



7 February 2015

Global liquidity: selected indicators¹

Main takeaways

- According to the latest BIS statistics, as banking systems recover, and with risk appetites remaining strong, bank lending has strengthened as a channel for global liquidity, alongside persistently high volumes of global bond market issuance. The historical pattern where low levels of volatility coincide with a rapid growth of cross-border banking flows may be starting to reassert itself.
- At end-September 2014, credit in US dollars to non-bank borrowers outside the United States totalled \$9.2 trillion, an increase of 9.2% over a year earlier. This represents an increase of over 50% since end-2009. The total comprised \$4.2 trillion of debt securities and \$4.9 trillion of bank loans.
- Long-term debt issuance continues to be supported by extraordinarily low long-term yields, which for some sovereigns are now negative for a significant portion of the yield curve.
- Cross-border bank credit continues to grow especially rapidly in Asia, although claims on Chinese banks fell slightly in the third quarter of 2014 relative to the second.
- Within the euro area, a small increase in cross-border bank credit signals the progressive reintegration of the European banking system in the wake of the 2011–12 sovereign debt crisis.
- A box explores the nexus between debt and oil prices in more detail, noting that:
 - recent changes in production and consumption are not enough by themselves to explain the extent and timing of the drop in oil prices. One should consider the nature of crude oil as a financial asset, and consequently its sensitivity to expectations and financing constraints;
 - the increased debt burden of the oil sector has affected price dynamics, with the falling price weakening the balance sheets of producers and potentially exacerbating the price drop through hedging activity and by delaying production cuts; and
 - heightened volatility and balance sheet strains among producers could reduce the willingness of dealers to provide hedging instruments to the oil sector.

¹ This note provides an update of the BIS's global liquidity indicators. For the conceptual framework behind the indicators, please see the appendix to the October 2013 update (available at http://www.bis.org/statistics/gli/gli_oct13.pdf). A fuller analysis, covering developments in these indicators as well as in the broader set of international banking and securities data compiled by the BIS, is forthcoming in the March 2015 issue of the *BIS Quarterly Review*.



Commentary

Global liquidity remained abundant in the third quarter of 2014. Cross-border banking flows continued to recover, with flows to Asian economies remaining quite strong and flows to the United States, the euro area and Latin American economies turning positive after several quarters of contraction.

In aggregate, international bank claims rose 4.5% in the year to September 2014, marking the second quarter of year-on-year growth (Graph I.1). Bank loans in US dollars to non-banks outside the United States grew faster than US dollar debt securities issued by the non-financial sector outside the United States, for the first time since 2011 (Graph I.3, top right panel). The offshore US dollar debt market has grown rapidly. At end-September 2014, credit in US dollars to non-financial borrowers outside the United States totalled \$7.3 trillion, an increase of 9.3% over a year earlier. Bank loans in US dollars to non-US non-financial borrowers rose 9.7% in the year to September 2014 to \$4.9 trillion, while securities issued by these borrowers rose 8.6% to \$2.4 trillion. When non-bank financial borrowers are added, the total comes to \$9.2 trillion.² The latter figure may give a better picture of non-resident US dollar credit, since many of these non-bank financial entities provide dollar funding directly to non-financial corporations.

Loans denominated in euros to non-banks outside the euro area rose 4.6% year on year, to €1.3 trillion, the second straight quarter of growth after four quarters when such lending declined (Graph I.3, centre panels). The stock of euro-denominated bonds issued by non-euro area residents continued to grow rapidly.

Cross-border bank credit continued to lag domestic credit growth in most regions (Graph I.2). Cross-border bank credit to US non-bank borrowers rose 2.4%, compared with an 8.8% increase in domestic credit. For Latin America, cross-border bank credit rose 2.6%, compared with domestic credit, which rose 12.7%.

A notable exception to this pattern is the Asia-Pacific region (Graph I.2, bottom left-hand panel), where cross-border bank credit to non-banks rose by no less than 21.4% year on year, while domestic credit rose 9.2%. Asia has also experienced higher and more rapidly growing credit-to-GDP ratios, both in absolute terms and relative to trend, than other emerging regions in the last few years (Graph I.4).

For China, cross-border credit surged by 36.7%, while domestic credit rose 14.9%. Credit financed by cross-border loans to Chinese banks has been growing rapidly in recent years. The share of non-bank credit financed by cross-border bank borrowing has also been high in Turkey (Graph I.5, dashed blue lines), largely a reflection of bank financing of dollar and euro corporate loans.

Cross-border claims on the euro area grew on an annual basis, albeit at a much slower pace. The 1% annual increase in the year to end-September 2014 was the first since the last quarter of 2008, pointing to the progressive revival of cross-border financial activity

² See R McCauley, P McGuire and V Sushko, "Global dollar credit: links to US monetary policy and leverage", *BIS Working Papers*, no 483, January 2015 (<http://www.bis.org/publ/work483.htm>).



in the wake of the sovereign debt crisis in 2011–12.³ However, the aggregate increase masks large divergences between individual countries. On the one hand, cross-border claims on France and Italy grew at annual rates of 9% and 4%, respectively. On the other hand, cross-border lending to Spain and Germany contracted at annual rates of almost 6% and 4%, respectively.

The divergence in the outlook on growth and inflation might suggest that long-term yields of the United States and the euro area would move in opposite directions. Yet, high correlations among global long-term yields, including term premia, point to the role of global liquidity conditions in driving asset market developments, even in economies with divergent macroeconomic conditions. Real rates and term premia are now negative in a number of advanced economies (Graph II.1, top panels), while nominal benchmark yields are negative in euro benchmarks up to six years maturity and in the Swiss franc well past 10 years. Japanese sovereign yields are less than 10 basis points through six years. These factors support continue long-term debt issuance in both advanced and emerging economies (Graph III.1, middle panels).

³ This increase refers to the aggregate of euro-area figures from the BIS locational banking statistics, which include claims on both banks and non-banks (see BIS (2015), *Statistical Release: BIS international banking statistics at end-September 2014*, January (<http://www.bis.org/statistics/rppb1501.htm>). The increase is not apparent in Graph I.2 because this graph shows only claims on non-banks.



Box: Oil and debt⁴

Since mid-2014, after remaining relatively stable for four years at close to \$100, the price of crude oil has dropped by roughly 50% in US dollar terms.

