

Annexes

BIS Statistics: Charts

The statistics published by the BIS are a unique source of information about the structure of and activity in the global financial system. BIS statistics are presented in graphical form in this annex and in tabular form in the *BIS Statistical Bulletin*, which is published concurrently with the *BIS Quarterly Review*. For introductions to the BIS statistics and a glossary of terms used in this annex, see the *BIS Statistical Bulletin*.

The data shown in the charts in this annex can be downloaded from the *BIS Quarterly Review* page on the BIS website (www.bis.org/publ/quarterly.htm). Data may have been revised or updated subsequent to the publication of this annex. For the latest data and to download additional data, see the statistics pages on the BIS website (www.bis.org/statistics/index.htm). A release calendar provides advance notice of publication dates (www.bis.org/statistics/relcal.htm).

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A Locational banking statistics

Cross-border claims, by sector, currency and instrument

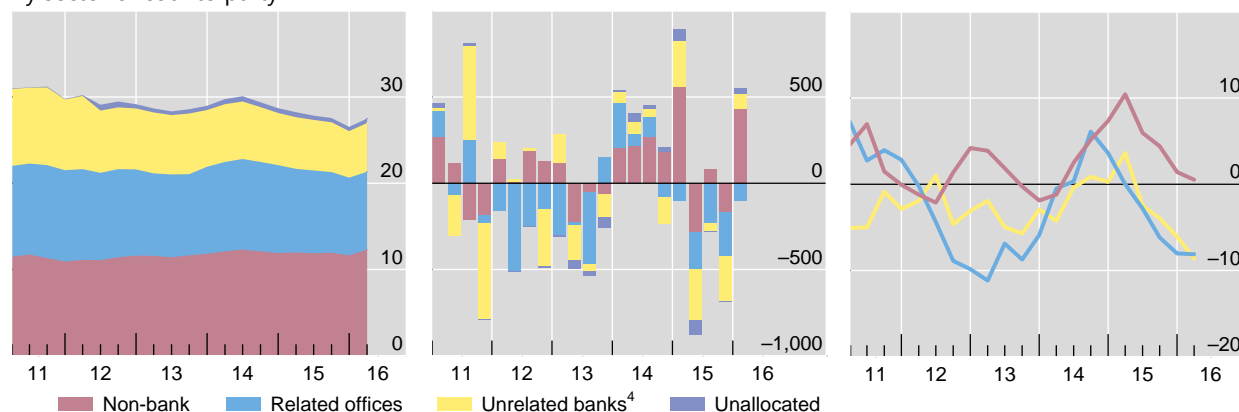
Graph A.1

Amounts outstanding, in USD trn¹

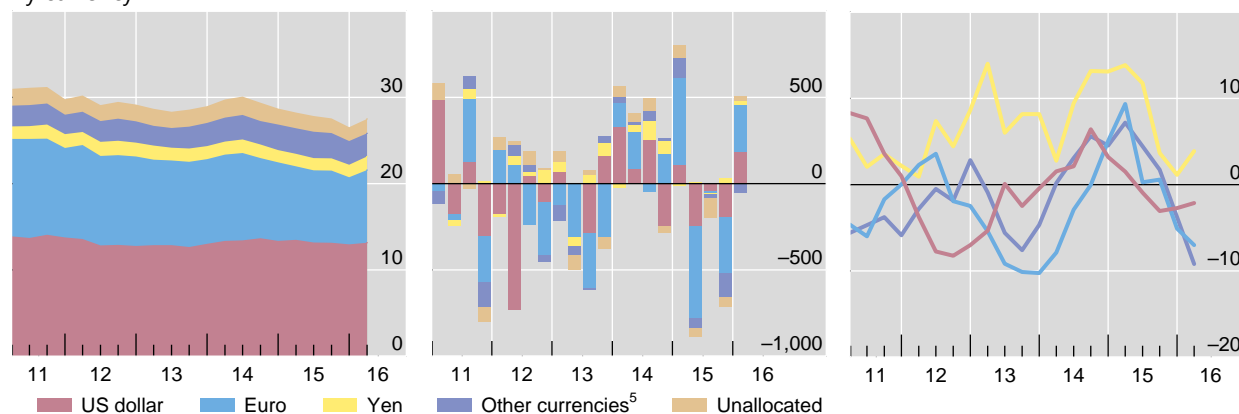
Adjusted changes, in USD bn²

Annual change, in per cent³

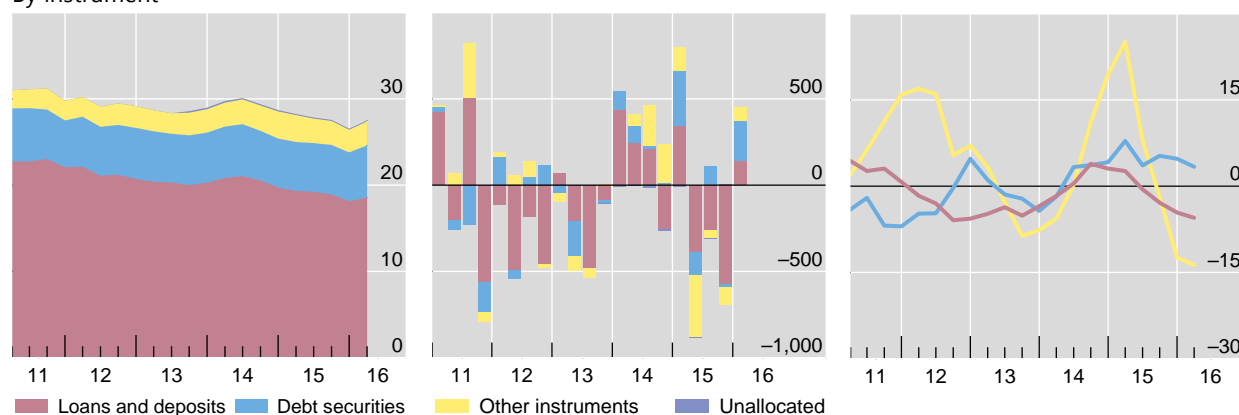
By sector of counterparty



By currency



By instrument



Further information on the BIS locational banking statistics is available at www.bis.org/statistics/bankstats.htm.

¹ At quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ² Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. ³ Geometric mean of quarterly percentage adjusted changes. ⁴ Includes central banks and banks unallocated by subsector between intragroup and unrelated banks. ⁵ Other reported currencies, calculated as all currencies minus US dollar, euro, yen and unallocated currencies. The currency is known but reporting is incomplete.

Source: BIS locational banking statistics.

Cross-border claims, by borrowing region

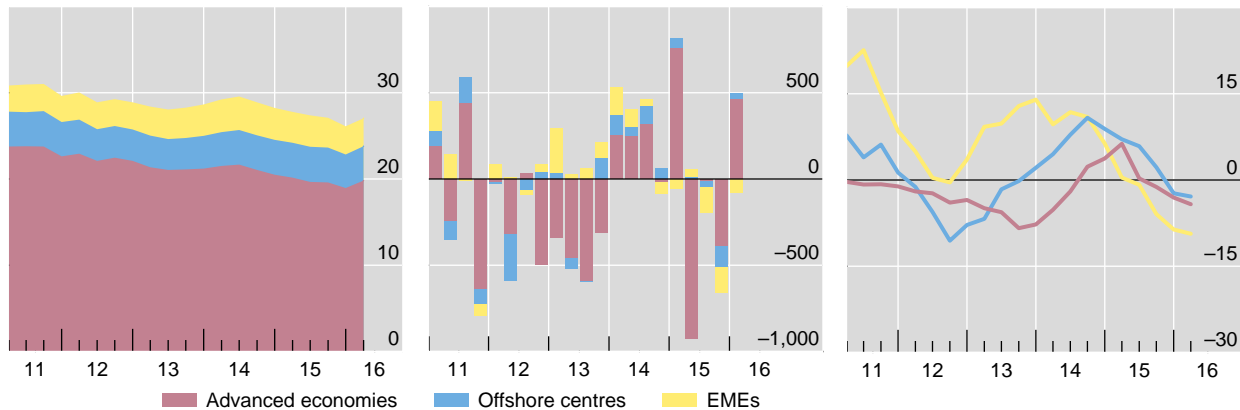
Graph A.2

Amounts outstanding, in USD trn¹

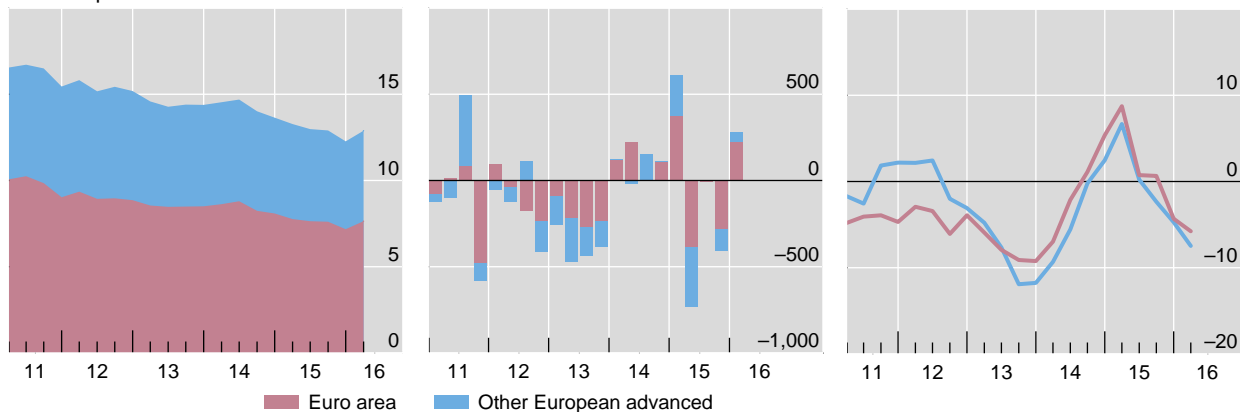
Adjusted changes, in USD bn²

Annual change, in per cent³

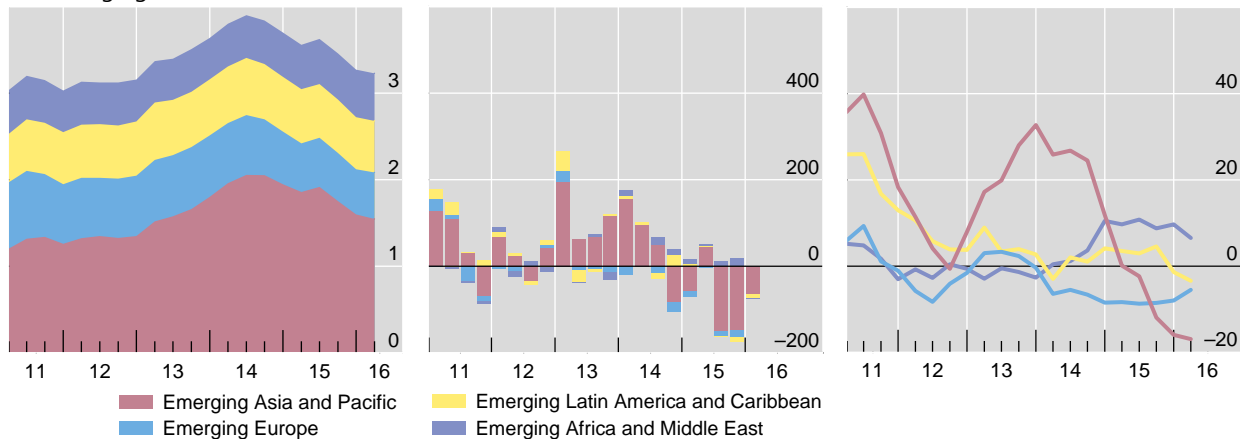
On all countries



On Europe



On emerging market economies



Further information on the BIS locational banking statistics is available at www.bis.org/statistics/bankstats.htm.

¹ At quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ² Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. ³ Geometric mean of quarterly percentage adjusted changes.

Source: BIS locational banking statistics.

Cross-border claims, by borrowing country

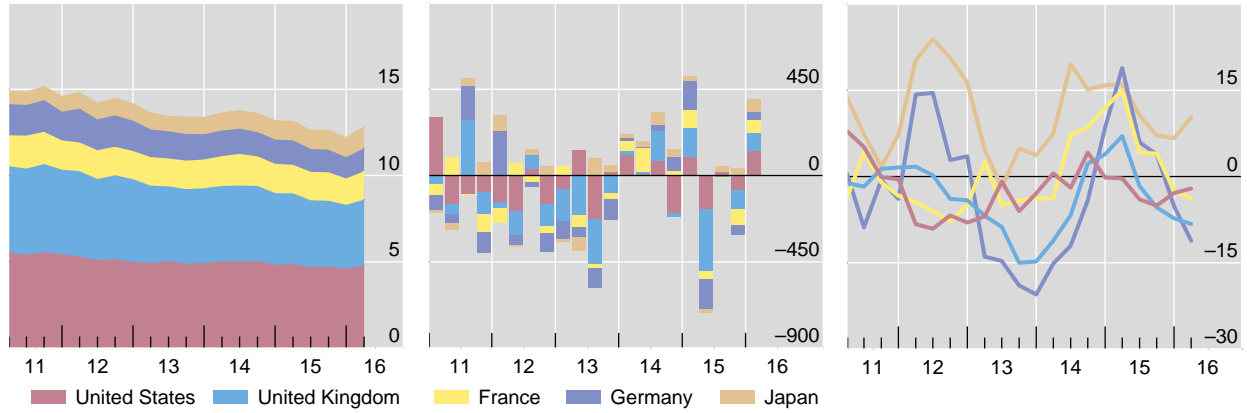
Graph A.3

Amounts outstanding, in USD trn¹

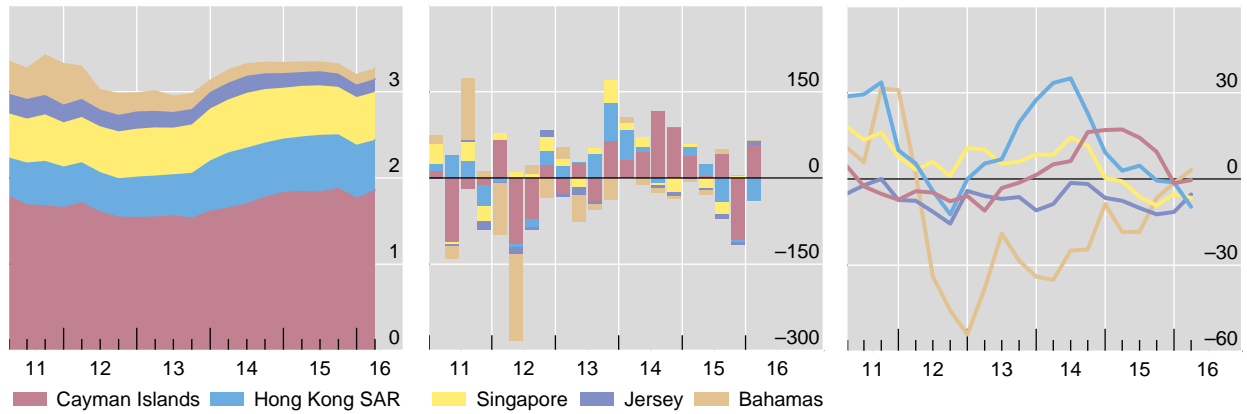
Adjusted changes, in USD bn²

Annual change, in per cent³

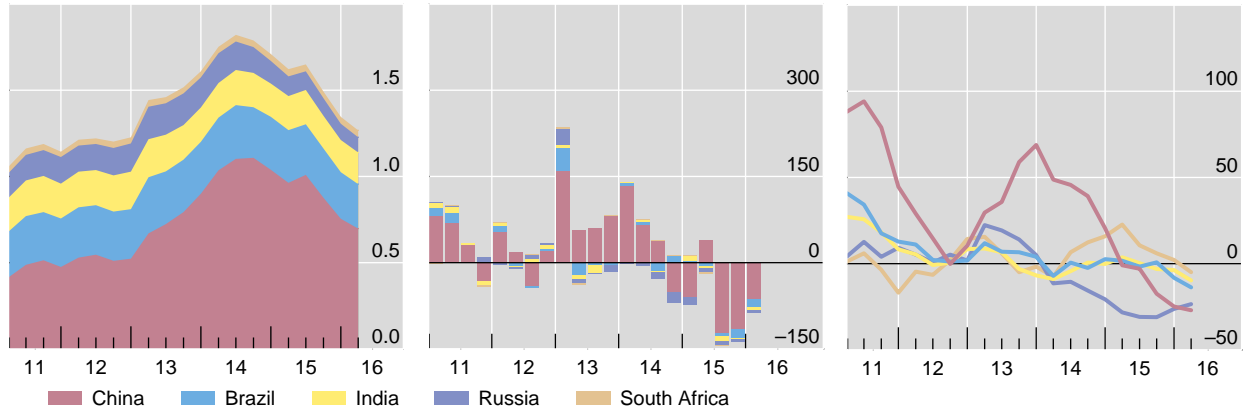
On selected advanced economies



On selected offshore centres



On selected emerging market economies

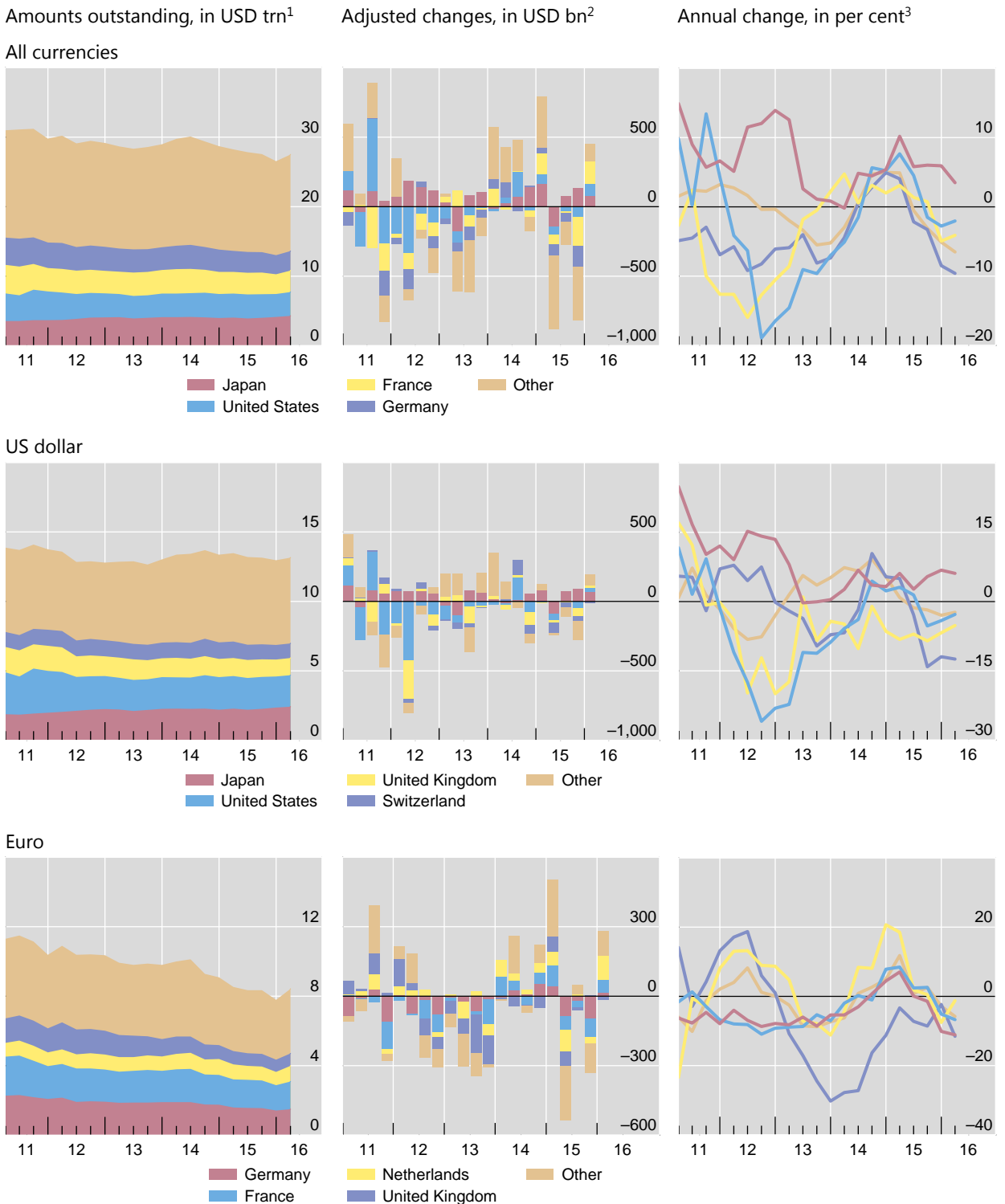


Further information on the BIS locational banking statistics is available at www.bis.org/statistics/bankstats.htm.

