Bloomberg; Datastream; IMF, *International Financial Statistics*; OECD, *Main Economic Indicators*; Consensus Economics; Datastream; BIS calculations.

### III. Funding liquidity

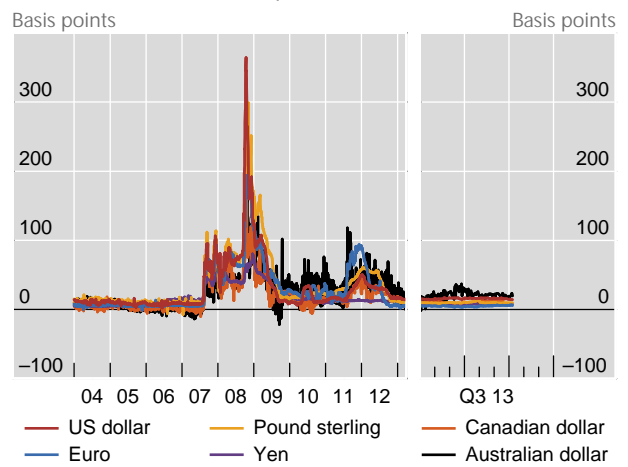
#### Bank CDS premia and short-term bank funding conditions

Graph III.1

##### Bank CDS premia, five-year<sup>1</sup>



##### Three-month Libor-OIS spread



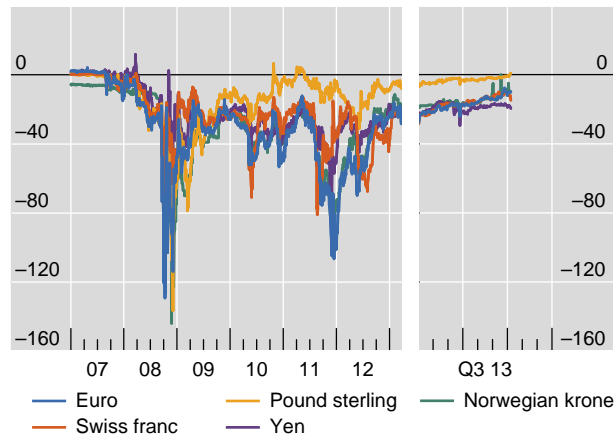
<sup>1</sup> 20+ major banks in the advanced economies.

Sources: Bloomberg; Markit.

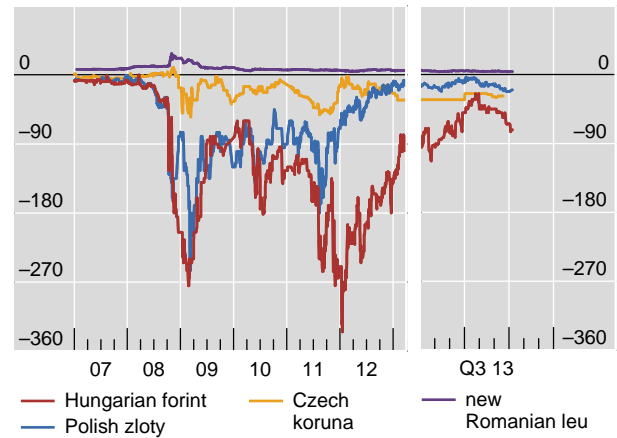
#### Liquidity in cross-border bank funding markets

Graph III.2

##### One-year cross currency basis swaps vs USD

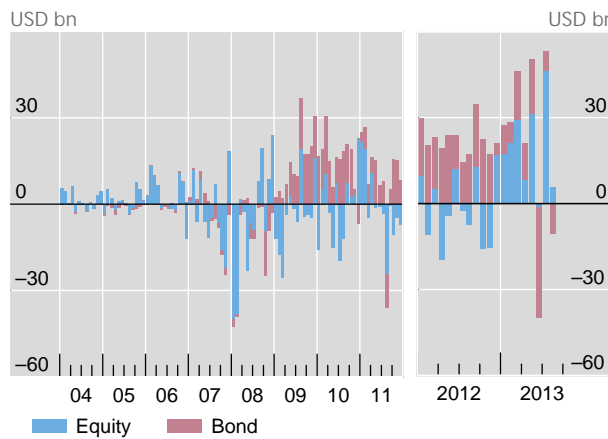


##### One-year cross currency basis swaps vs EUR

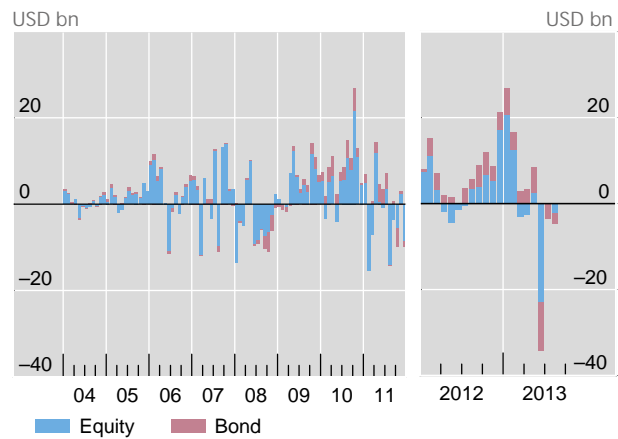


Sources: Bloomberg; BIS calculations.