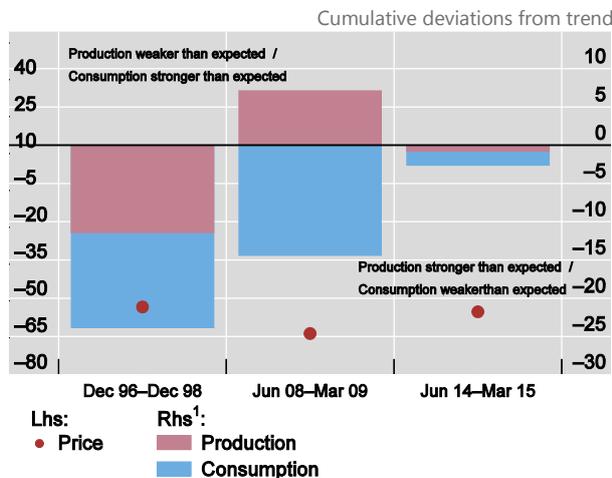
Changes in production and consumption seem to fall short of a fully satisfactory explanation of the abrupt collapse in oil prices. The last two episodes of comparable oil price declines (1996 and 2008) were associated with sizeable reductions of oil consumption and, in 1996, with a significant expansion of production. This seems to be in stark contrast to developments since mid-2014, during which time oil production has been close to prior expectations and oil consumption has been only a little weaker than forecast (Graph 1, left-hand panel). Rather, the steepness of the price decline and very large day-to-day price changes are reminiscent of a financial asset. As with other financial assets, movements in the price of oil are driven by changes in expectations about future market conditions. In this respect, the recent OPEC decision not to cut production has been key to the fall in the oil price.

However, other factors could have exacerbated the fall in oil prices. One important new element is the substantial increase in debt borne by the oil sector in recent years. The greater willingness of investors to lend against oil reserves and revenue has enabled oil firms to borrow large amounts in a period when debt levels have increased more broadly. Issuance by energy firms of both investment grade and high-yield bonds has far outpaced the already substantial overall issuance of debt securities (Graph 1, right-hand panel).

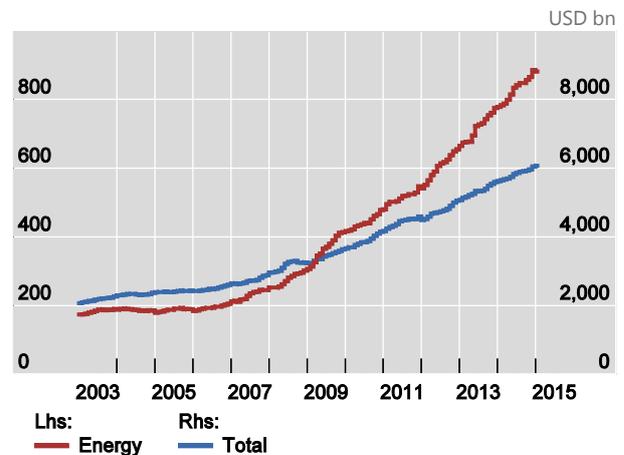
Dynamics of current oil price decline suggest relevance of financial factors

Graph 1

Oil price and unexpected oil market tightness



US dollar-denominated debt securities outstanding



¹ Cumulative deviation from expectation at the start of each episode.

Sources: Bloomberg; US Energy Information Administration; BIS calculations.

The greater debt burden of the oil sector may have influenced the recent dynamics of the oil market by exposing producers to solvency and liquidity risks. Lower prices tend to reduce the value of oil assets that back the debt. Indeed, spreads on energy high-yield bonds widened from a low of

⁴ This box contains initial findings of a BIS analysis of the oil-debt nexus. The full study is forthcoming in the March, 2015 issue of the *BIS Quarterly Review*.



330 basis points in June 2014 to over 800 basis points in January; spreads on total high-yield debt have also widened, but not nearly as much. Against this background of high debt, a fall in the price of oil weakens the balance sheets of producers and tightens credit conditions, potentially exacerbating the price drop as a result of sales of oil assets (for example, more production is sold forward). Second, in flow terms, a lower price of oil reduces cash flows and increases the risk of liquidity shortfalls in which firms are unable to meet interest payments. Debt service requirements may induce continued physical production of oil to maintain cash flows, delaying the reduction in supply in the market. An additional factor that may amplify the oil price decline is that many oil firms located outside the United States have nevertheless borrowed in US dollars. As the left-hand panel of Graph 2 shows, oil firms in emerging market economies (EMEs) have seen the steepest increases in debt. If a stronger dollar were to be accompanied by more stringent financial conditions, then EME oil firms, which have increased borrowing significantly, could be particularly adversely affected.

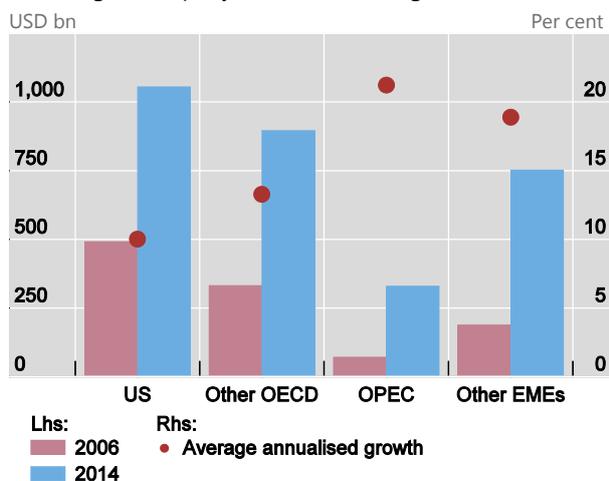
Ample market liquidity had facilitated hedging through oil derivatives markets in the years before the recent price collapse. Selling futures or buying put options are ways for oil producers to hedge their exposure to highly volatile oil revenues. The short side of the market has been dominated historically by “merchants”, ie agents engaged in the production or processing of oil. Since 2010, oil producers have increasingly relied on swap dealers as counterparties for their hedging transactions. In turn, swap dealers have laid off their exposures on the futures market as suggested by the trend increase in the CFTC short futures positions of swap dealers over the 2009–13 period (Graph 2, right-hand panel).

However, at times of heightened volatility and balance sheet strain for leveraged entities, swap dealers may become less willing to sell protection to oil producers. The co-movement in the dealers’ positions and bouts of volatility suggests that dealers may have behaved procyclically – cutting back positions whenever financial conditions become more turbulent. In Graph 2, three such episodes can be seen: the onset of the Great Recession in 2008, the euro area crisis combined with the war in Libya in 2011, and the recent price slump. In response to greater reluctance by dealers to take the other side of sales, producers wishing to hedge their falling revenues may have turned to the derivatives markets directly, without going through an intermediary. This shift in the liquidity of hedging markets could have played a role in recent price dynamics.

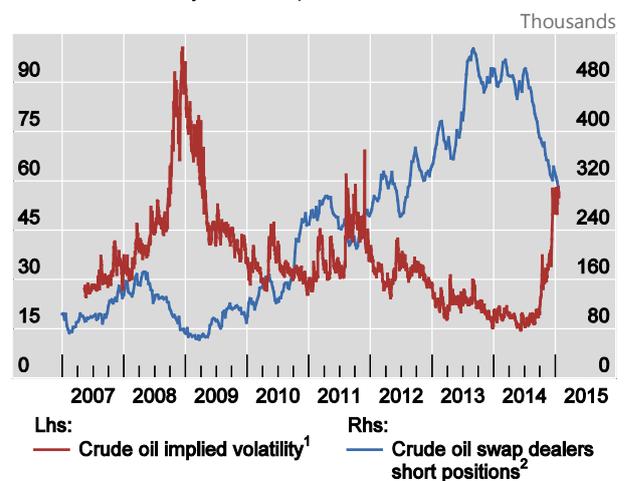
Oil producer debt has grown while swap dealers have facilitated hedging

Graph 2

Oil and gas company debt outstanding



Crude oil volatility and swap dealer futures



¹ CBOE Crude Oil Volatility Index. ² CFTC reported short open positions in futures contracts. ³ CFTC reported short open positions in options contracts.