¹ At quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ² Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. ³ Geometric mean of quarterly percentage adjusted changes.

Source: BIS locational banking statistics.

Cross-border claims, by nationality of reporting bank and currency of denomination Graph A.4



Further information on the BIS locational banking statistics is available at www.bis.org/statistics/bankstats.htm.

¹ At quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ² Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. ³ Geometric mean of quarterly percentage adjusted changes.

Source: BIS locational banking statistics.

Cross-border liabilities of reporting banks

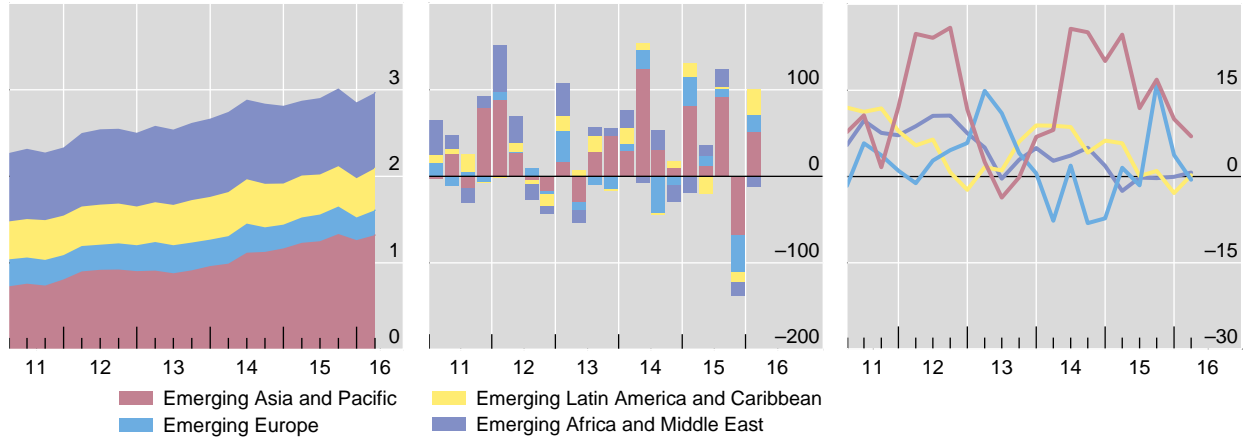
Graph A.5

Amounts outstanding, in USD trn¹

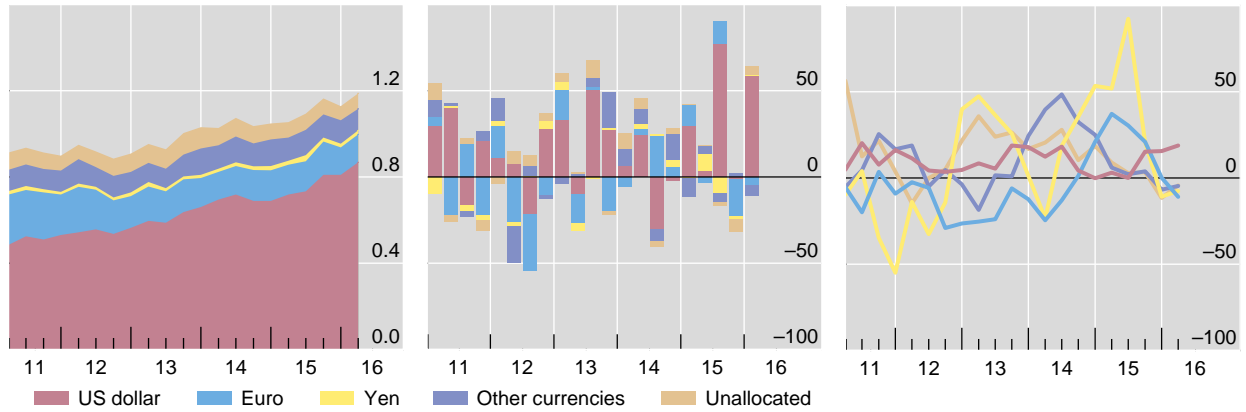
Adjusted changes, in USD bn²

Annual change, in per cent³

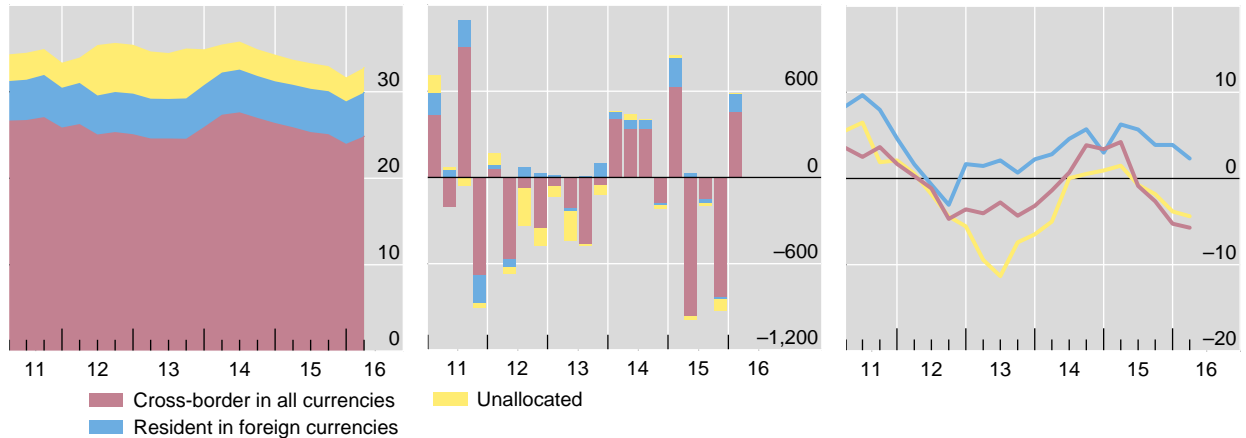
To emerging market economies



To central banks



By currency type and location



Further information on the BIS locational banking statistics is available at www.bis.org/statistics/bankstats.htm.

¹ At quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ² Quarterly changes in amounts outstanding, adjusted for the impact of exchange rate movements between quarter-ends and methodological breaks in the data. ³ Geometric mean of quarterly percentage adjusted changes.

Source: BIS locational banking statistics.

B Consolidated banking statistics

Consolidated claims of reporting banks on advanced economies

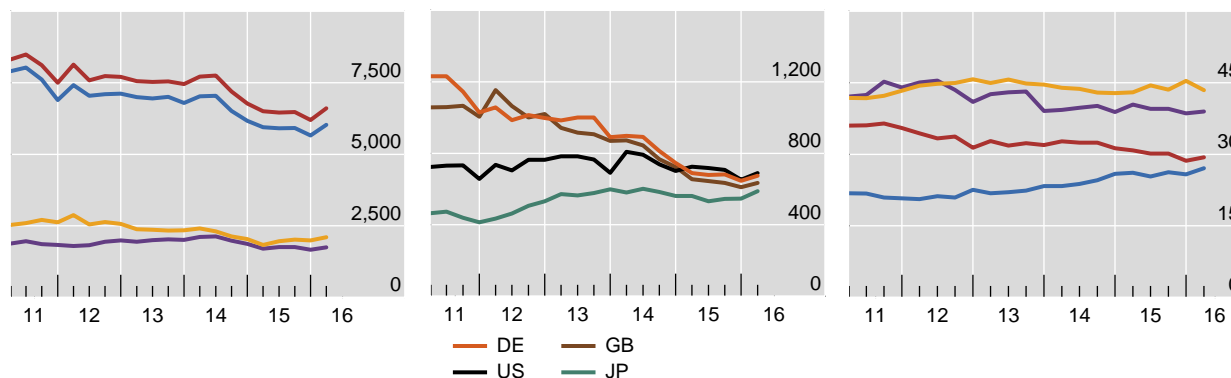
Graph B.1

Foreign claims and local positions, in USD bn^{1,2}

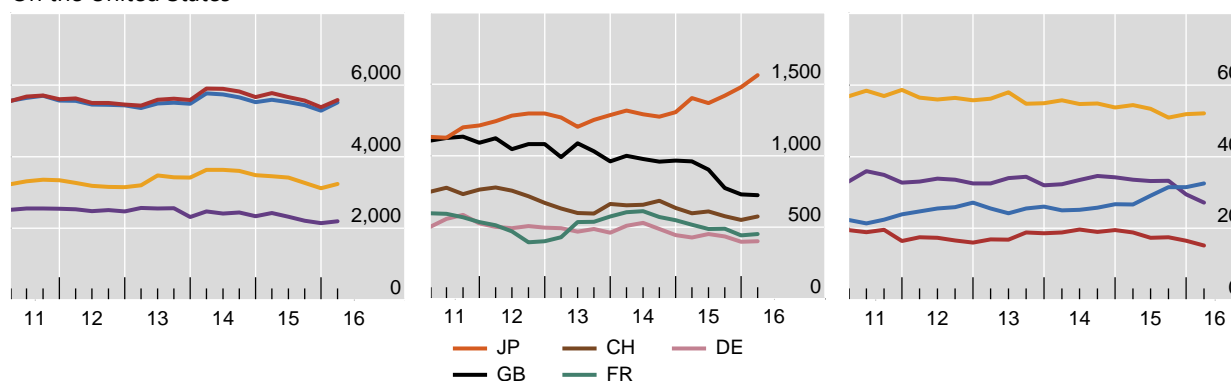
Foreign claims of selected creditors, in USD bn^{1,3}

International claims, by sector and maturity, in per cent⁴

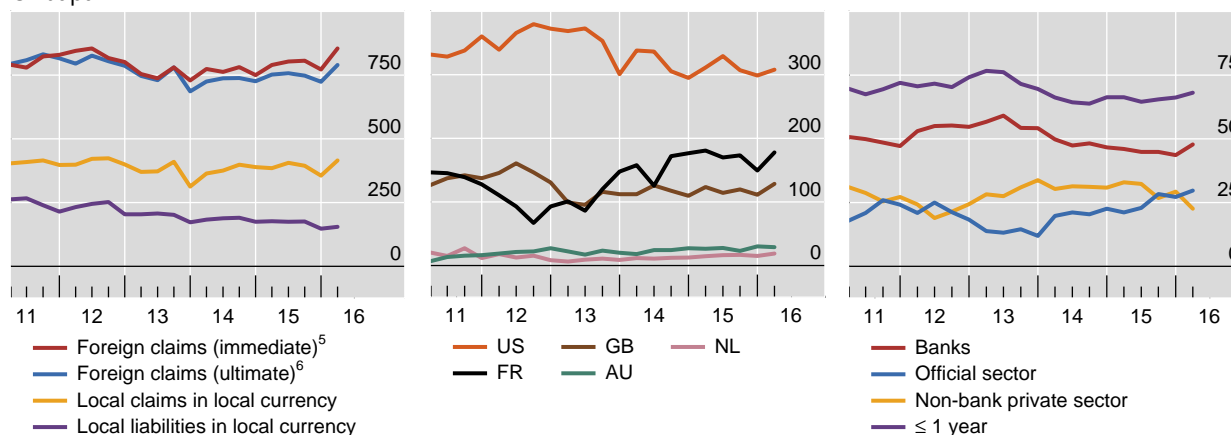
On the euro area



On the United States



On Japan



AU = Australia; CH = Switzerland; DE = Germany; FR = France; GB = United Kingdom; JP = Japan; NL = Netherlands; US = United States.

Further information on the BIS consolidated banking statistics is available at www.bis.org/statistics/bankstats.htm.

¹ Amounts outstanding at quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ² Excludes domestic claims, ie claims on residents of a bank's home country. ³ Foreign claims on an ultimate risk basis, by nationality of reporting bank. The banking systems shown are not necessarily the largest foreign bank creditors on each reference date. ⁴ As a percentage of international claims outstanding. ⁵ On an immediate counterparty basis. Includes the unconsolidated claims of banks headquartered outside but located inside CBS-reporting countries. ⁶ On an ultimate risk basis.

Source: BIS consolidated banking statistics (CBS).

Consolidated claims of reporting banks on emerging market economies

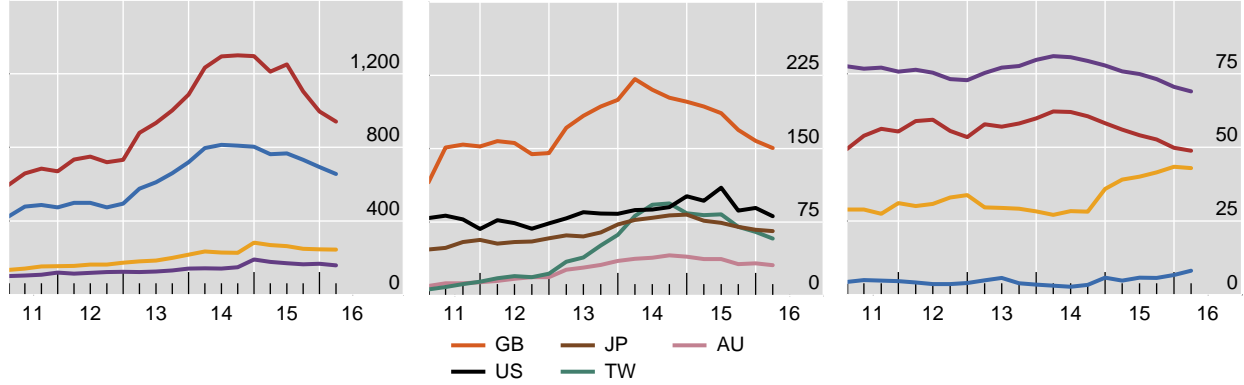
Graph B.2

Foreign claims and local positions, in USD bn^{1,2}

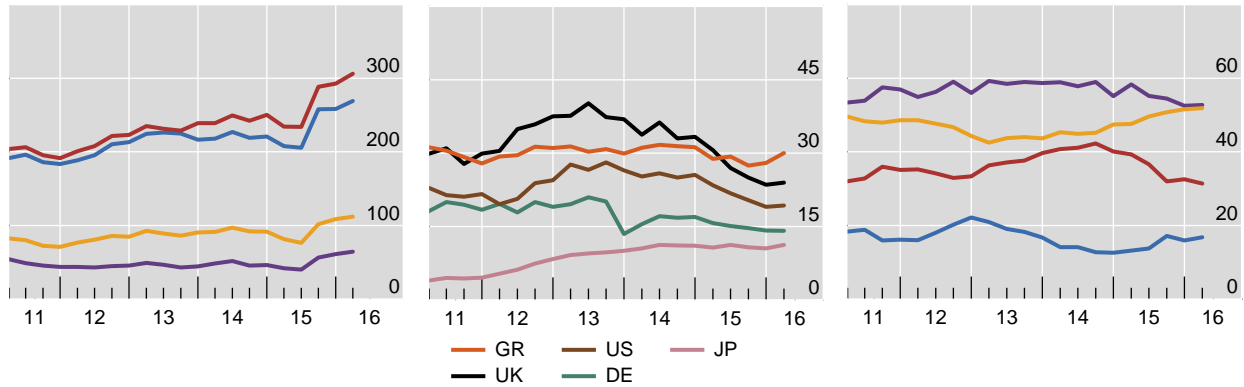
Foreign claims of selected creditors, in USD bn^{1,3}

International claims, by sector and maturity, in per cent⁴

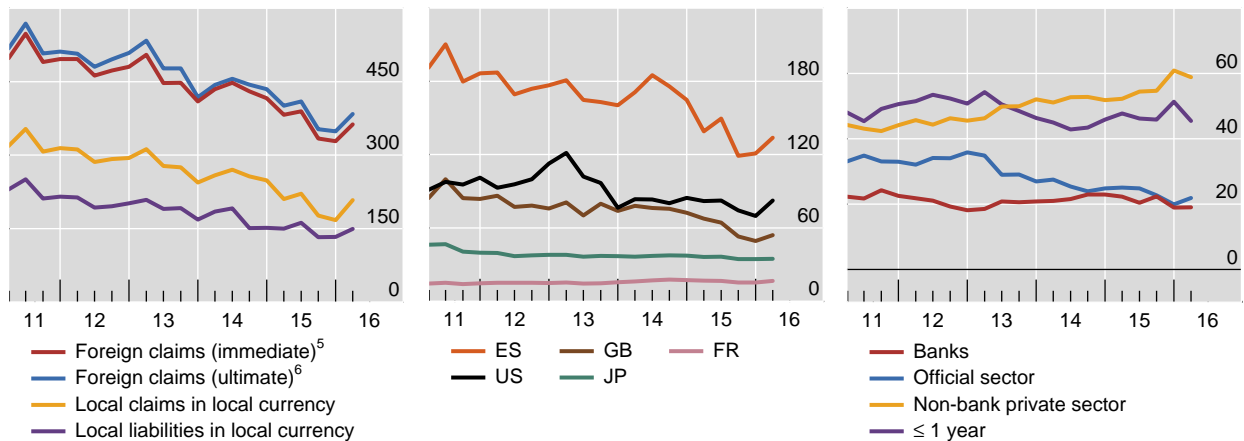
On China



On Turkey



On Brazil



AU = Australia; DE = Germany; ES = Spain; GB = United Kingdom; GR = Greece; JP = Japan; NL = Netherlands; TW = Chinese Taipei; US = United States.

Further information on the BIS consolidated banking statistics is available at www.bis.org/statistics/bankstats.htm.

¹ Amounts outstanding at quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ² Excludes domestic claims, ie claims on residents of a bank's home country. ³ Foreign claims on an ultimate risk basis, by nationality of reporting bank. The banking systems shown are not necessarily the largest foreign bank creditors on each reference date. ⁴ As a percentage of international claims. ⁵ On an immediate counterparty basis. Includes the unconsolidated claims of banks headquartered outside but located inside CBS-reporting countries. ⁶ On an ultimate risk basis.