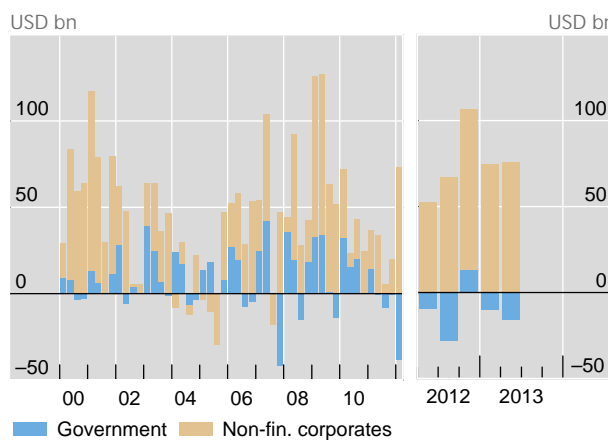
Bond and equity flows into advanced economies



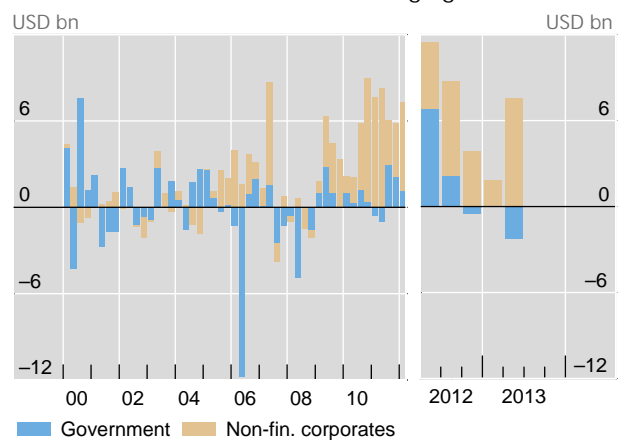
Bond and equity flows into emerging markets



Net international debt issuance: advanced economies<sup>1</sup>



Net international debt issuance: emerging markets<sup>1</sup>

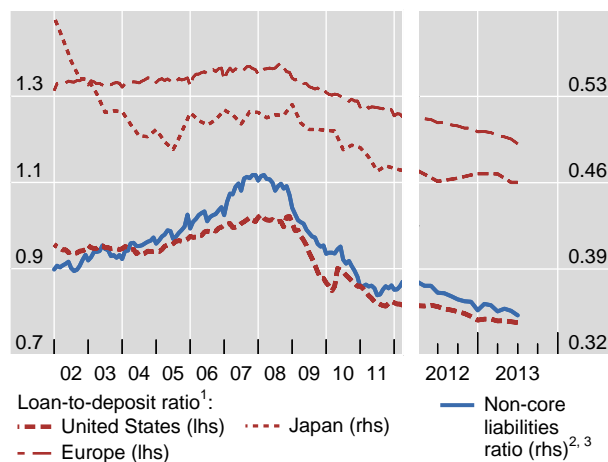


<sup>1</sup> In December 2012 the BIS revised the compilation of its debt securities statistics to enhance their comparability across different markets. International issues were re-defined as debt securities issued outside the market where the borrower resides.

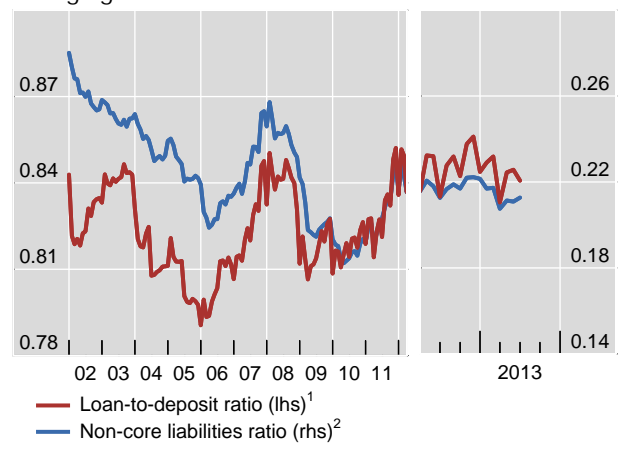
Sources: Bloomberg; Dealogic; Merrill Lynch; EPFR; Merrill Lynch; national data; BIS *International Debt Securities*; BIS calculations.