Sources: Bloomberg; CFTC; Datastream; BIS calculations.



Taken together, the interaction of oil prices and the debt and balance sheet capacity of intermediaries introduce a new element into the discussion of oil market developments. The build-up of debt in the oil sector is a reminder that high debt levels can induce significant macro-financial interactions. Such interactions need to be understood better in order fully to appreciate the macroeconomic impact of falling oil prices.

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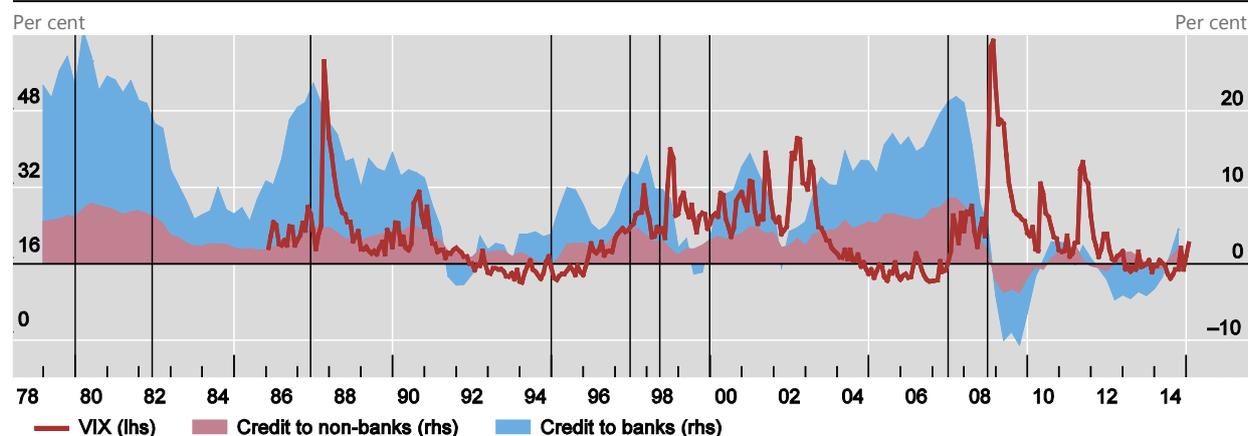
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I. Credit aggregates

Year-on-year rate of growth in international bank claims¹

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.

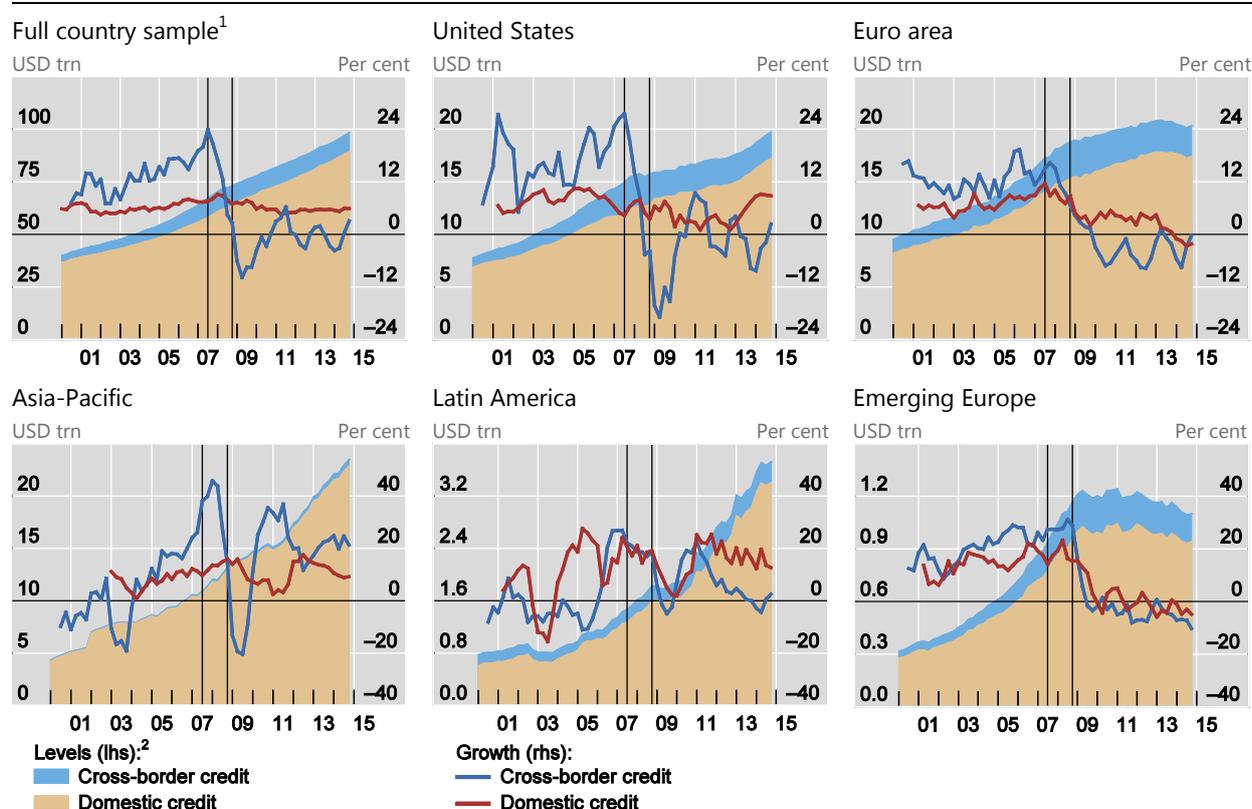
¹ Includes all BIS reporting banks' cross-border credit and local credit in foreign currency.

Sources: Bloomberg; BIS locational banking statistics by residence.