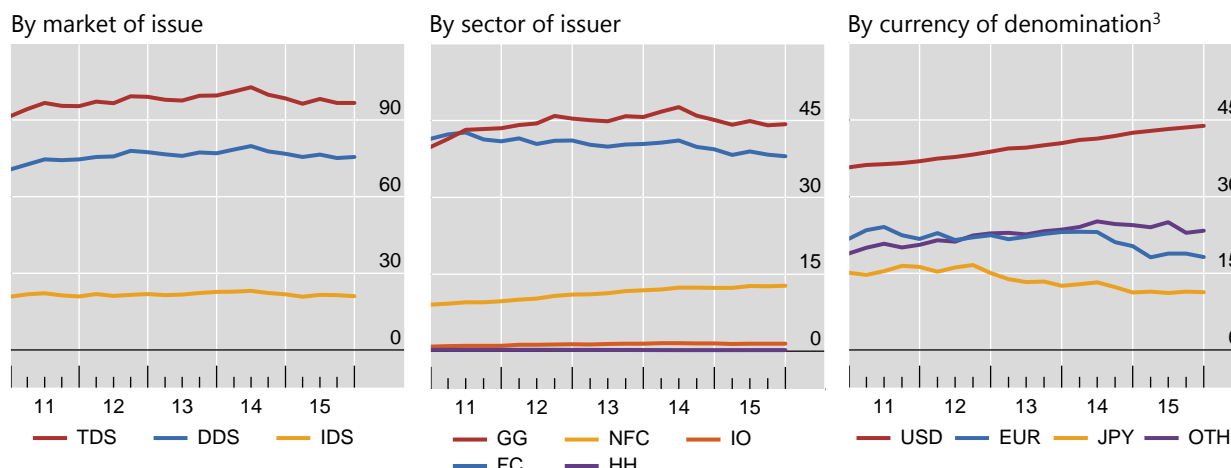
Source: BIS consolidated banking statistics (CBS).

C Debt securities statistics

Global debt securities markets¹

Amounts outstanding, in trillions of US dollars²

Graph C.1



DDS = domestic debt securities; IDS = international debt securities; TDS = total debt securities.

FC = financial corporations; GG = general government; HH = households and non-profit institutions serving households; IO = international organisations; NFC = non-financial corporations.

EUR = euro; JPY = yen; OTH = other currencies; USD = US dollar.

Further information on the BIS debt securities statistics is available at www.bis.org/statistics/secstats.htm.

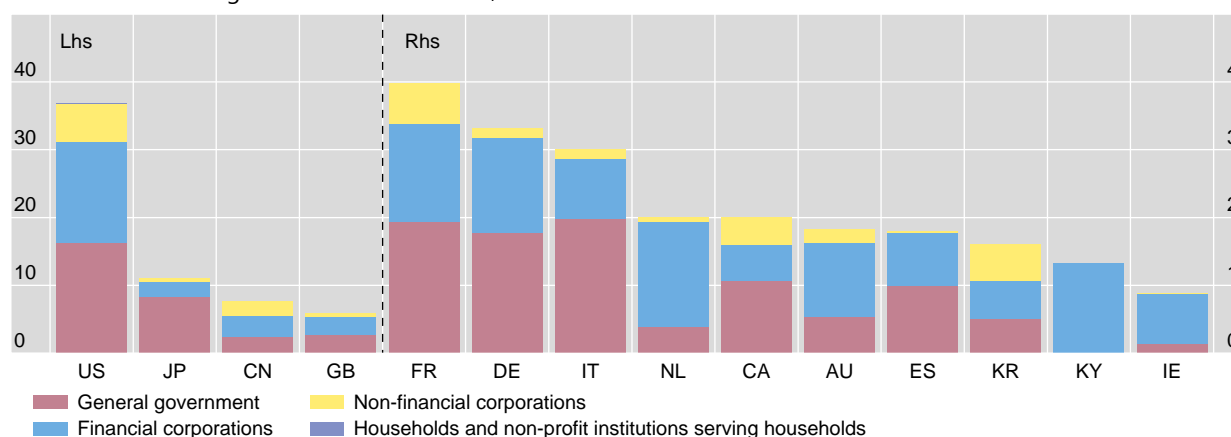
¹ Sample of countries varies across breakdowns shown. For countries that do not report TDS, data are estimated by the BIS as DDS plus IDS. For countries that do not report either TDS or DDS, data are estimated by the BIS as IDS. ² At quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ³ Where a currency breakdown is not available, DDS are assumed to be denominated in the local currency.

Sources: IMF; Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; national data; BIS debt securities statistics; BIS calculations.

Total debt securities, by residence and sector of issuer¹

Amounts outstanding at end-December 2015, in trillions of US dollars²

Graph C.2



AU = Australia; CA = Canada; CN = China; DE = Germany; ES = Spain; FR = France; GB = United Kingdom; IE = Ireland; IT = Italy; JP = Japan; KR = Korea; KY = Cayman Islands; NL = Netherlands; US = United States.

Further information on the BIS debt securities statistics is available at www.bis.org/statistics/secstats.htm.

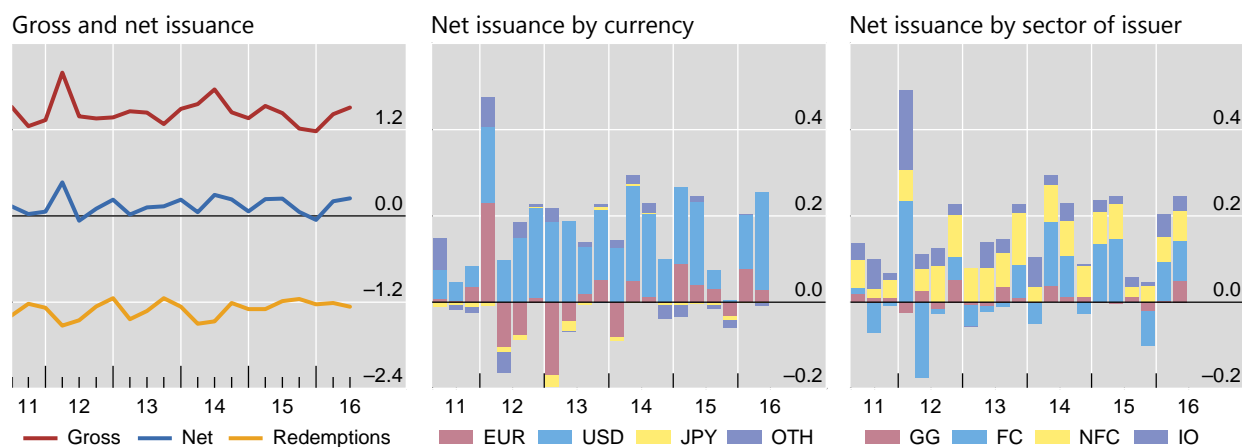
¹ For countries that do not report TDS, data are estimated by the BIS as DDS plus IDS. ² Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Sources: National data; BIS debt securities statistics.

International debt securities, by currency and sector

In trillions of US dollars

Graph C.3



EUR = euro; JPY = yen; OTH = other currencies; USD = US dollar.

FC= financial corporations; GG = general government; IO = international organisations; NFC = non-financial corporations.

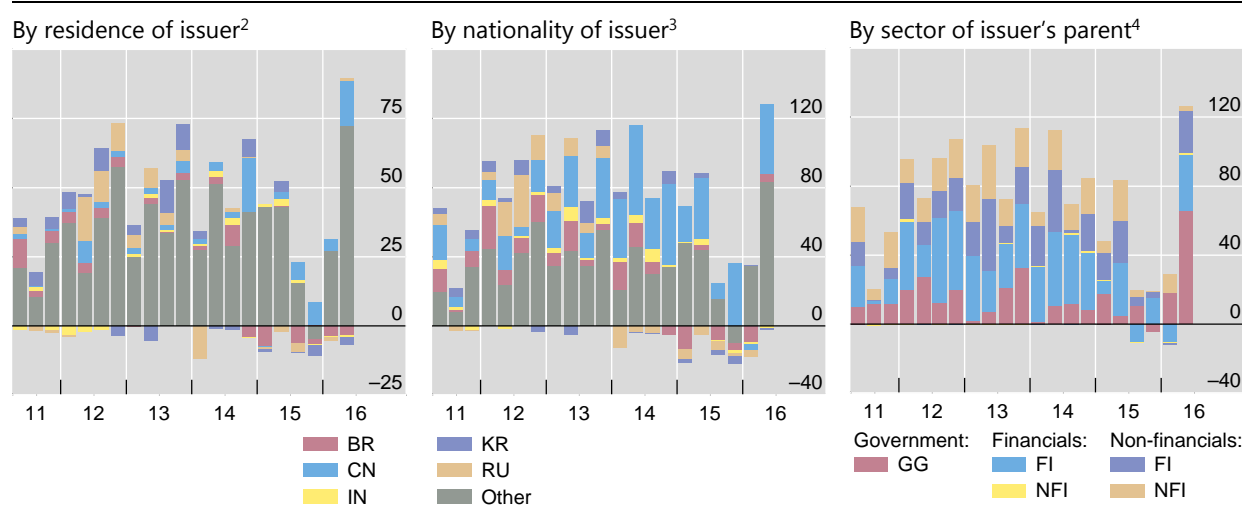
Further information on the BIS debt securities statistics is available at www.bis.org/statistics/secstats.htm.

Sources: IMF; Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; BIS debt securities statistics.

International debt securities issued by borrowers from emerging market economies¹

Net issuance, in billions of US dollars

Graph C.4



BR = Brazil; CN = China; IN = India; KR = Korea; RU = Russia.

FI = financial corporations; GG = general government; NFI = non-financial corporations.

Further information on the BIS debt securities statistics is available at www.bis.org/statistics/secstats.htm.

¹ For the sample of countries comprising emerging market economies, see the glossary to the *BIS Statistical Bulletin*. ² Country where issuer resides. ³ Country where issuer's controlling parent is located. Includes issuance by financing vehicles incorporated in offshore financial centres with parents based in an emerging market economy. ⁴ By nationality, ie issuers with parents based in an emerging market economy. Issuers are grouped by sector of their parent.

Sources: IMF; Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; BIS debt securities statistics.

D Derivatives statistics

Exchange-traded derivatives

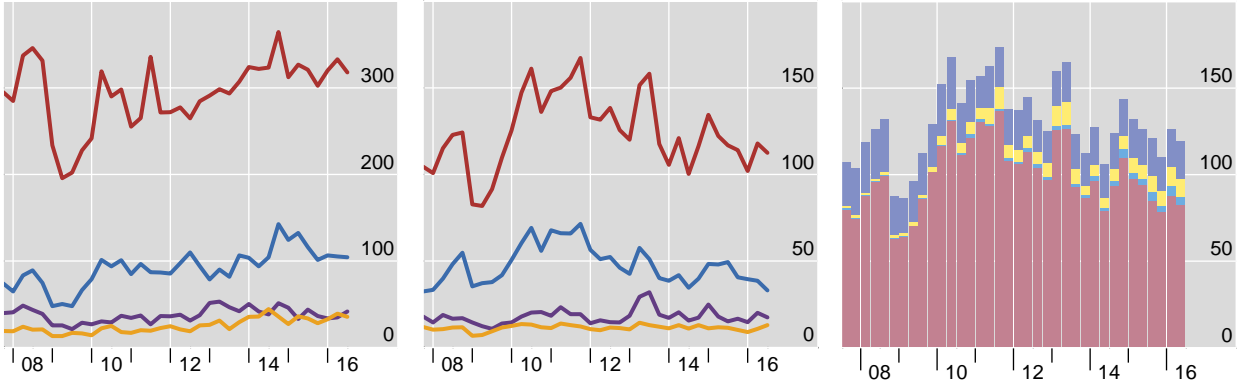
Graph D.1

Open interest, by currency¹

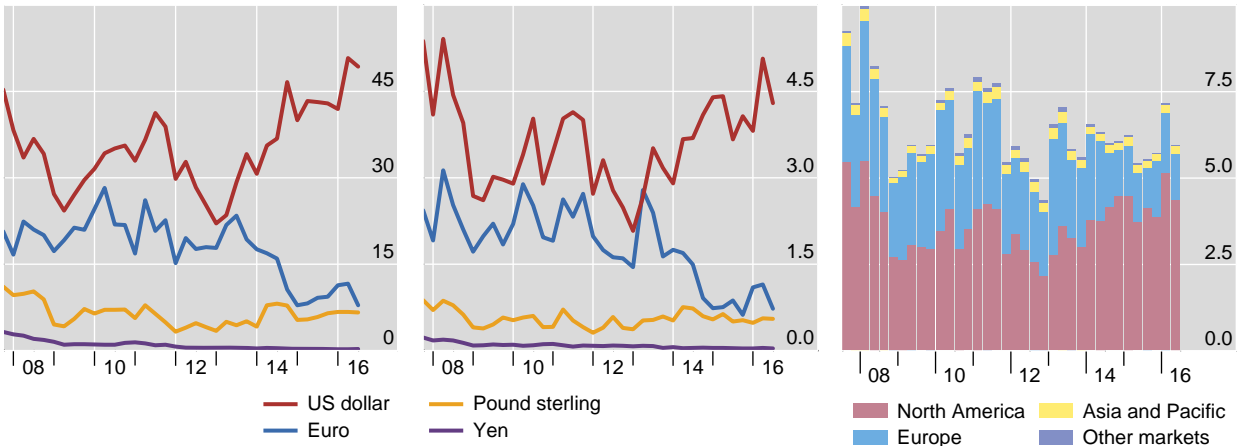
Daily average turnover, by currency²

Daily average turnover, by location of exchange²

Foreign exchange derivatives, USD bn³



Interest rate derivatives, USD trn³



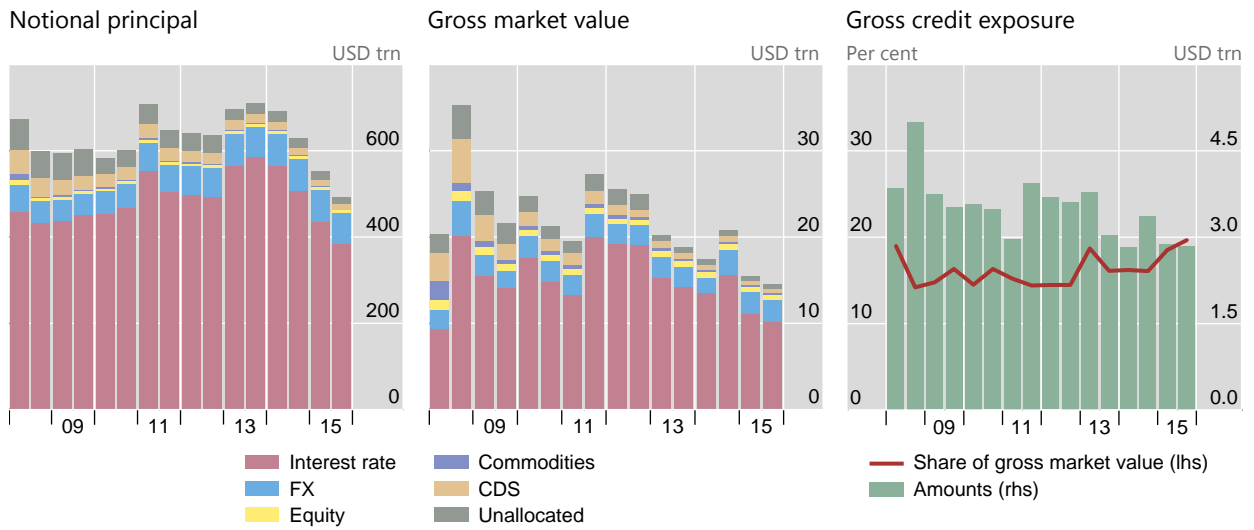
Further information on the BIS derivatives statistics is available at www.bis.org/statistics/extderiv.htm.

¹ At quarter-end. Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date. ² Quarterly averages of daily turnover. ³ Futures and options.

Sources: Euromoney TRADEDATA; Futures Industry Association; The Options Clearing Corporation; BIS derivatives statistics.

Global OTC derivatives markets¹

Graph D.2



Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

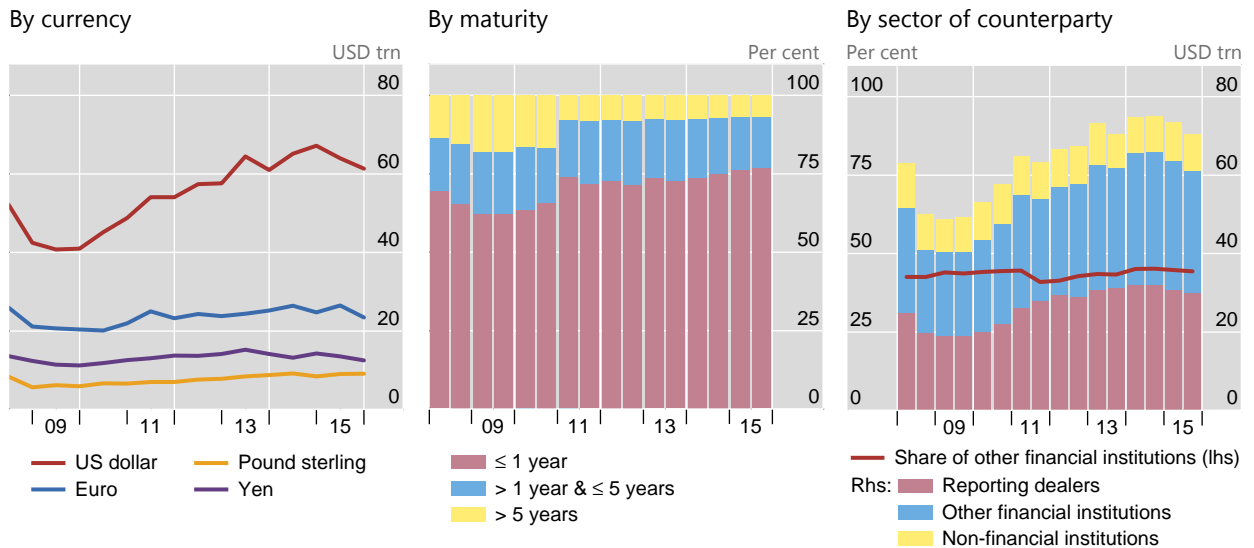
¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Source: BIS derivatives statistics.

OTC foreign exchange derivatives

Notional principal¹

Graph D.3



Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

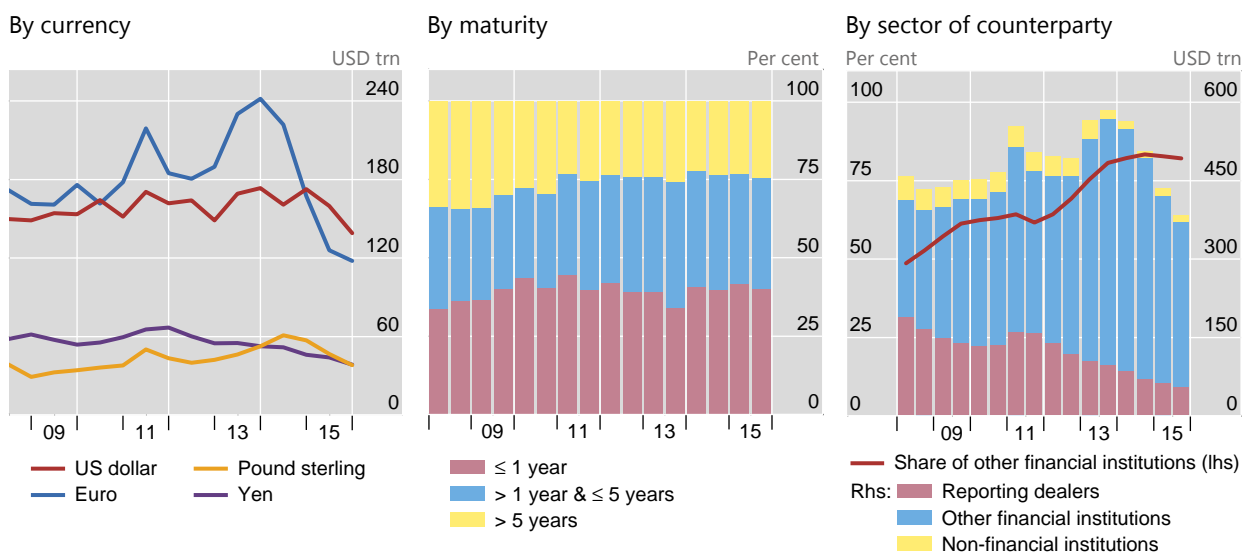
¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Source: BIS derivatives statistics.