Banking sector loan-to-deposit and non-core liabilities ratios

Advanced economies



Emerging markets



<sup>1</sup> Loans made by the banking sector to the private sector divided by customer deposits at banks; weighted average by deposits. A higher loan-to-deposit ratio indicates that higher liquidity is provided by the banking sector to the private sector. <sup>2</sup> Bank liabilities (excluding equity) minus customer deposits divided by total liabilities. This ratio measures the degree to which banks finance their assets using non-deposit funding sources: a higher ratio indicates that a higher portion of banks' assets is funded by non-core liabilities. <sup>3</sup> United States, Japan and Europe (euro area, United Kingdom and Switzerland).

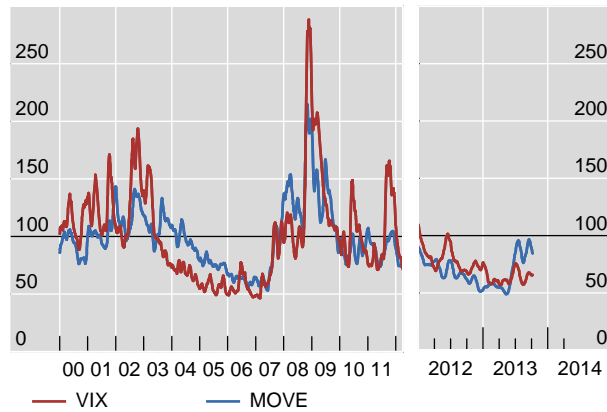
Sources: IMF, *International Financial Statistics*; national data; BIS calculations.

## IV. Risk appetite

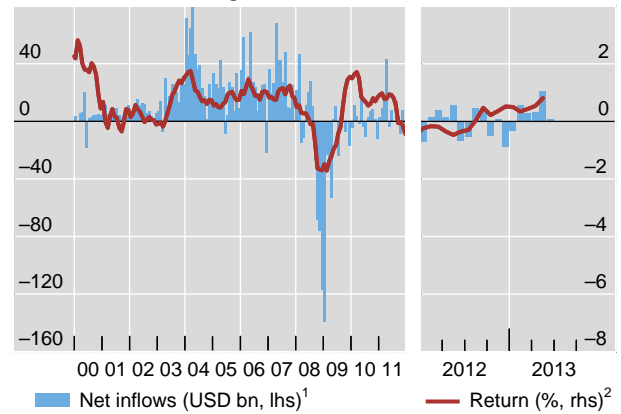
### Risk appetite and market positioning

Graph IV.1

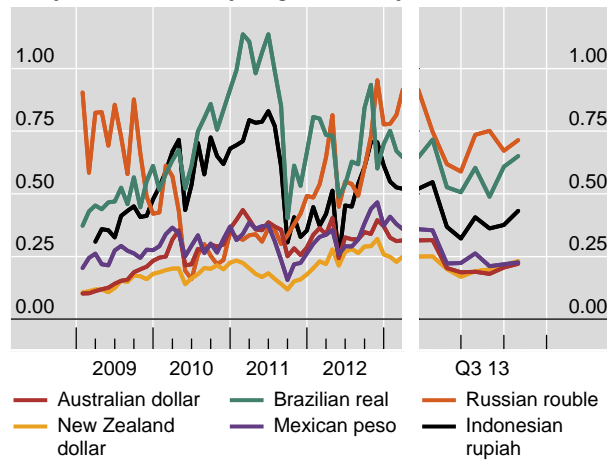
VIX and MOVE indices, 1 Jan 1991 = 100



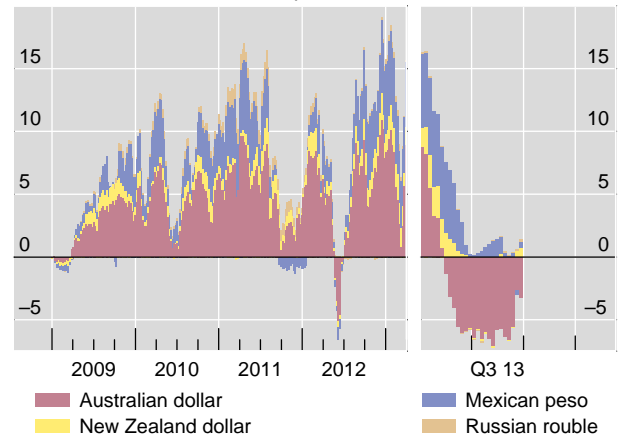
Net inflows into hedge funds



Carry-to-risk ratios by target currency<sup>3</sup>



CFTC non-commercial net positions, in USD bn



<sup>1</sup> Information based on active funds reporting to HFR database. Most recent data are subject to incomplete reporting. <sup>2</sup> HFRI Monthly Performance Indices calculated by Hedge Fund Research; 12-month moving average. <sup>3</sup> Carry-to-risk ratios reflect the attractiveness of carry trades by measuring the ex-ante, risk-adjusted profitability of a carry trade position such that the one-month interest rate differential is divided by the implied volatility of one-month at-the-money exchange rate options. Aggregates for possible target currencies are obtained by averaging the relevant currency pairs.

Sources: Bloomberg; HFR; BIS calculations.