Global bank credit aggregates, by borrower region

At constant end-Q3 2014 exchange rates

Graph I.2



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

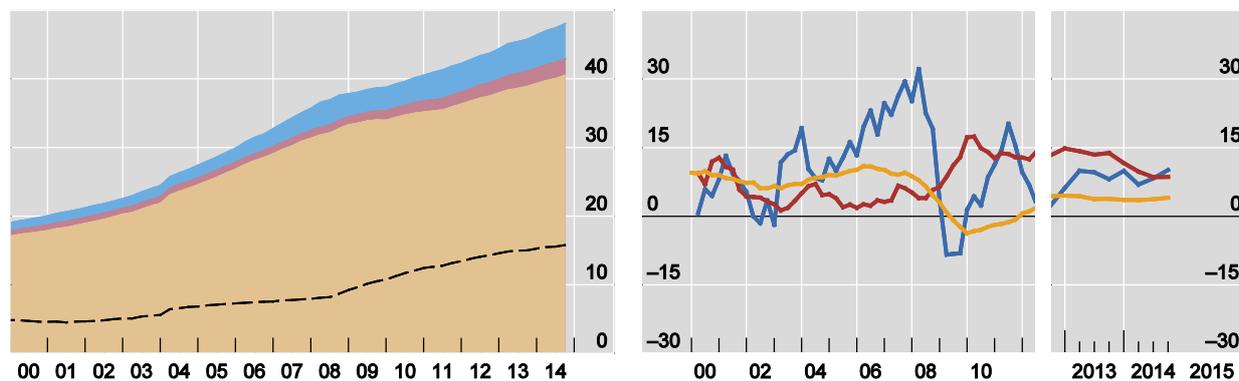
¹ Aggregate for a sample of 56 reporting countries. ² Total bank credit to non-bank borrowers (including governments), adjusted using various components of the BIS banking statistics to produce a breakdown by currency for both cross-border credit and domestic credit.

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

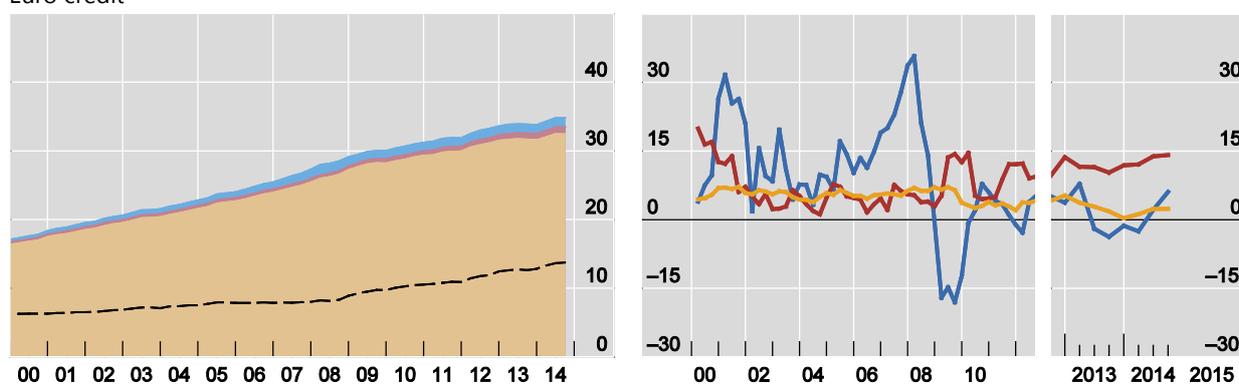
Stocks, in trillions of US dollars

Year-on-year growth, in per cent

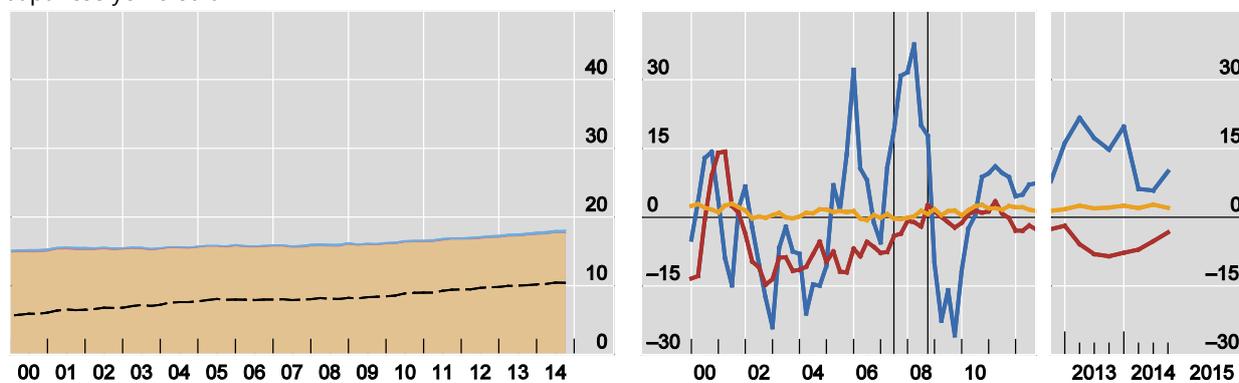
US dollar credit



Euro credit¹



Japanese yen credit¹



Credit to residents²
 Credit to non-residents:

 Of which:

 Bank loans³
 Debt securities

 Credit to residents

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

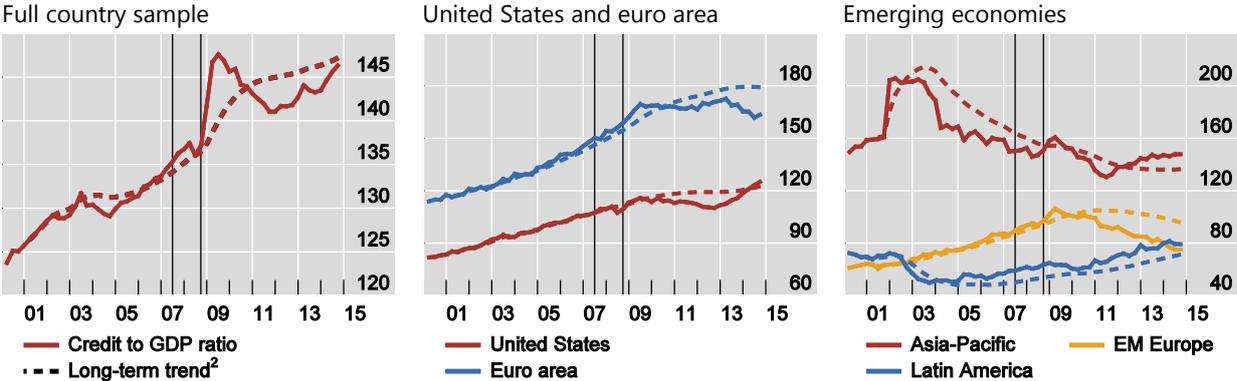
¹ At constant end-Q2 2014 exchange rates. ² Credit to the non-financial sector in the United States/euro area/Japan from national flow of funds, excluding identified credit to borrowers in non-domestic currencies (ie cross-border and locally-extended loans and outstanding international bonds in non-domestic currencies). ³ 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.