OTC interest rate derivatives

Notional principal¹

Graph D.4



Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

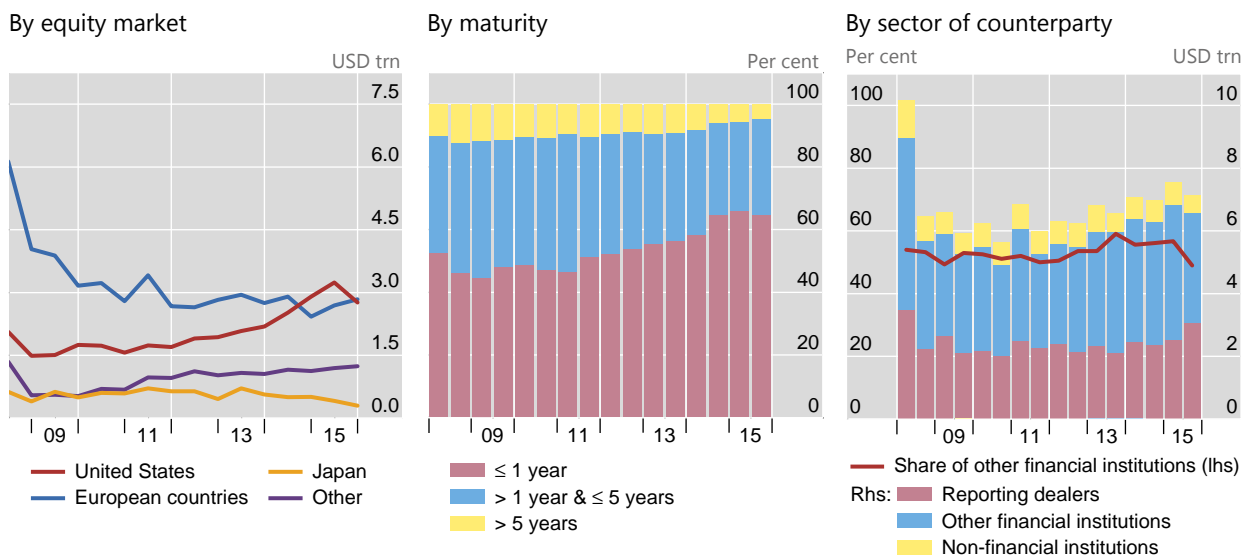
¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Source: BIS derivatives statistics.

OTC equity-linked derivatives

Notional principal¹

Graph D.5



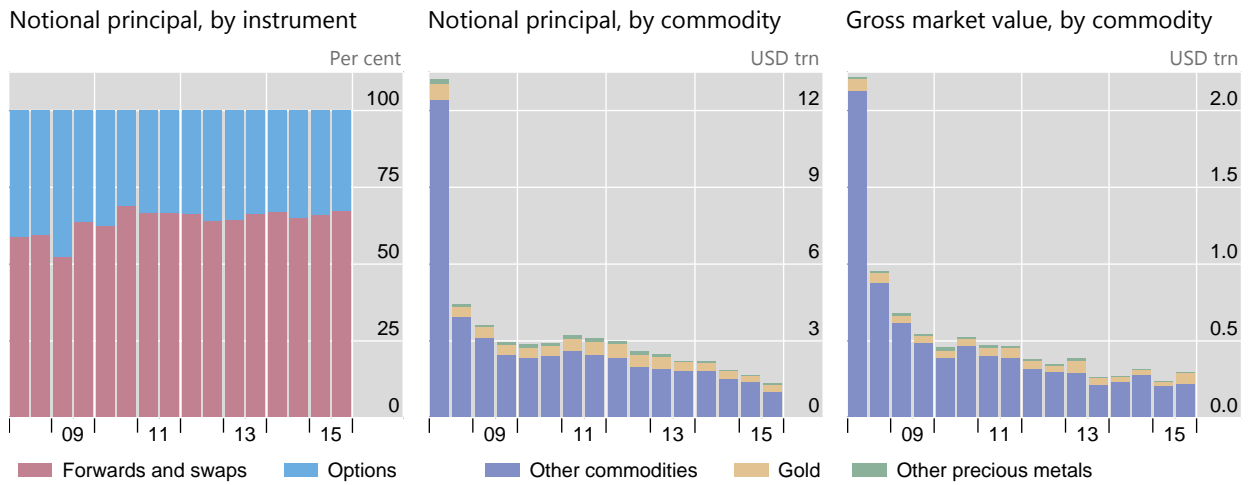
Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Source: BIS derivatives statistics.

OTC commodity derivatives¹

Graph D.6



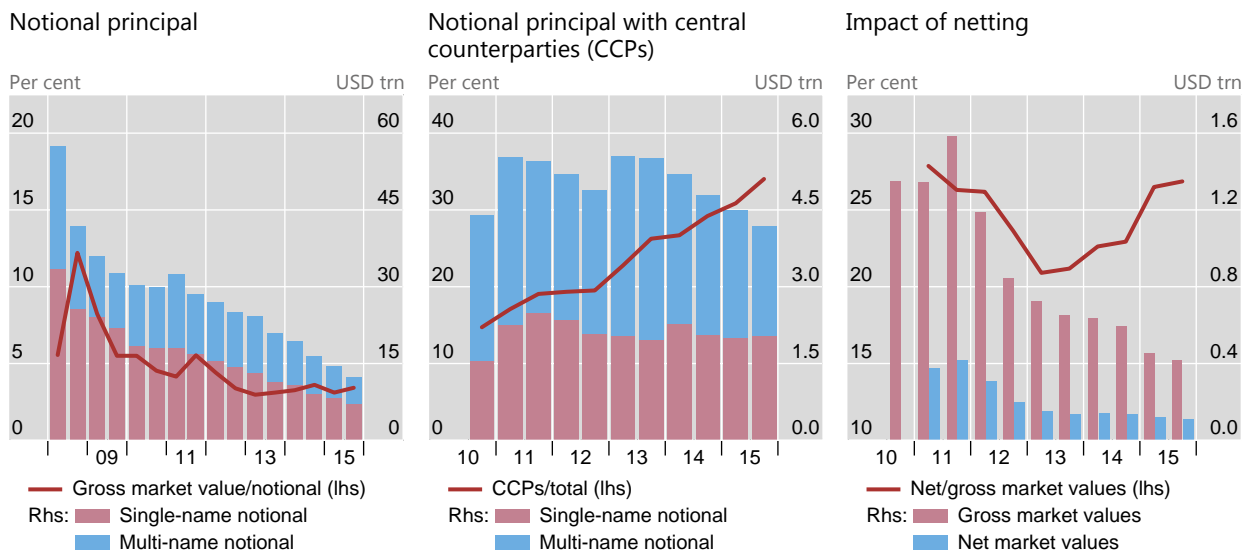
Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Source: BIS derivatives statistics.

Credit default swaps¹

Graph D.7



Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

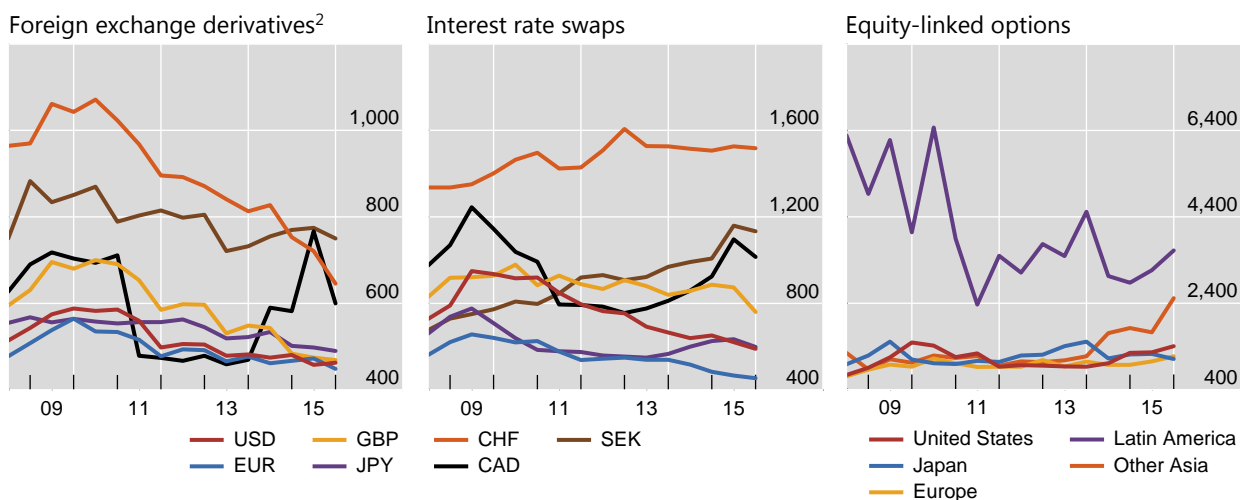
¹ At half-year end (end-June and end-December). Amounts denominated in currencies other than the US dollar are converted to US dollars at the exchange rate prevailing on the reference date.

Source: BIS derivatives statistics.

Concentration in global OTC derivatives markets

Herfindahl index¹

Graph D.8



CAD = Canadian dollar; CHF = Swiss franc; EUR = euro; GBP = pound sterling; JPY = yen; SEK = Swedish krona; USD = US dollar.

Further information on the BIS derivatives statistics is available at www.bis.org/statistics/derstats.htm.

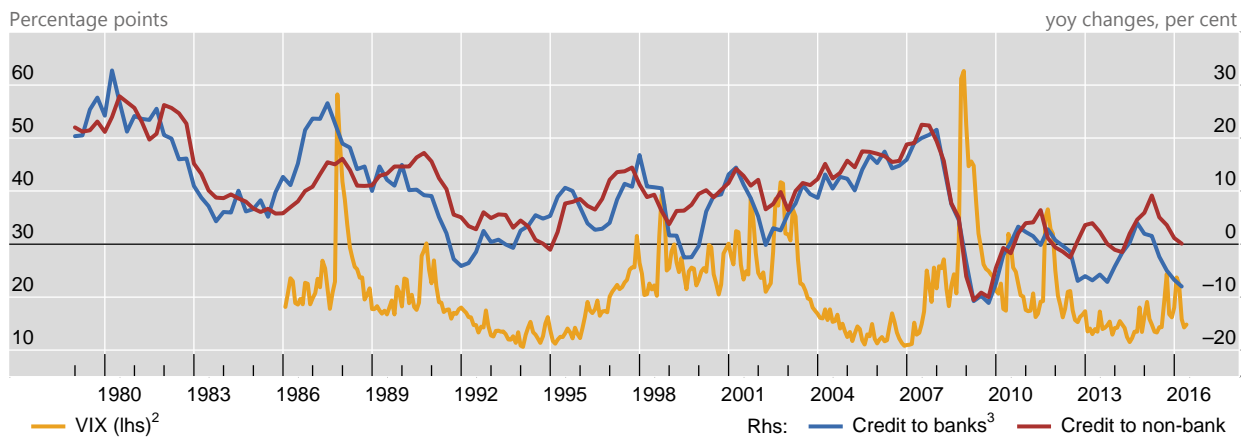
¹ The index ranges from 0 to 10,000, where a lower number indicates that there are many dealers with similar market shares (as measured by notional principal) and a higher number indicates that the market is dominated by a few reporting dealers. ² Foreign exchange forwards, foreign exchange swaps and currency swaps.

Source: BIS derivatives statistics.

E Global liquidity indicators

Growth of international bank credit¹

Graph E.1



In June 2016, the presentation of data in this graph was revised to show the year-on-year changes in credit, instead of the contribution to growth, and to exclude credit unallocated by sector, which was previously included in credit to banks.

Further information on the BIS global liquidity indicators is available at www.bis.org/statistics/gli.htm.

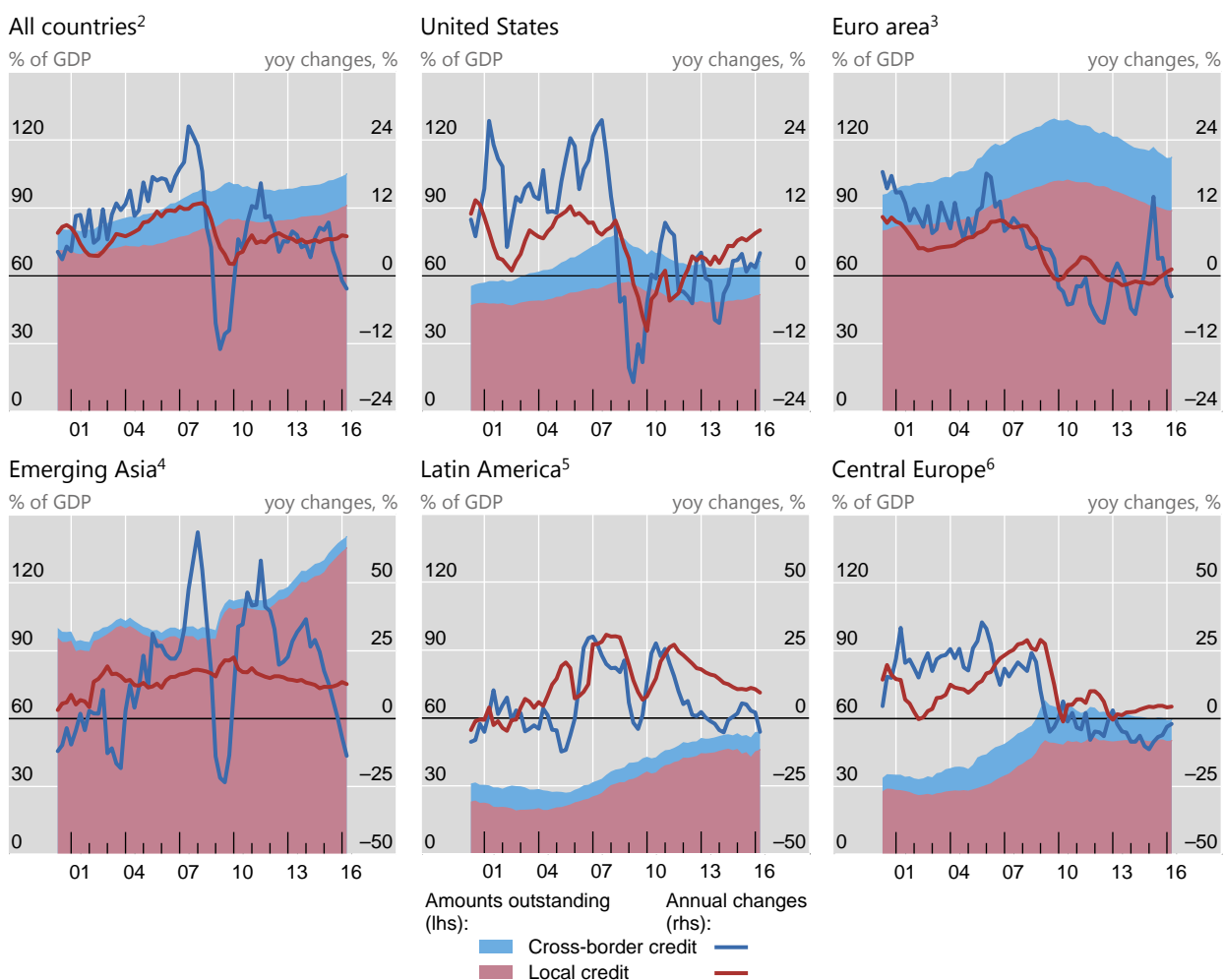
¹ LBS-reporting banks' cross-border claims plus local claims in foreign currencies. ² Chicago Board Options Exchange S&P 500 implied volatility index; standard deviation, in percentage points per annum. ³ Including intragroup transactions.

Sources: Bloomberg; BIS locational banking statistics (LBS).

Global bank credit to the private non-financial sector, by residence of borrower

Banks' cross-border credit plus local credit in all currencies¹

Graph E.2



Further information on the BIS global liquidity indicators is available at www.bis.org/statistics/gli.htm.

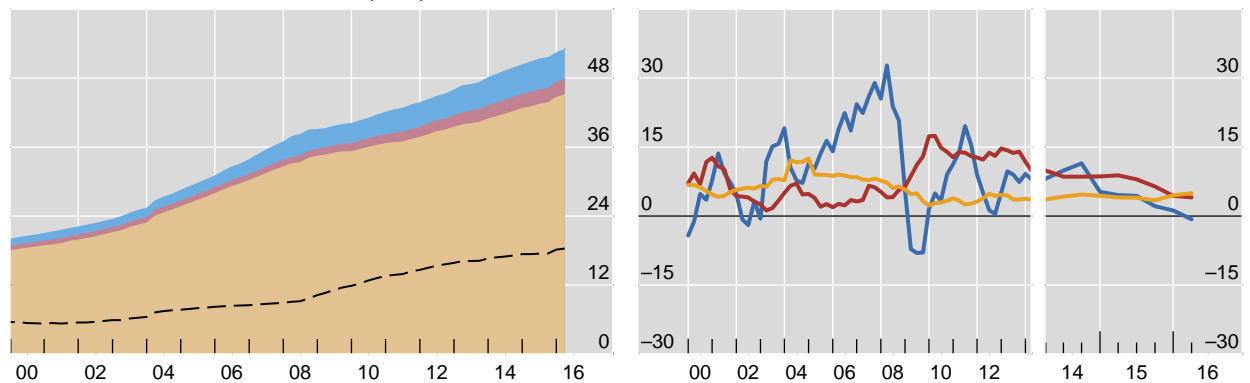
¹ Cross-border claims of LBS reporting banks to the non-bank sector plus local claims of all banks to the private non-financial sector. Weighted averages of the economies listed, based on four-quarter moving sums of GDP. ² Australia, Canada, Denmark, Japan, New Zealand, Norway, Russia, Saudi Arabia, South Africa, Sweden, Switzerland, Turkey and the United Kingdom, plus the countries in the other panels. ³ Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal and Spain. ⁴ China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Singapore and Thailand. ⁵ Argentina, Brazil, Chile and Mexico. ⁶ The Czech Republic, Hungary and Poland.

Sources: BIS credit to the non-financial sector and locational banking statistics (LBS); BIS calculations.