Credit to GDP ratios¹

Total domestic and cross-border credit to non-banks, at constant end-Q2 2014 exchange rates, in per cent

Graph I.4



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

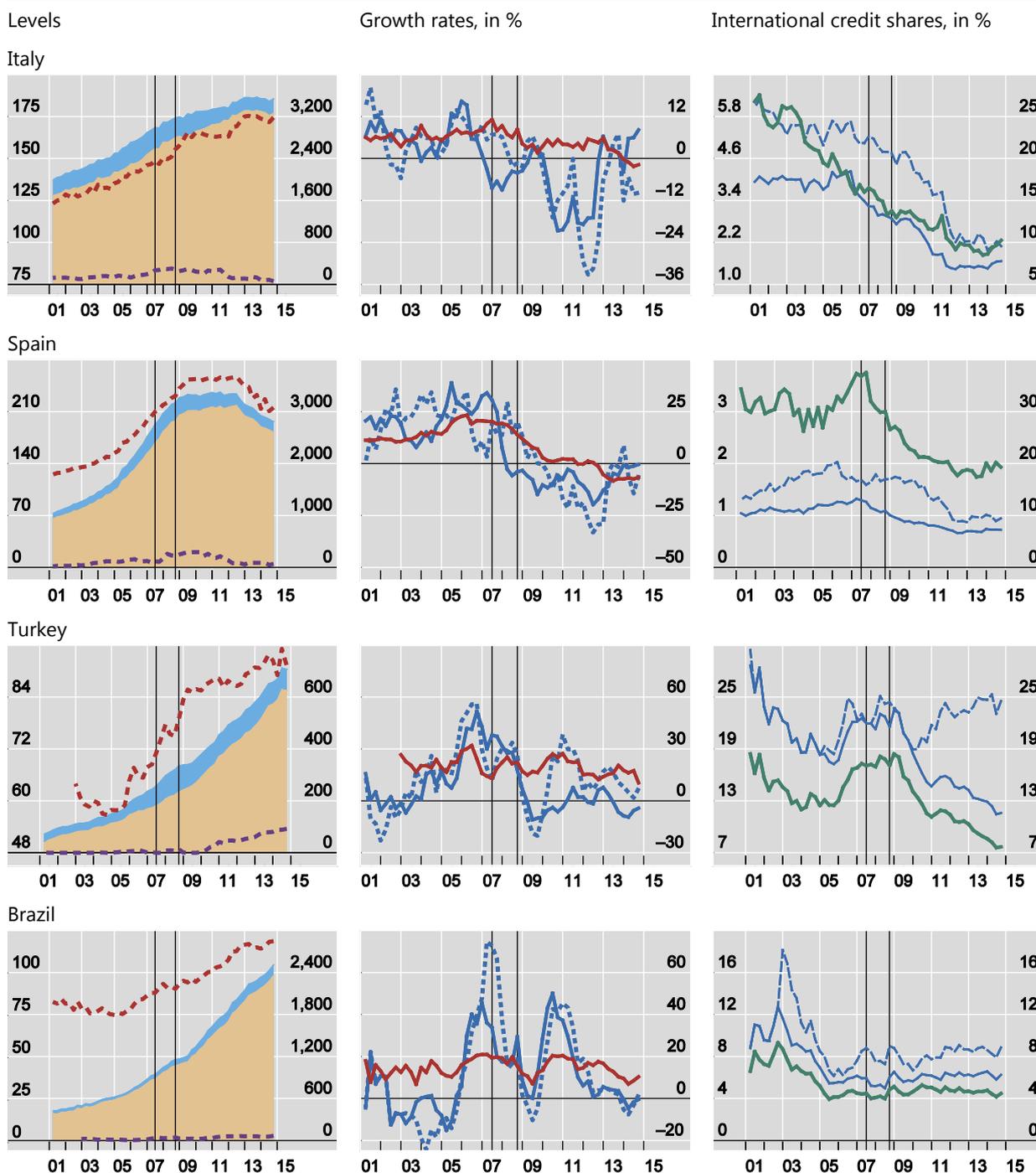
¹ Including government. ² Calculated as for the countercyclical capital buffer in Basel III using a one-sided HP-filter (smoothing factor of 400,000).

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

Bank credit to non-banks in selected economies

At constant end-Q3 2014 exchange rates

Graph I.5



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

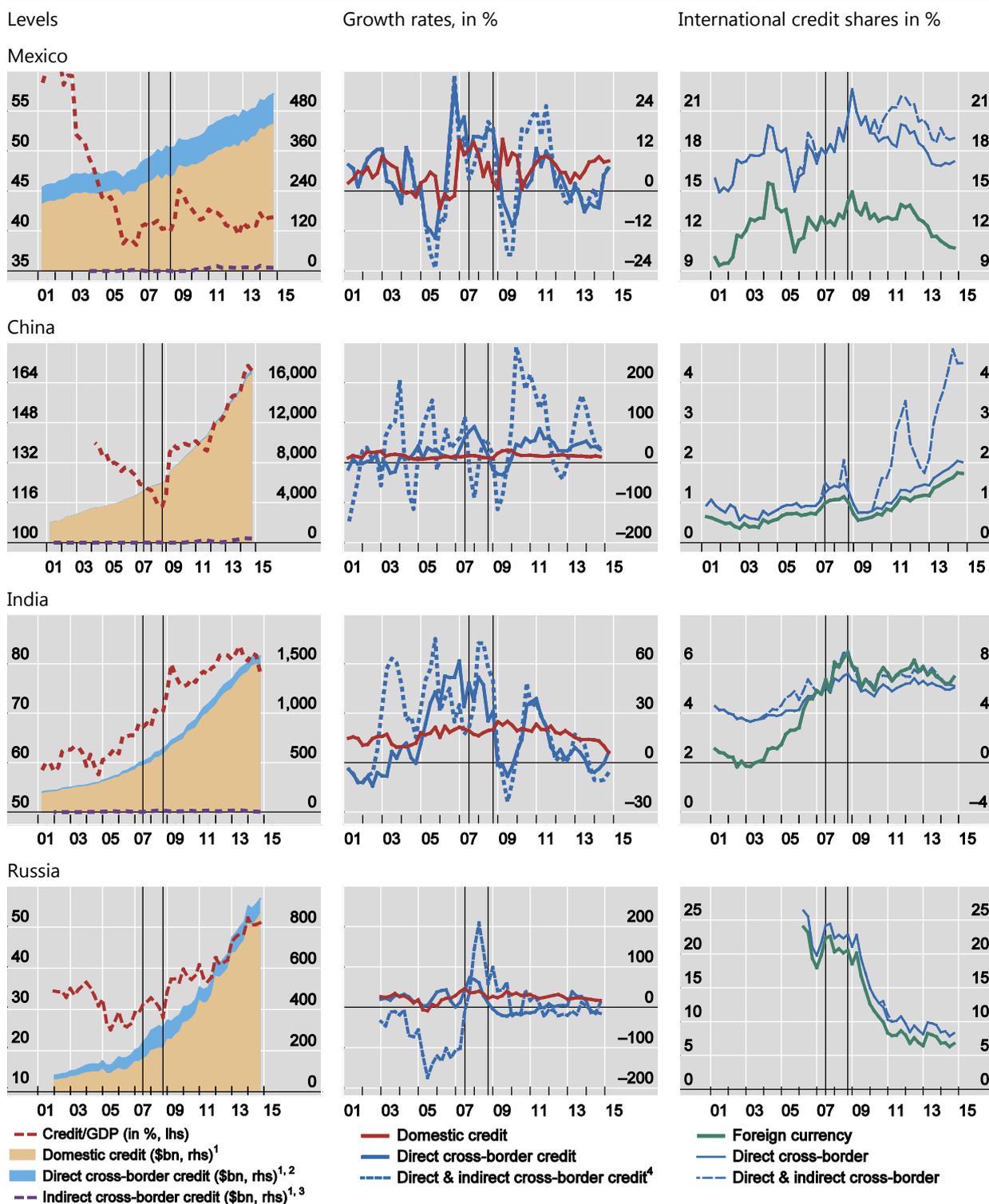
¹ Total credit expressed in US dollars, excluding valuation effects. ² BIS reporting banks' cross-border claims (including loans and holdings of securities) on non-banks. ³ Net cross-border borrowing (liabilities minus claims) from all sectors by banks located in the country. BIS reporting banks' net cross-border claims on banks in the country. ⁴ Direct cross-border claims plus net cross-border borrowing (if positive) by banks in the country, under the assumption that this cross-border credit is ultimately passed on to non-banks in the country.