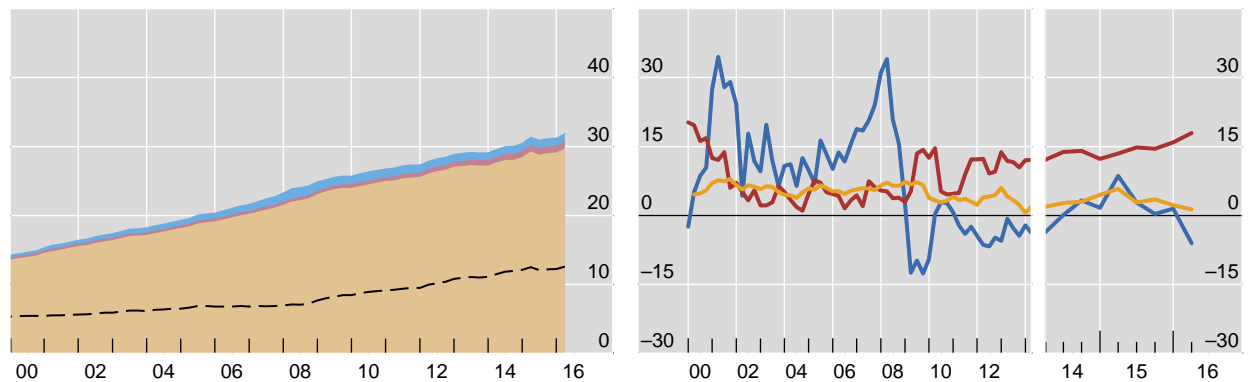
Amounts outstanding, in USD trn¹

Annual change, in per cent

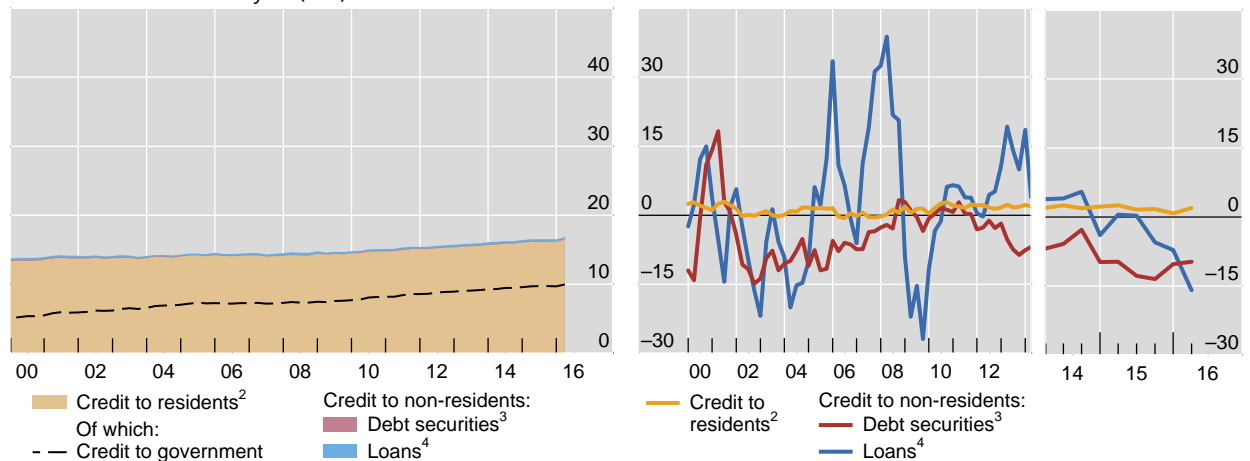
Credit denominated in US dollars (USD)



Credit denominated in euros (EUR)



Credit denominated in yen (JPY)



Further information on the BIS global liquidity indicators is available at www.bis.org/statistics/gli.htm.

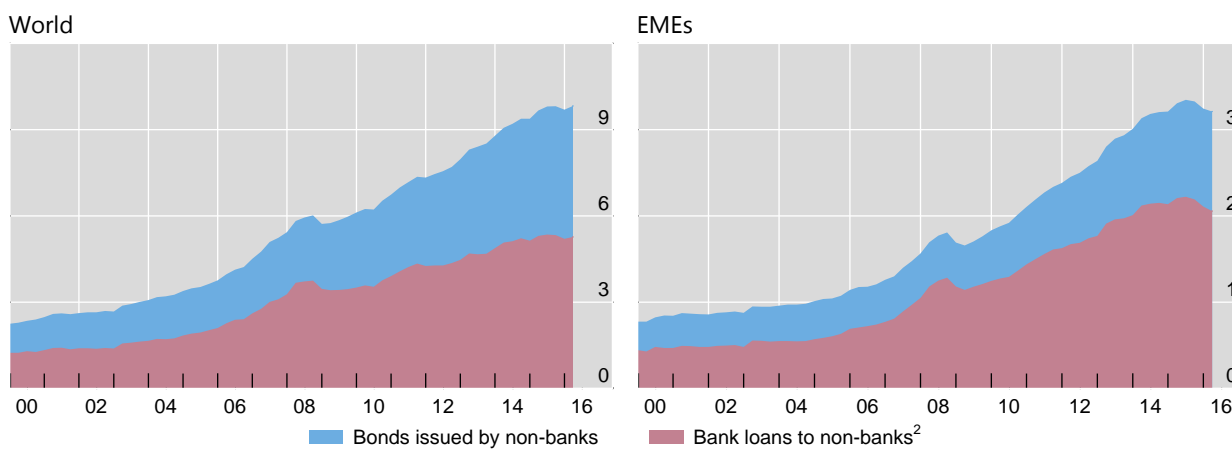
¹ Amounts outstanding at quarter-end. Amounts denominated in currencies other than USD are converted to USD at the exchange rate prevailing at end-December 2015. ² Credit to non-financial borrowers residing in the United States/euro area/Japan. National financial accounts are adjusted using BIS banking and securities statistics to exclude credit denominated in non-local currencies. ³ Excluding debt securities issued by special purpose vehicles and other financial entities controlled by non-financial parents. EUR-denominated debt securities exclude those issued by institutions of the European Union. ⁴ Loans by LBS-reporting banks to non-bank borrowers, including non-bank financial entities, comprise cross-border plus local loans. For countries that are not LBS-reporting countries, local loans in USD/EUR/JPY are estimated as follows: for China, local loans in foreign currencies are from national data and assumed to be composed of 80% USD, 10% EUR and 10% JPY; for other non-reporting countries, local loans to non-banks are set equal to LBS-reporting banks' cross-border loans to banks in the country (denominated in USD/EUR/JPY), on the assumption that these funds are onlent to non-banks.

Sources: IMF, *International Financial Statistics*; Datastream; BIS debt securities statistics and locational banking statistics (LBS).

US dollar-denominated credit to non-banks outside the United States¹

Amounts outstanding, in trillions of US dollars

Graph E.4



¹ Non-banks comprise non-bank financial entities, non-financial corporations, governments, households and international organisations. ² Loans by LBS-reporting banks to non-bank borrowers, including non-bank financial entities, comprise cross-border plus local loans. For countries that are not LBS-reporting countries, local loans in USD are estimated as follows: for China, local loans in foreign currencies are from national data and are assumed to be composed of 80% USD; for other non-reporting countries, local loans to non-banks are set equal to LBS-reporting banks' cross-border loans to banks in the country (denominated in USD), on the assumption that these funds are onlent to non-banks.

Sources: Datastream; BIS debt securities statistics and locational banking statistics (LBS).

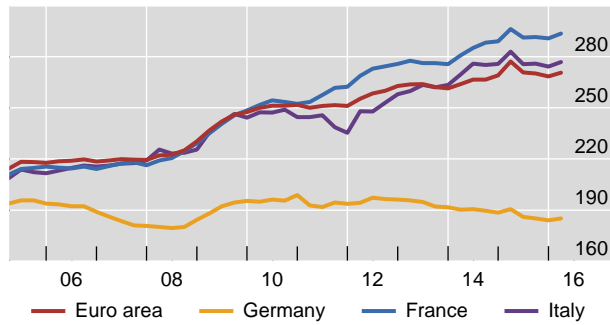
F Statistics on total credit to the non-financial sector

Total credit to the non-financial sector (core debt)

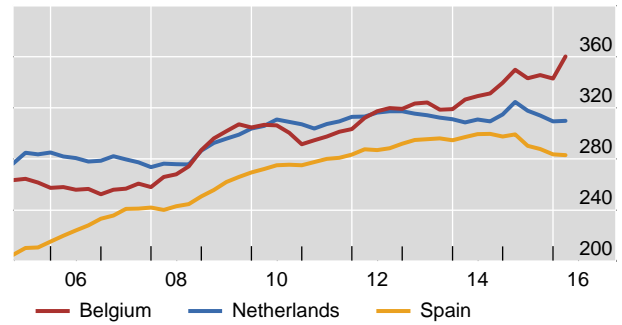
As a percentage of GDP

Graph F.1

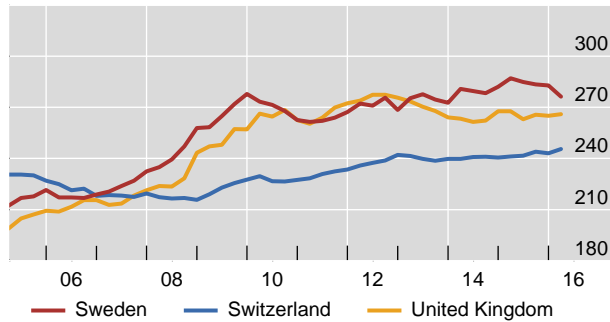
Euro area: aggregate and major countries



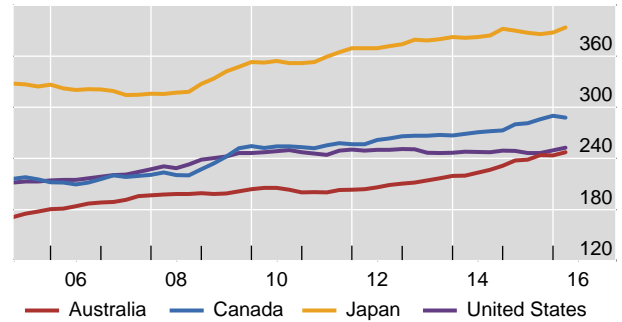
Euro area: other countries



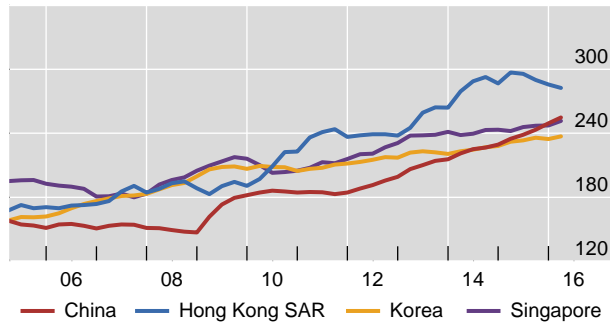
Other European countries



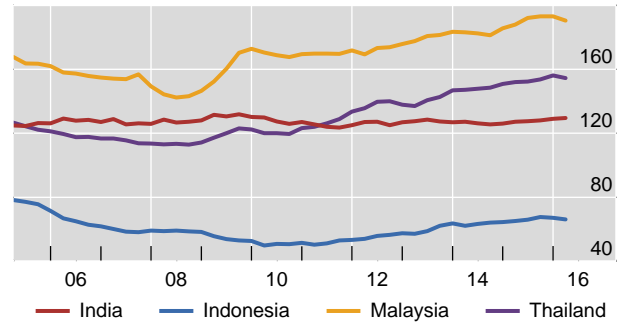
Major advanced economies



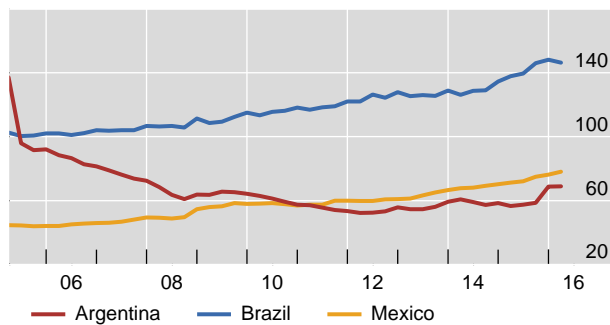
Emerging Asia



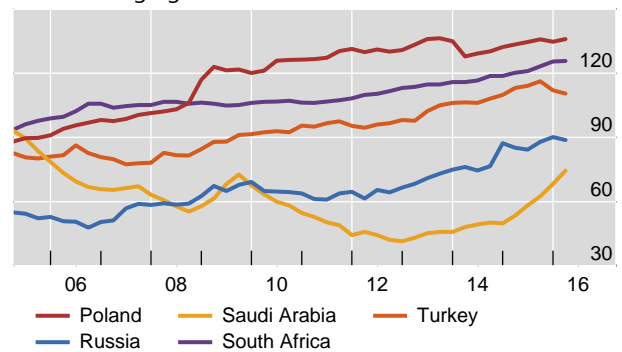
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

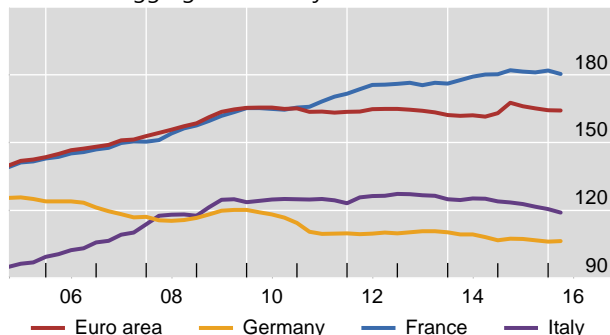
Source: BIS total credit statistics.

Total credit to the private non-financial sector (core debt)

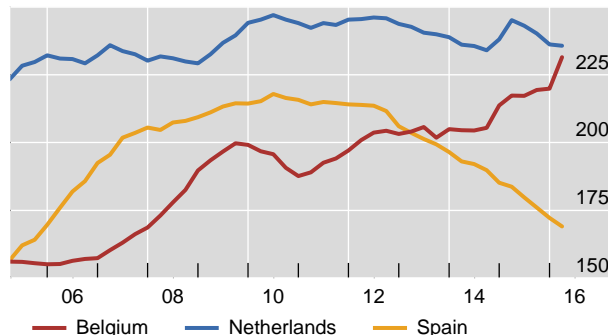
As a percentage of GDP

Graph F.2

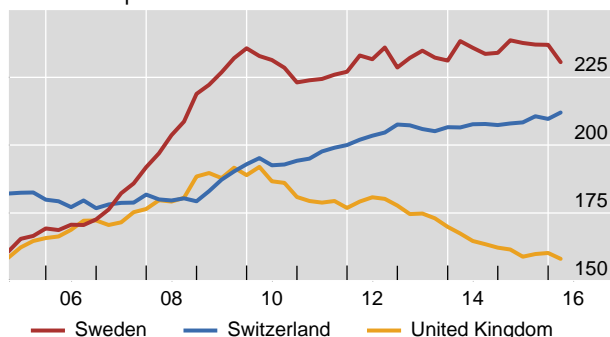
Euro area: aggregate and major countries



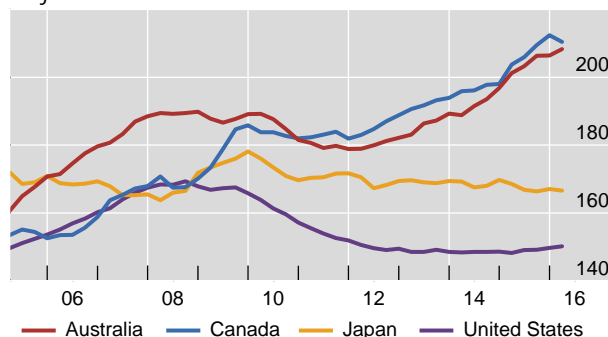
Euro area: other countries



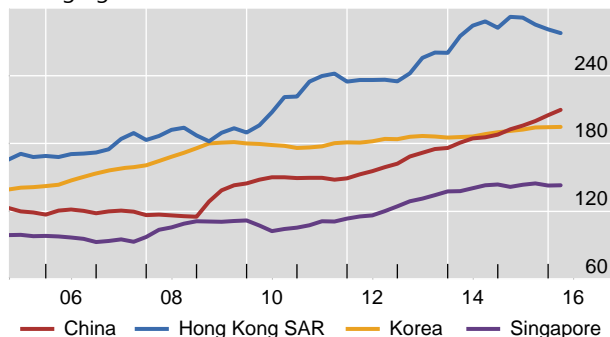
Other European countries



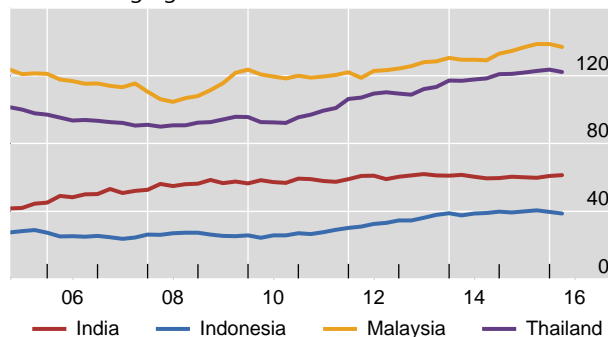
Major advanced economies



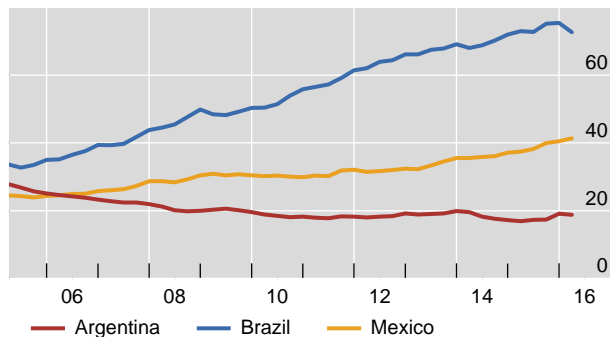
Emerging Asia



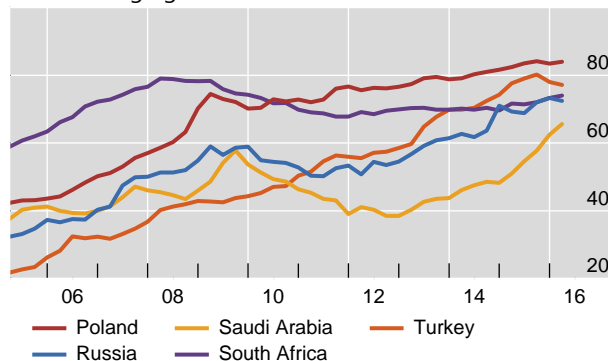
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

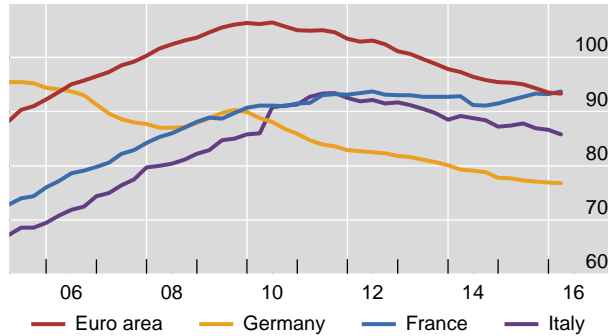
Source: BIS total credit statistics.