Sources: IMF, *International Financial Statistics*; BIS consolidated banking statistics; BIS locational banking statistics.

Bank credit to non-banks in selected economies

At constant end-Q2 2014 exchange rates

Graph I.5 (cont)



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

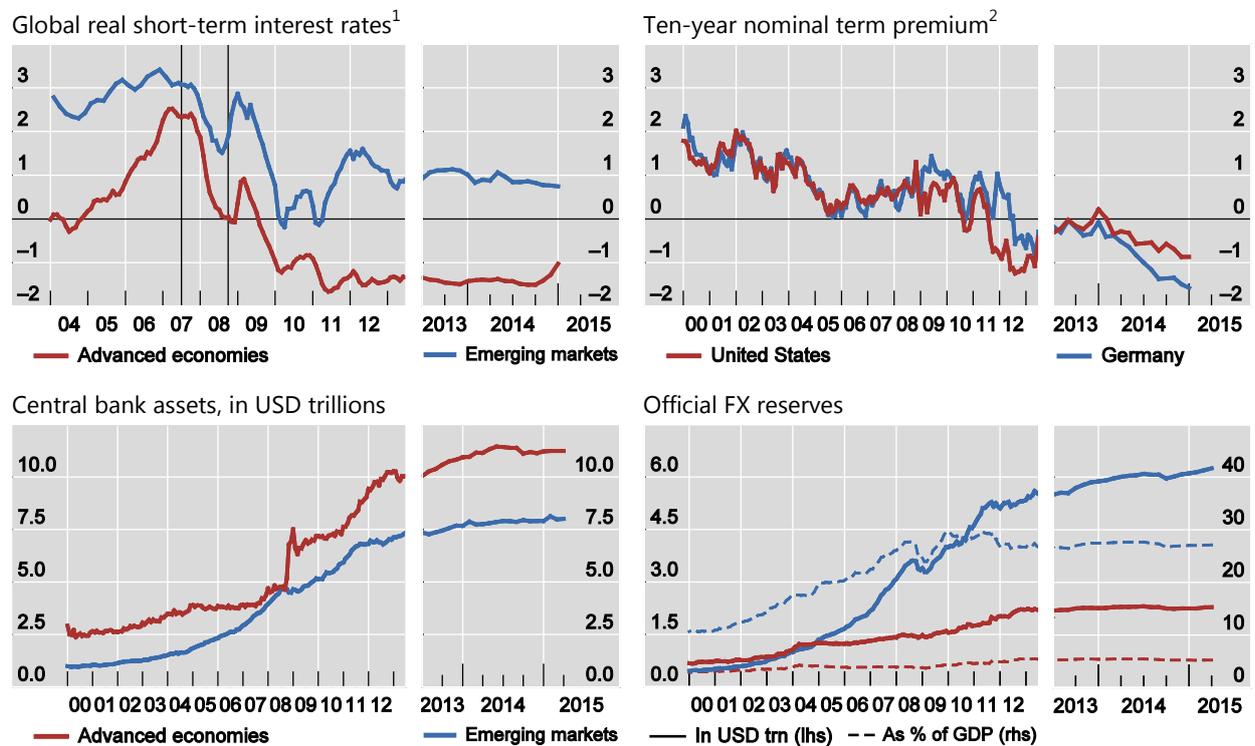
¹ Total credit expressed in US dollars, excluding valuation effects. ² BIS reporting banks' cross-border claims (including loans and holdings of securities) on non-banks. ³ Net cross-border borrowing (liabilities minus claims) from all sectors by banks located in the country. BIS reporting banks' net cross-border claims on banks in the country. ⁴ Direct cross-border claims plus net cross-border borrowing (if positive) by banks in the country, under the assumption that this cross-border credit is ultimately passed on to non-banks in the country.

Sources: IMF, *International Financial Statistics*; BIS consolidated banking statistics; BIS locational banking statistics.

II. Monetary liquidity

Indicators of monetary liquidity

Graph II.1



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

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

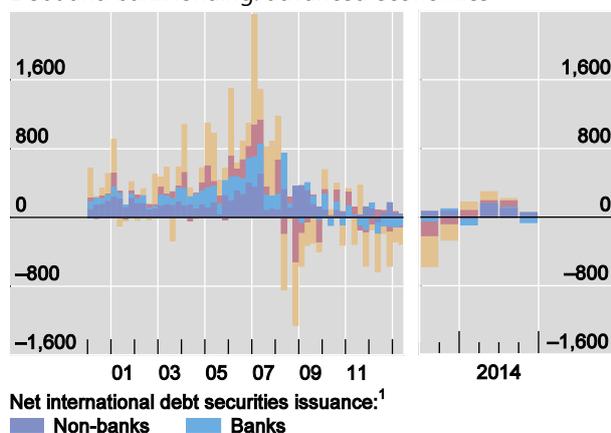
III. Funding liquidity

External financing flows

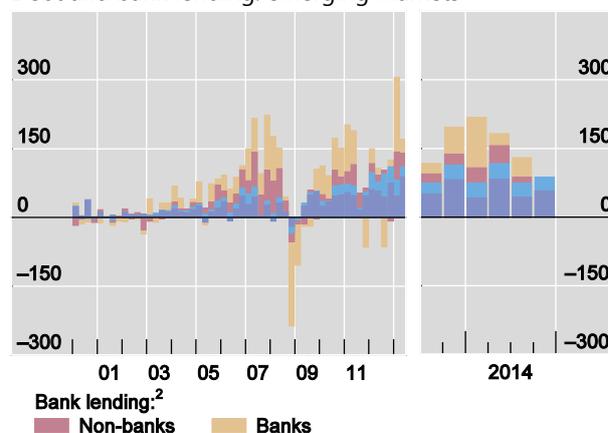
In billions of US dollars

Graph III.1

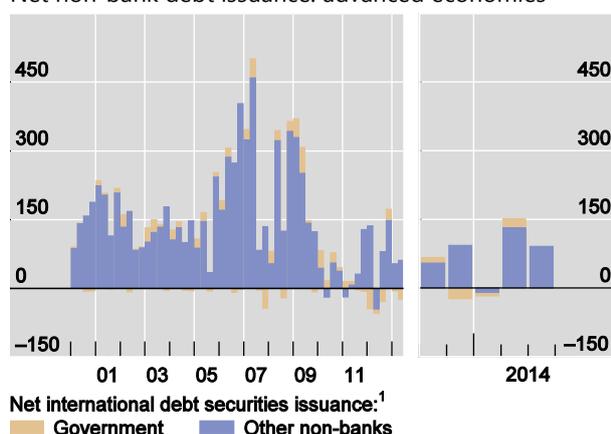
Debt and bank lending: advanced economies