Bank credit to the private non-financial sector (core debt)

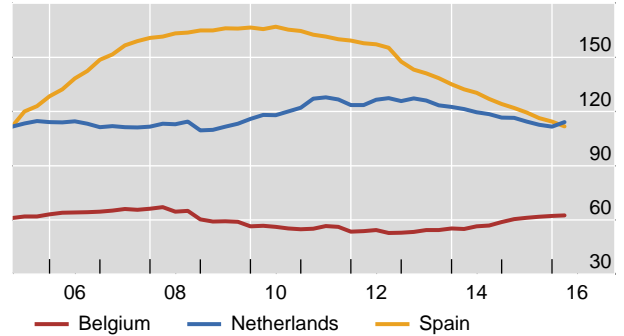
As a percentage of GDP

Graph F.3

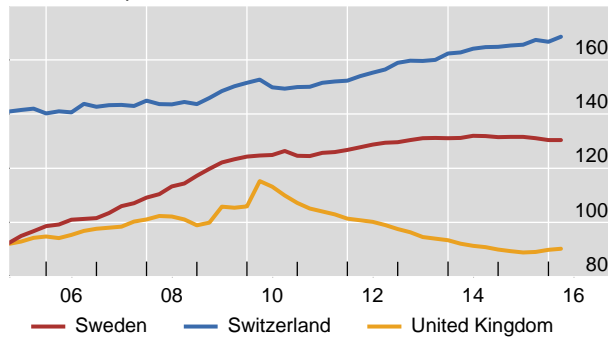
Euro area: aggregate and major countries



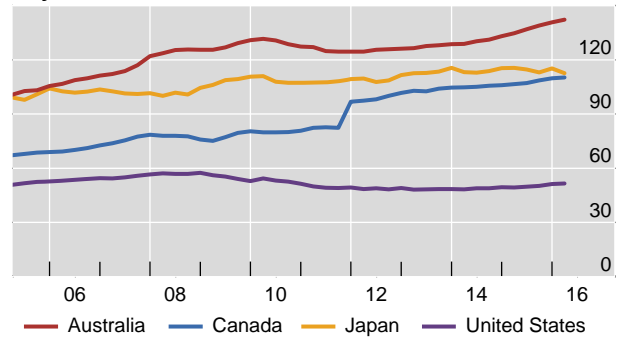
Euro area: other countries



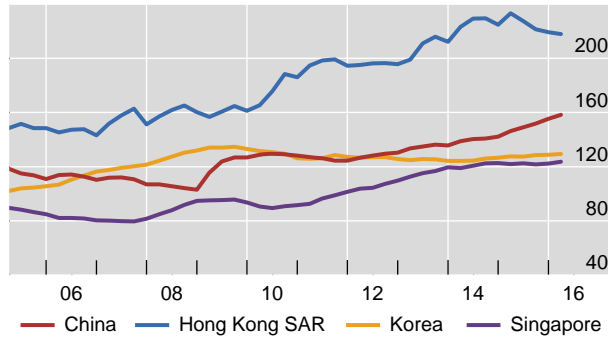
Other European countries



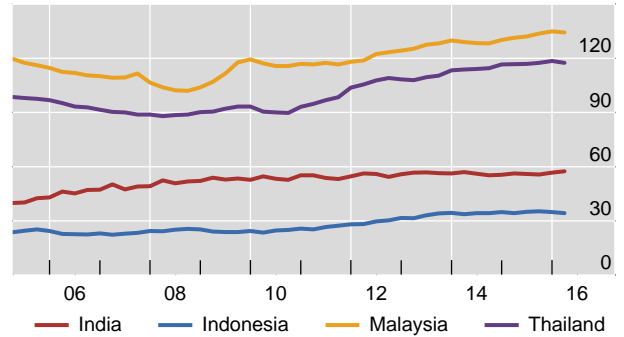
Major advanced economies



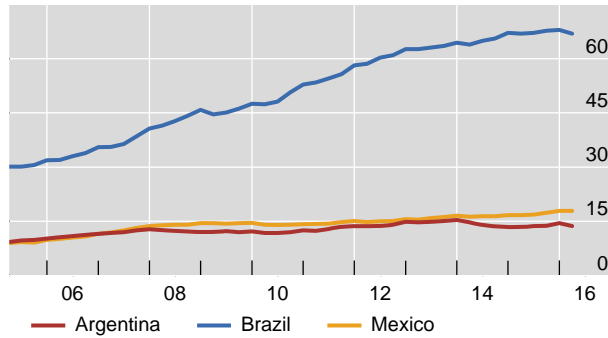
Emerging Asia



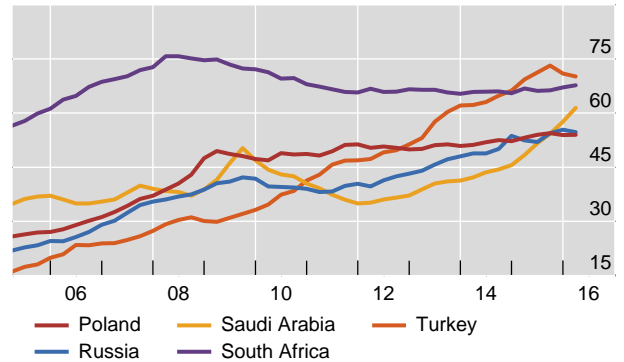
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

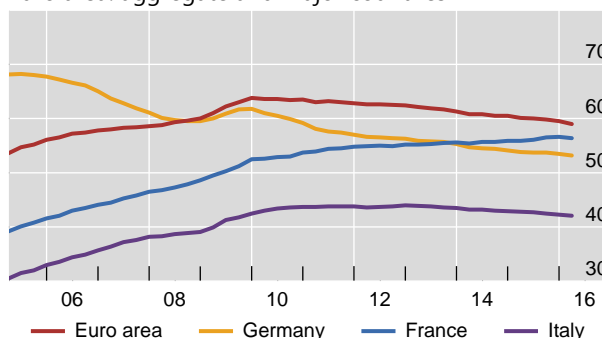
Source: BIS total credit statistics.

Total credit to households (core debt)

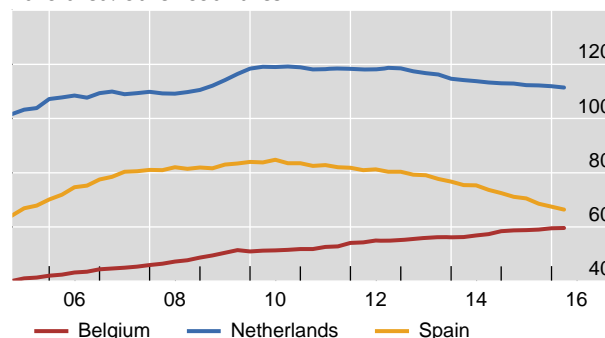
As a percentage of GDP

Graph F.4

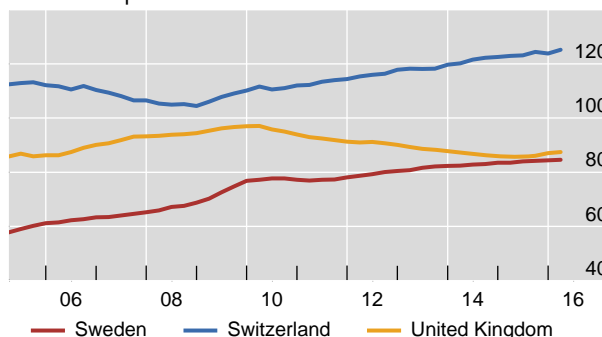
Euro area: aggregate and major countries



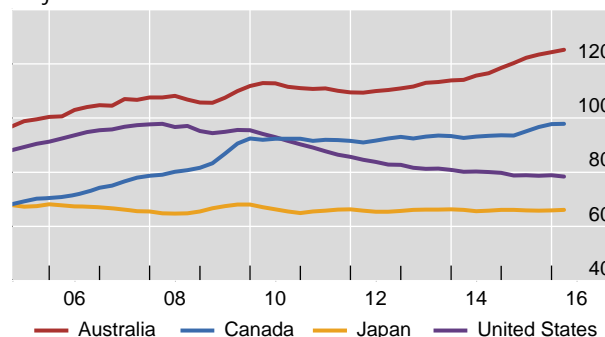
Euro area: other countries



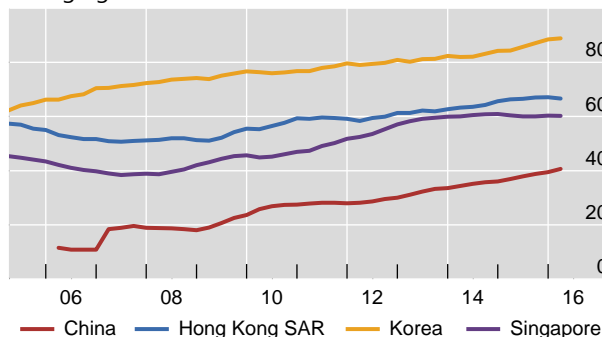
Other European countries



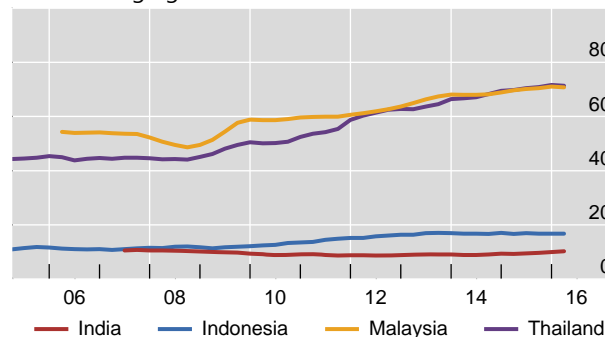
Major advanced economies



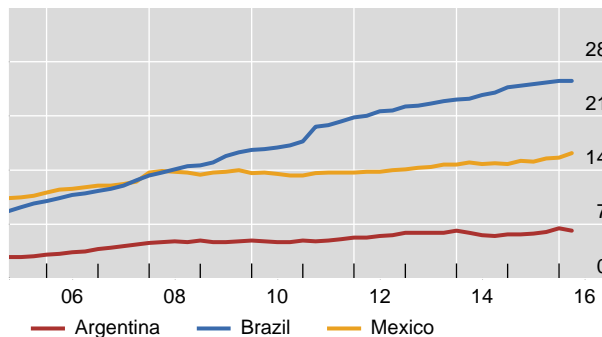
Emerging Asia



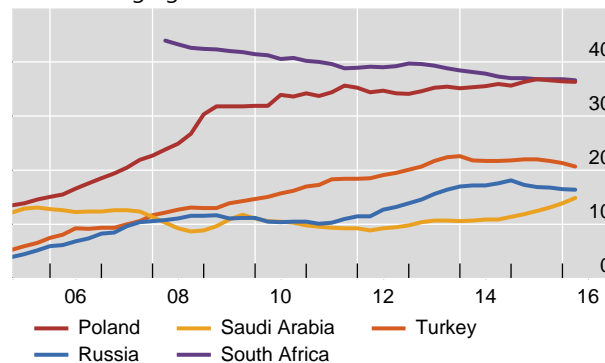
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

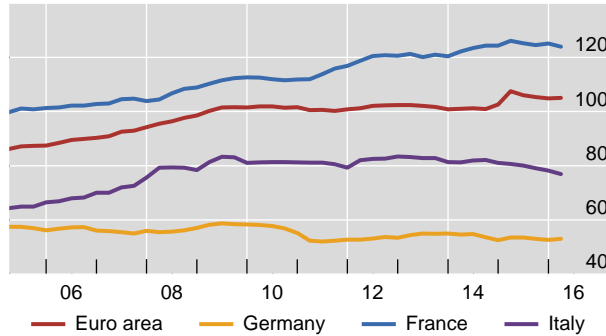
Source: BIS total credit statistics.

Total credit to non-financial corporations (core debt)

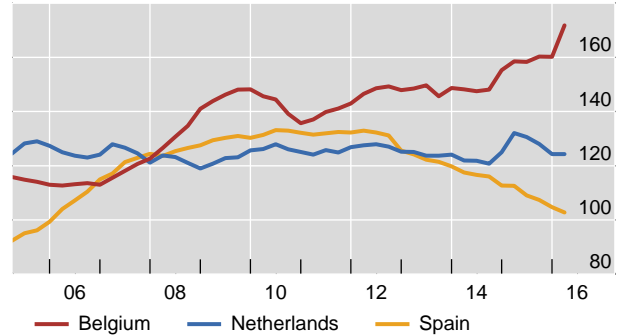
As a percentage of GDP

Graph F.5

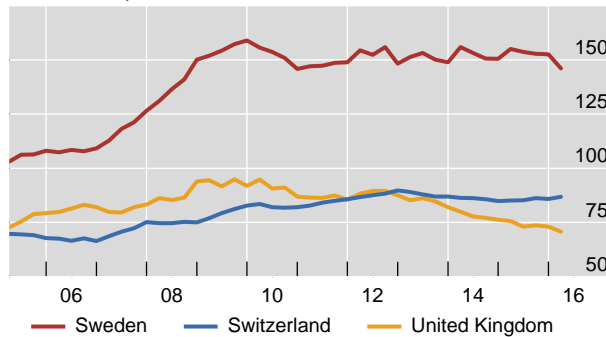
Euro area: aggregate and major countries



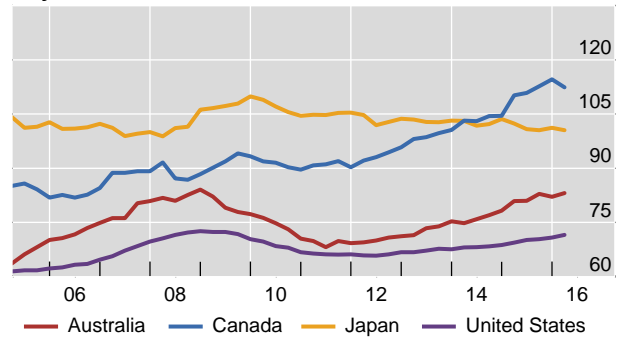
Euro area: other countries



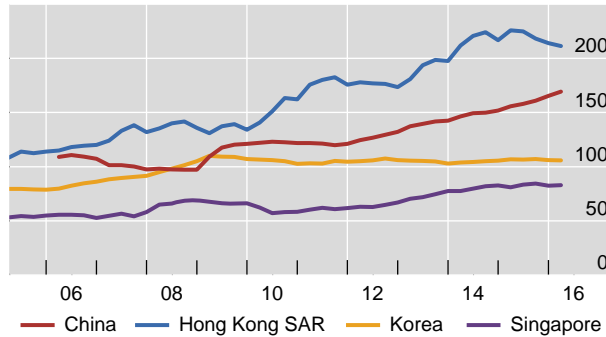
Other European countries



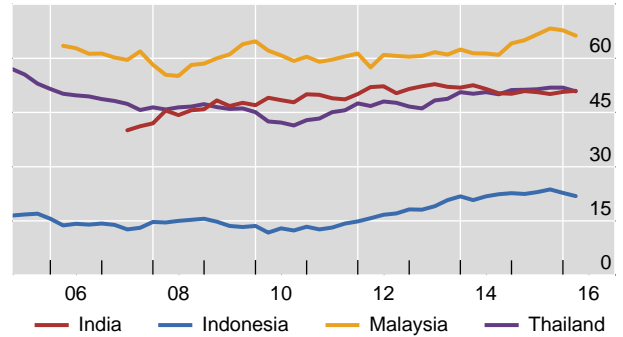
Major advanced economies



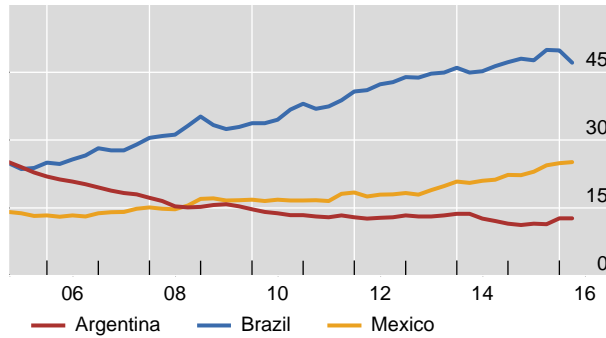
Emerging Asia



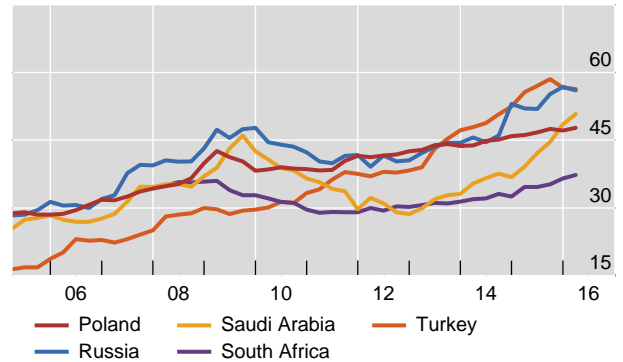
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

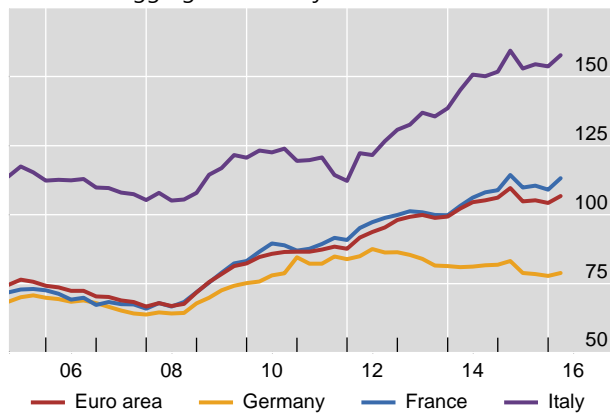
Source: BIS total credit statistics.

Total credit to the government sector at market value (core debt)¹

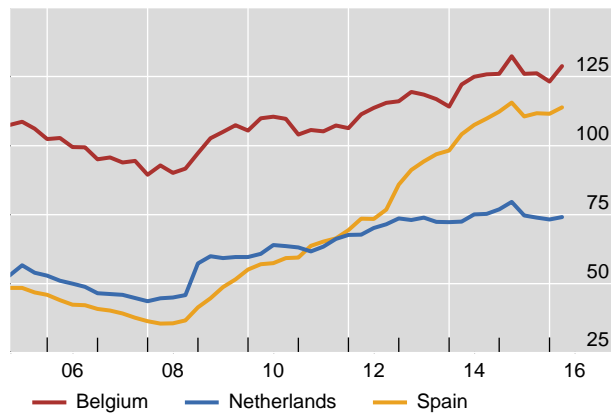
As a percentage of GDP

Graph F.6

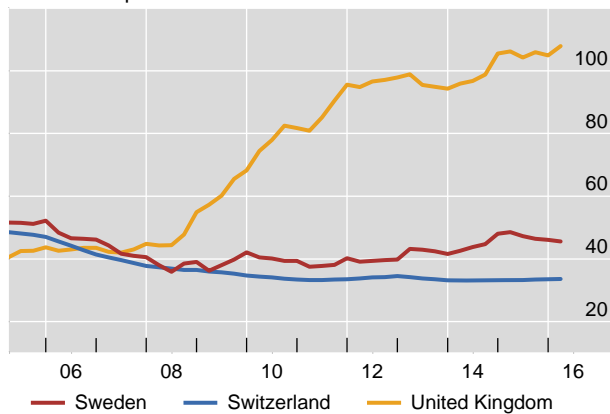
Euro area: aggregate and major countries



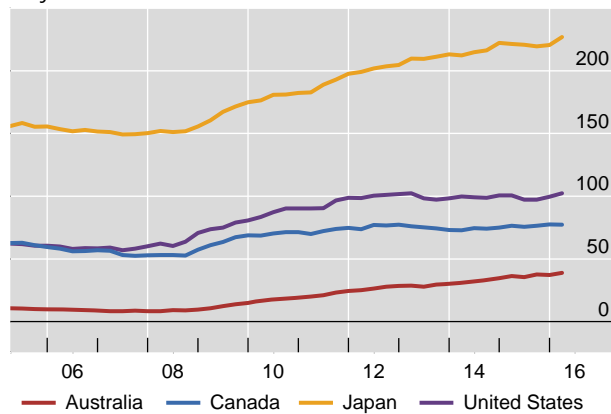
Euro area: other countries



Other European countries



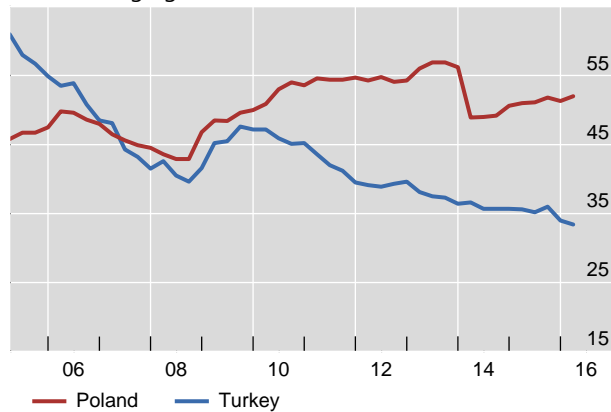
Major advanced economies



Emerging Asia



Other emerging market economies



Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

¹ Consolidated data for the general government sector.

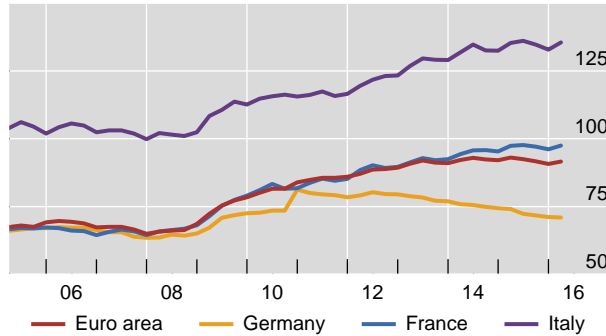
Source: BIS total credit statistics.

Total credit to the government sector at nominal value (core debt)¹

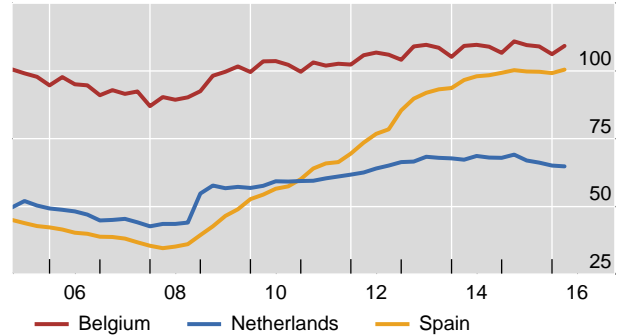
As a percentage of GDP

Graph F.7

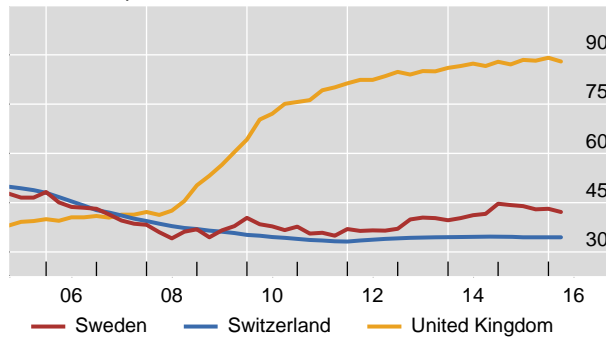
Euro area: aggregate and major countries



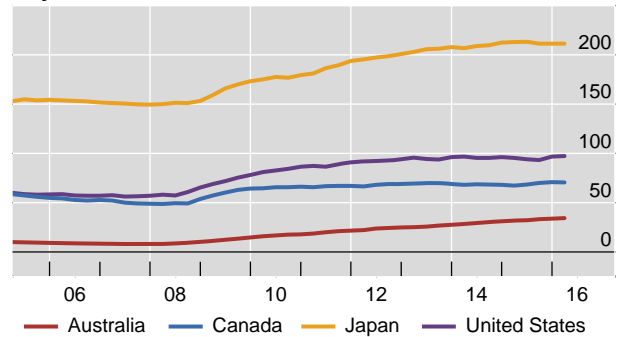
Euro area: other countries



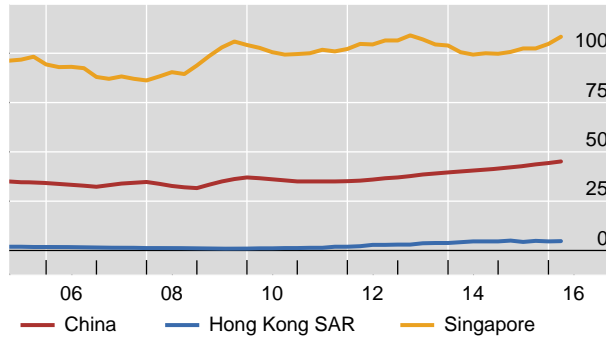
Other European countries



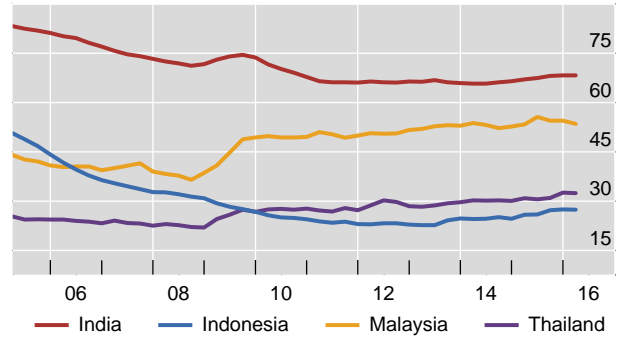
Major advanced economies



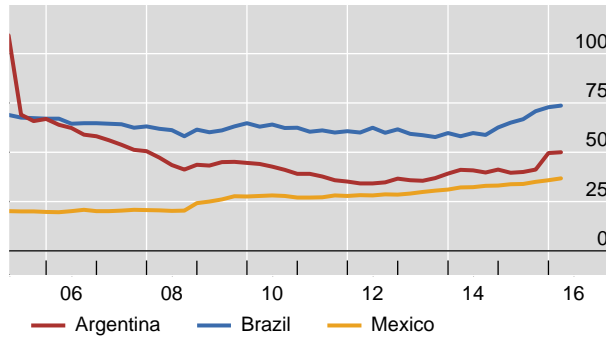
Emerging Asia



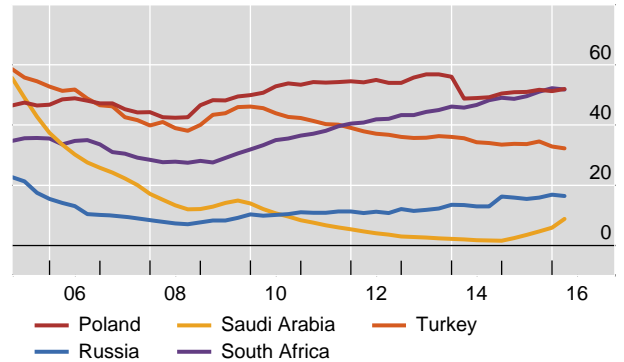
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS credit statistics is available at www.bis.org/statistics/totcredit.htm.

¹ Consolidated data for the general government sector; central government for Argentina, Indonesia, Malaysia, Mexico, Saudi Arabia and Thailand.

Source: BIS total credit statistics.

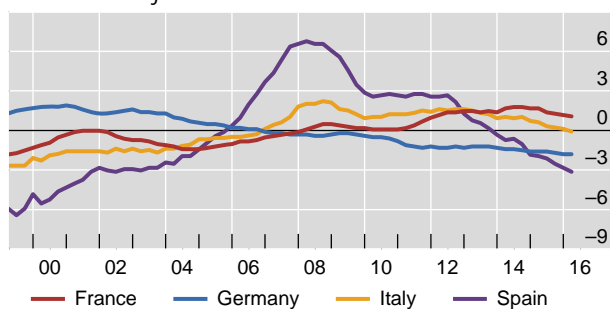
G Debt service ratios for the private non-financial sector

Debt service ratios of the private non-financial sector

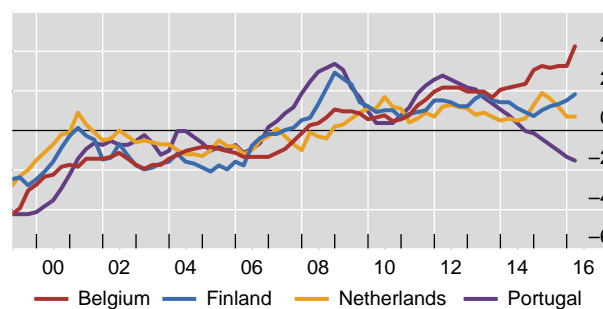
Deviation from country-specific mean, in percentage points¹

Graph G.1

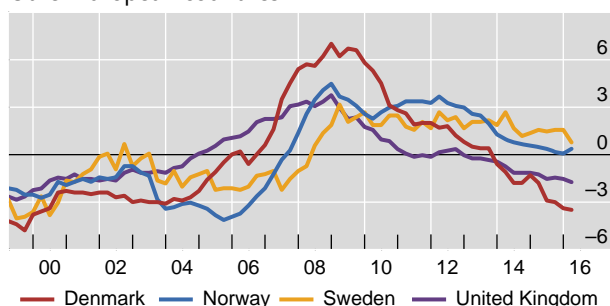
Euro area: major countries



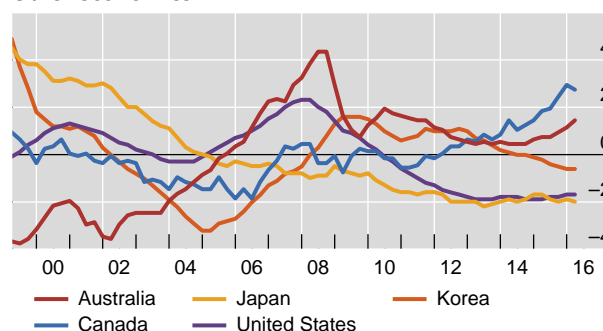
Euro area: other countries



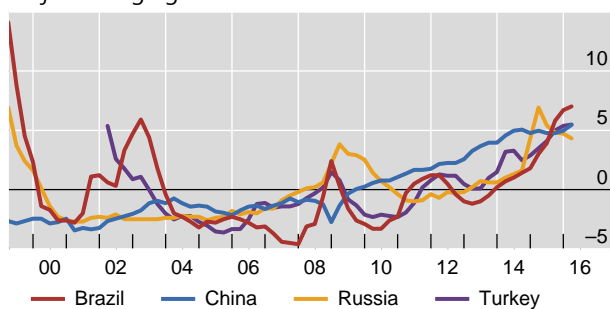
Other European countries



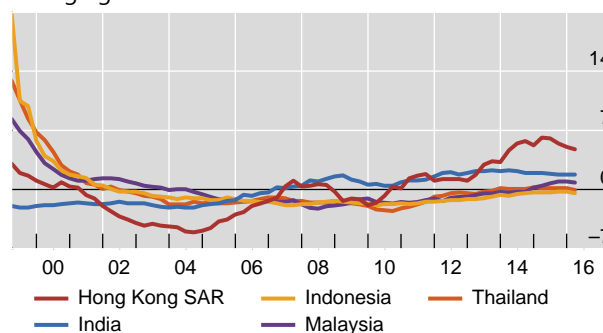
Other economies



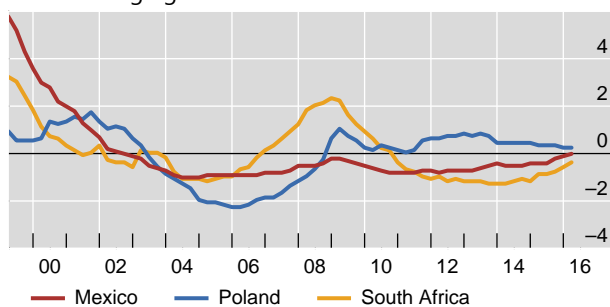
Major emerging markets²



Emerging Asia²



Other emerging markets²



Further information on the BIS debt service ratio statistics is available at www.bis.org/statistics/dsr.htm.

¹ Country-specific means are based on all available data from 1999 onwards. ² Countries which are using alternative measures of income and interest rates. Further information is available under "Methodology and data for DSR calculation" at www.bis.org/statistics/dsr.htm.

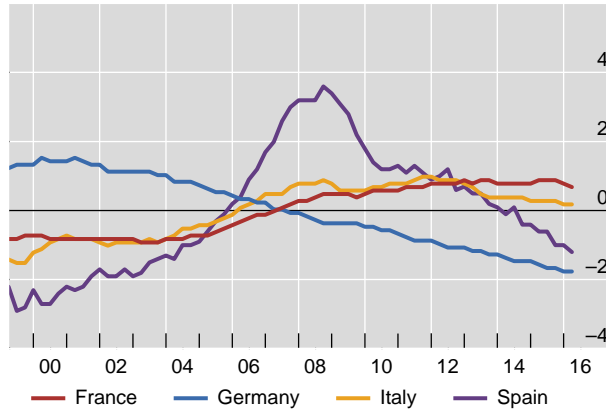
Source: BIS debt service ratios statistics.

Debt service ratios of households

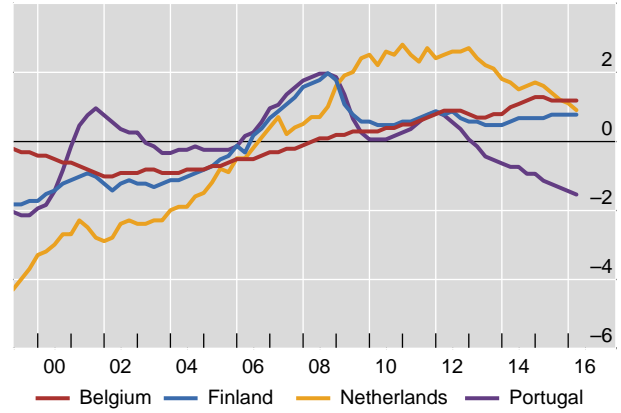
Deviation from country-specific mean, in percentage points¹

Graph G.2

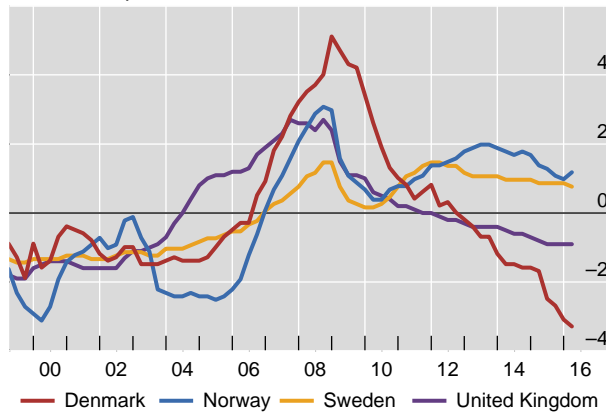
Euro area: major countries



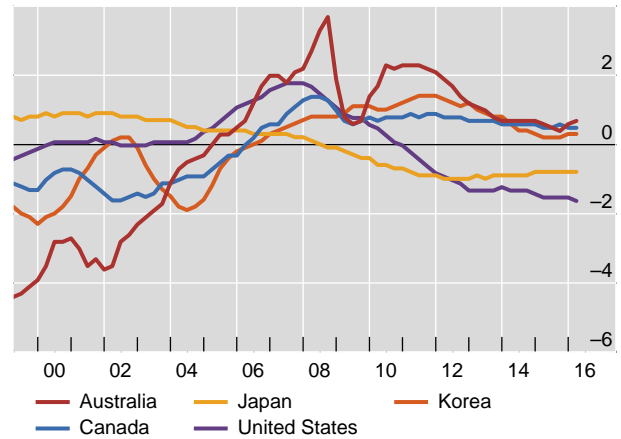
Euro area: other countries



Other European countries



Other economies



Further information on the BIS debt service ratio statistics is available at www.bis.org/statistics/dsr.htm.

¹ Country-specific means are based on all available data from 1999 onwards.

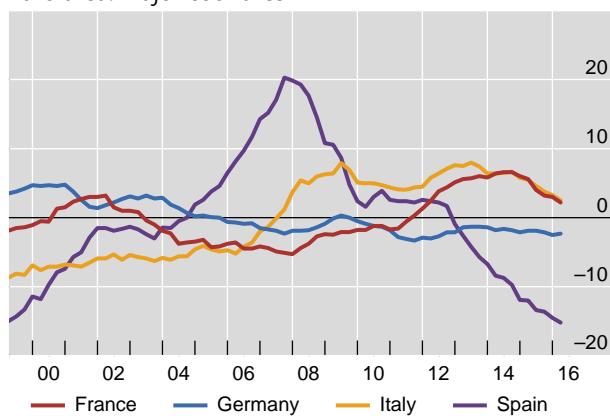
Source: BIS debt service ratios statistics.

Debt service ratios of non-financial corporations

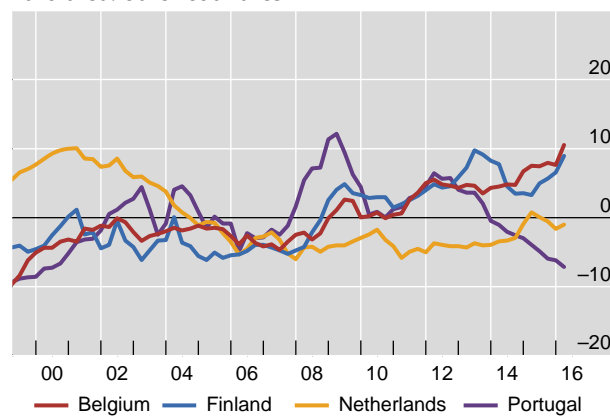
Deviation from country-specific mean, in percentage points¹

Graph G.3

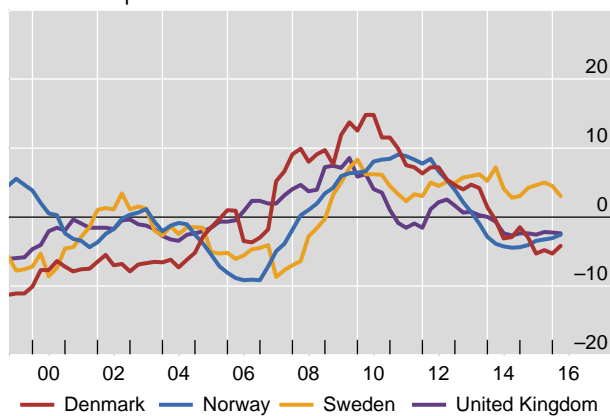
Euro area: major countries



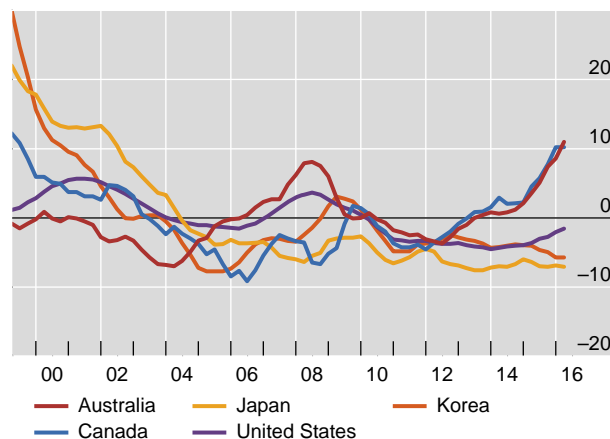
Euro area: other countries



Other European countries



Other economies



Further information on the BIS debt service ratio statistics is available at www.bis.org/statistics/dsr.htm.

¹ Country-specific means are based on all available data from 1999 onwards.

Source: BIS debt service ratios statistics.