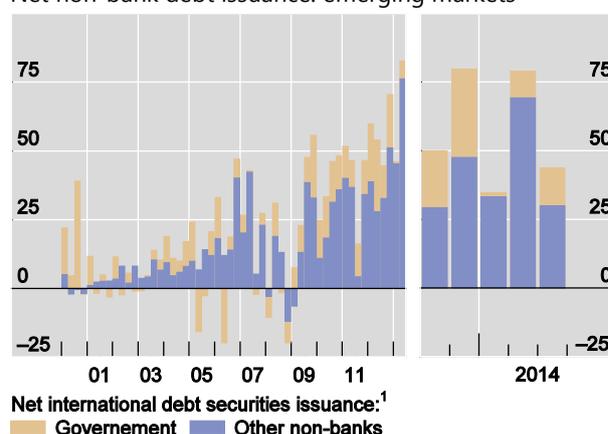
Debt and bank lending: emerging markets



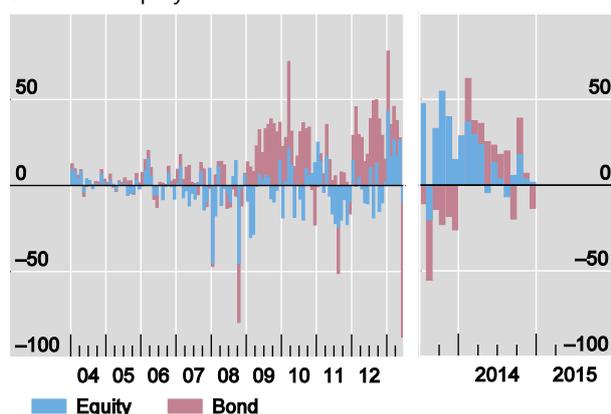
Net non-bank debt issuance: advanced economies¹



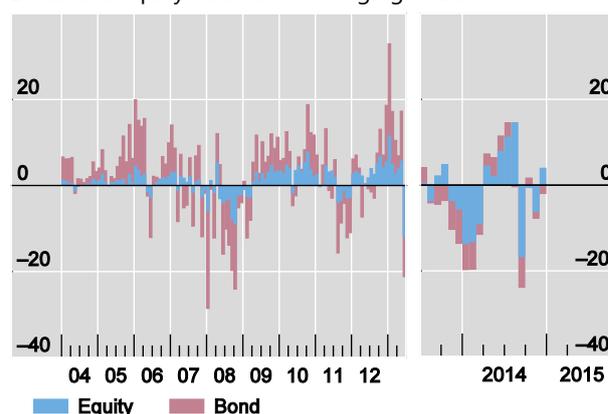
Net non-bank debt issuance: emerging markets¹



Bond and equity flows into advanced economies³

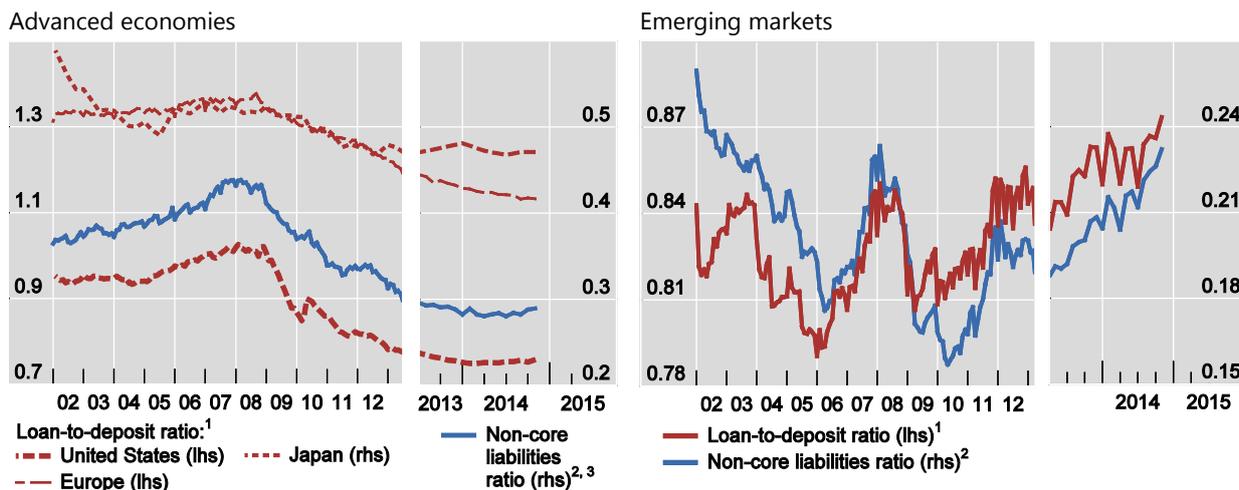


Bond and equity flows into emerging markets³



¹ Net international debt issuance for all issuers, in all maturities, by nationality of issuer. In December 2012, the BIS revised the compilation of its debt securities statistics to enhance their comparability across different markets. International issues were redefined as debt securities issued outside the market where the borrower resides. ² External loans of BIS reporting banks vis-à-vis individual countries; estimated exchange rate-adjusted changes. ³ Monthly flows into equity and bond funds; for the most recent observation, sum of available weekly figures.

Sources: Dealogic; EPFR; Euroclear; Thomson Reuters; Xtrakter Ltd; BIS locational banking statistics by residence; BIS calculations.



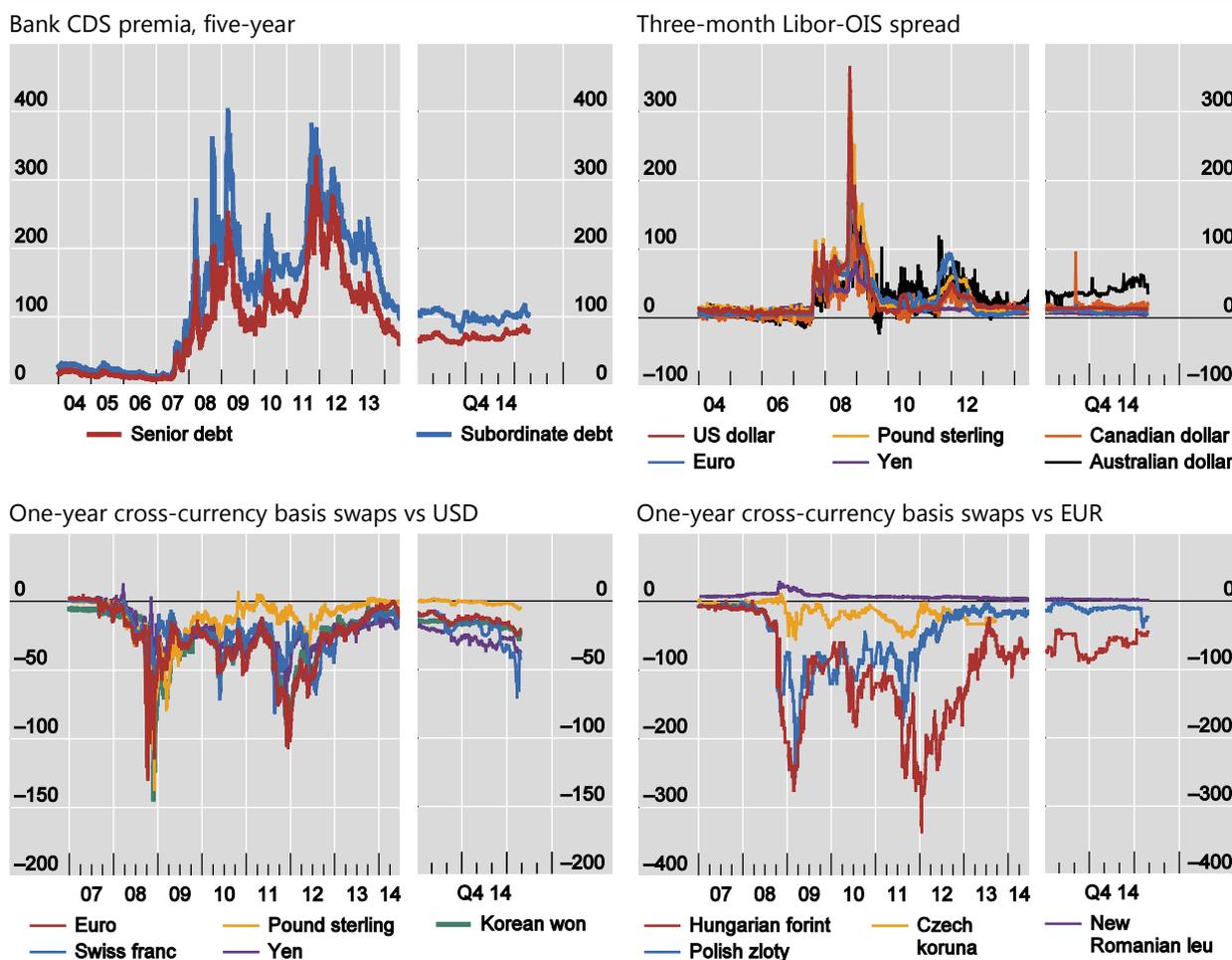
¹ Weighted average by deposits. ² Bank liabilities (excluding equity) minus customer deposits divided by total liabilities. ³ The United States, Japan and Europe (the euro area, the United Kingdom and Switzerland). This ratio measures the degree to which banks finance their assets using non-deposit funding sources.

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

Short-term and cross-currency funding conditions

In basis points

Graph III.3



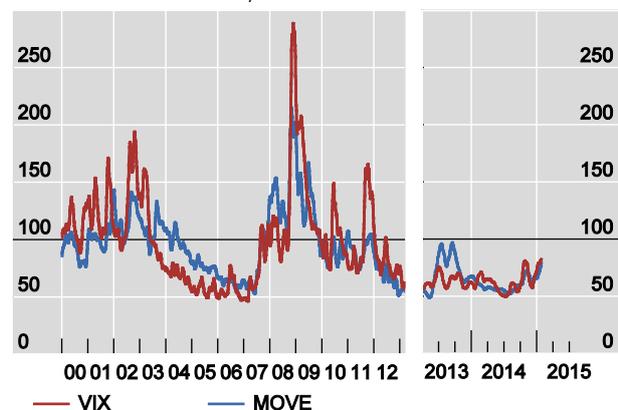
Sources: Bloomberg; Markit; BIS calculations.

IV. Risk appetite

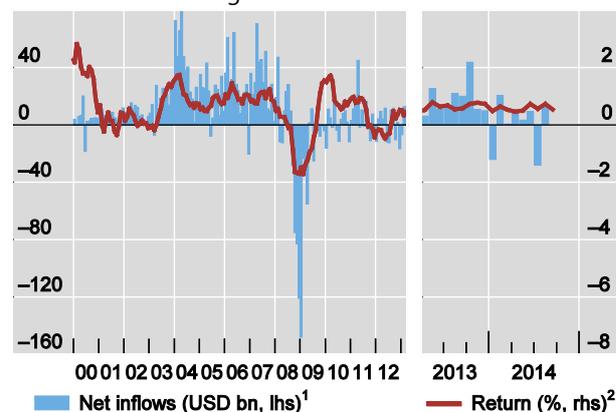
Risk appetite and market positioning

Graph IV.1

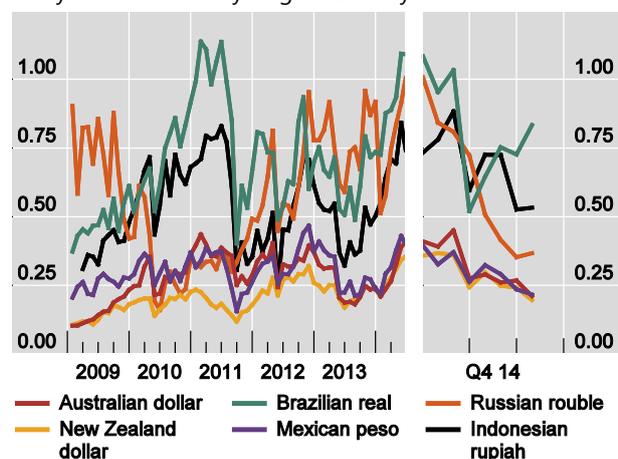
VIX and MOVE indices, 1 Jan 1991 = 100



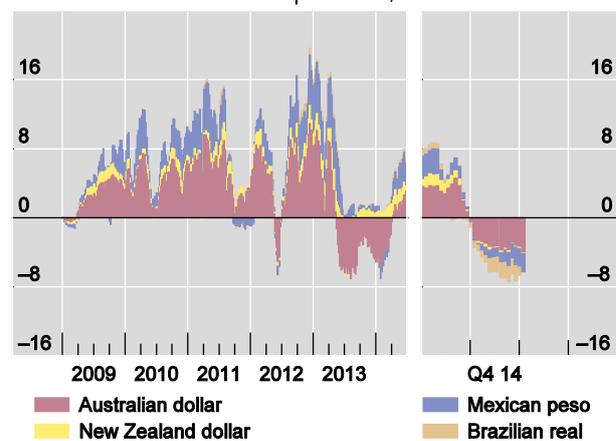
Net inflows into hedge funds



Carry-to-risk ratios by target currency³



CFTC non-commercial net positions, in USD bn



¹ Information based on active funds reporting to HFR database. Most recent data are subject to incomplete reporting. ² HFRI Monthly Performance Indices calculated by Hedge Fund Research; 12-month moving average. ³ 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.