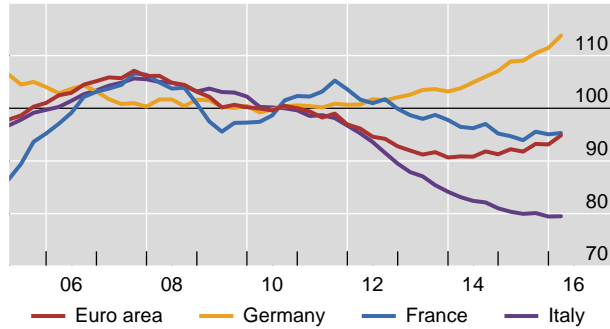
H Property price statistics

Real residential property prices

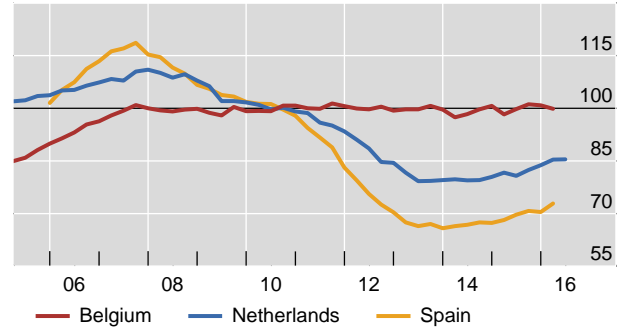
CPI-deflated, 2010 = 100

Graph H.1

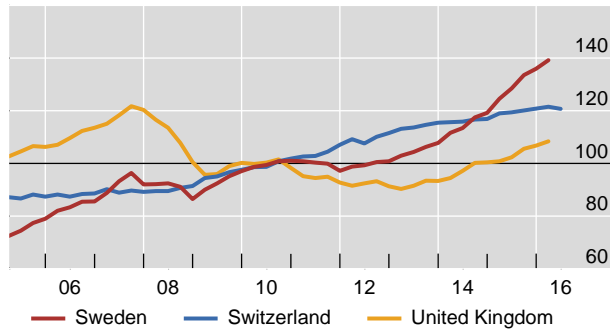
Euro area: aggregate and major countries



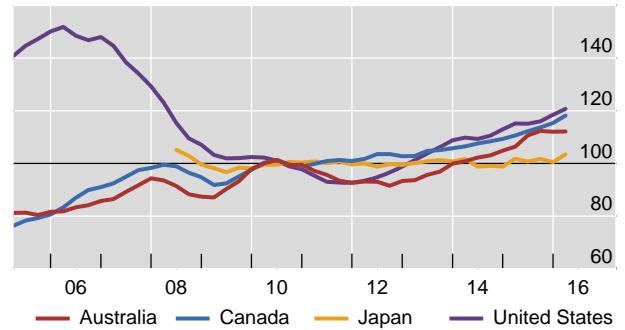
Euro area: other countries



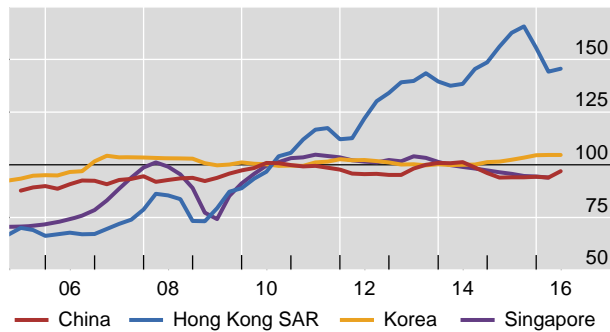
Other European countries



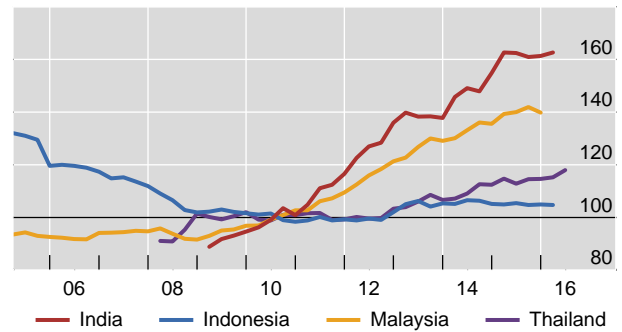
Major advanced economies



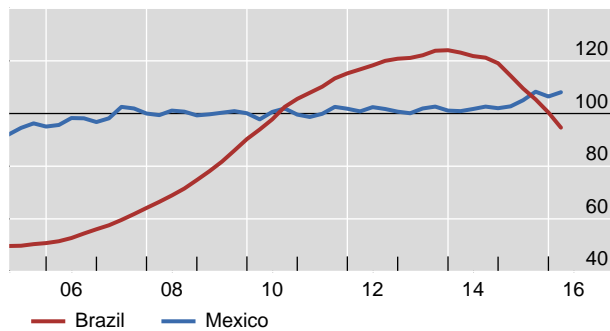
Emerging Asia



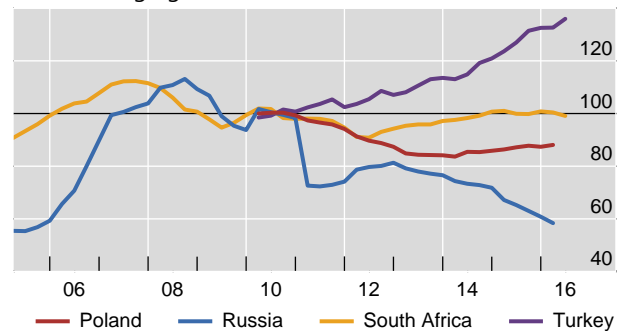
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS property price statistics is available at www.bis.org/statistics/pp.htm.

Source: BIS property prices statistics.

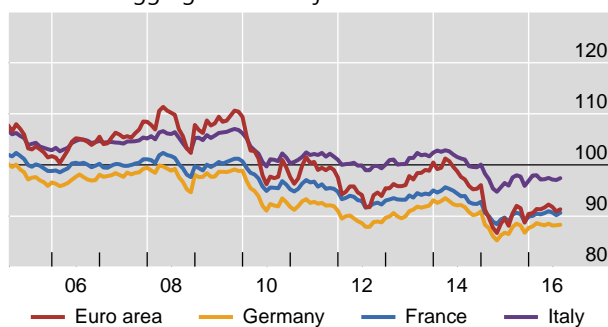
I Effective exchange rate statistics

Real effective exchange rates

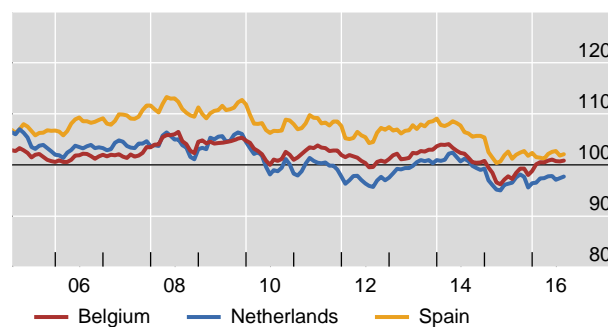
CPI-based, 1995–2005 = 100¹

Graph I.1

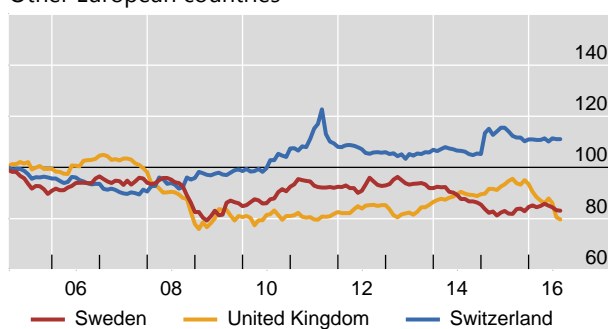
Euro area: aggregate and major countries



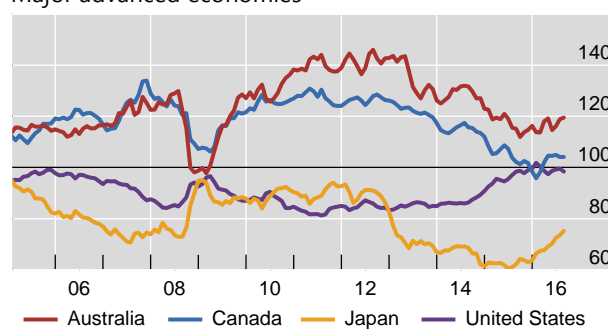
Euro area: other countries



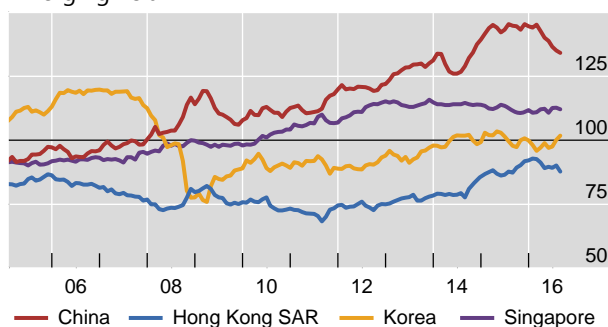
Other European countries



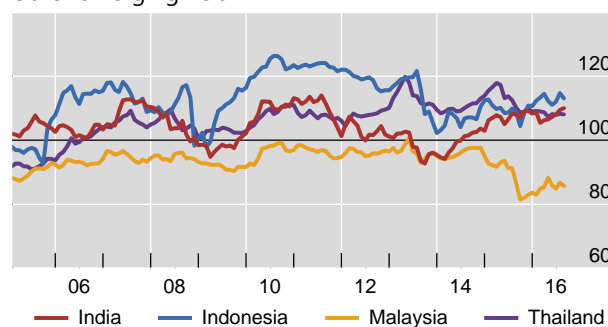
Major advanced economies



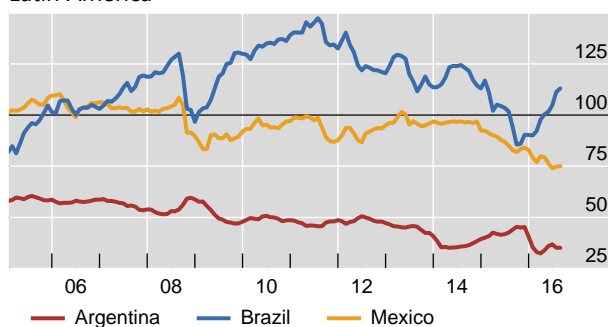
Emerging Asia



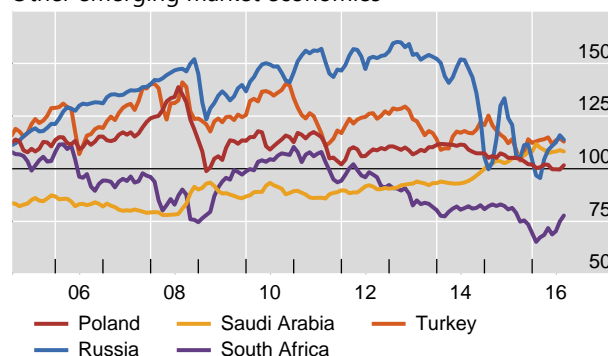
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS effective exchange rate statistics is available at www.bis.org/statistics/eer.htm.

¹ An increase indicates a real-term appreciation of the local currency against a broad basket of currencies.

Source: BIS effective exchange rates statistics.

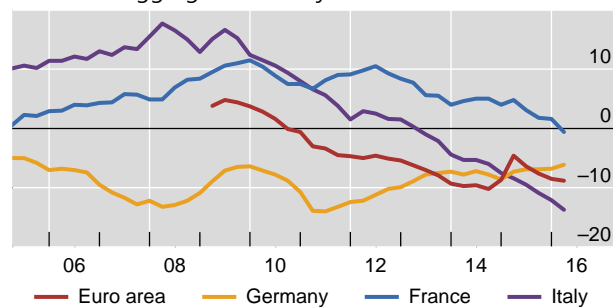
J Credit-to-GDP gaps

Credit-to-GDP gaps

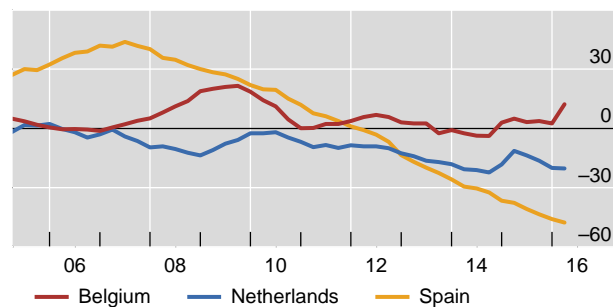
In percentage points of GDP

Graph J.1

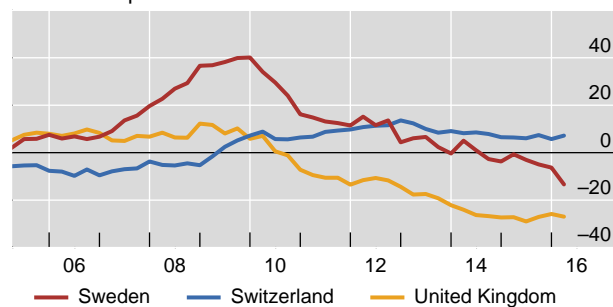
Euro area: aggregate and major countries



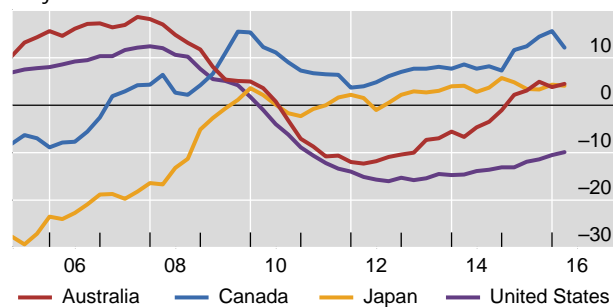
Euro area: other countries



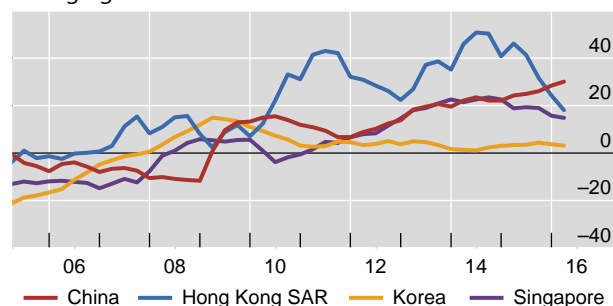
Other European countries



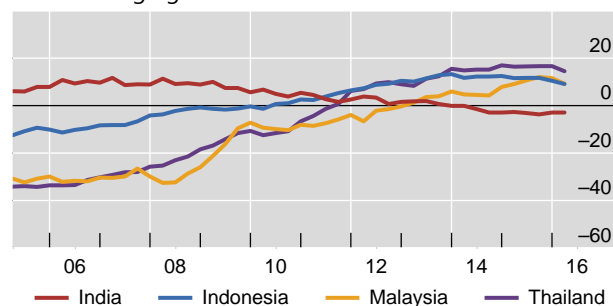
Major advanced economies



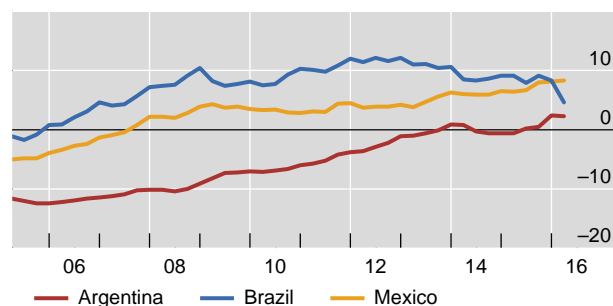
Emerging Asia



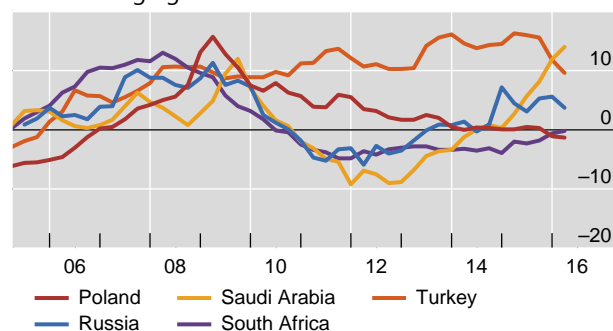
Other emerging Asia



Latin America



Other emerging market economies



¹ Estimates based on series on total credit to the private non-financial sector. The credit-to-GDP gap is defined as the difference between the credit-to-GDP ratio and its long-term trend; the long-term trend is calculated using a one-sided Hodrick-Prescott filter with a smoothing parameter of 400,000. Further information on the BIS credit-to-GDP gaps is available at www.bis.org/statistics/c_gaps.htm.

Source: BIS credit-to-GDP gaps statistics.

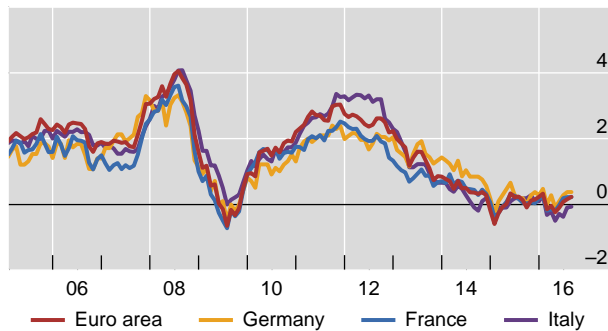
K Consumer prices

Consumer prices

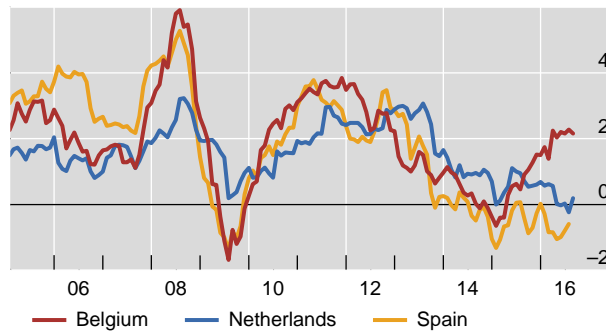
Year-on-year percentage changes

Graph K.1

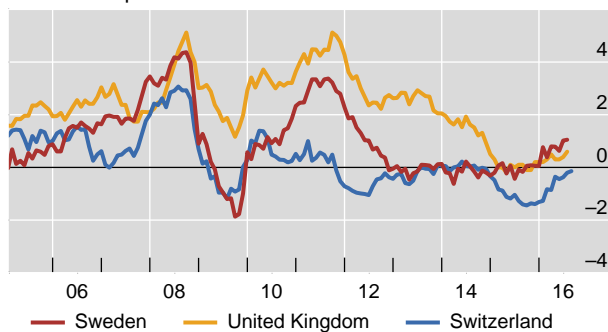
Euro area: aggregate and major countries



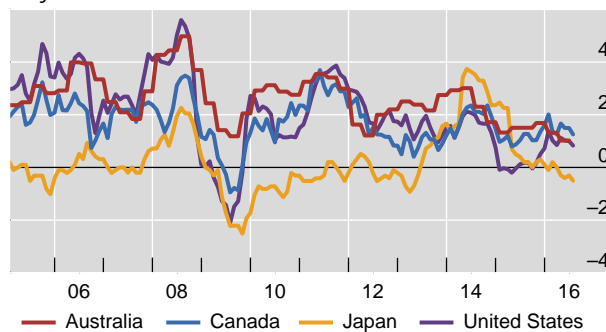
Euro area: other countries



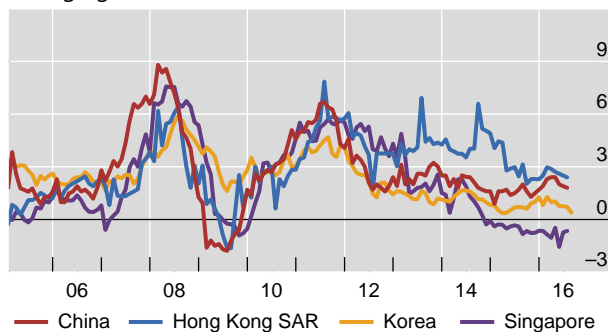
Other European countries



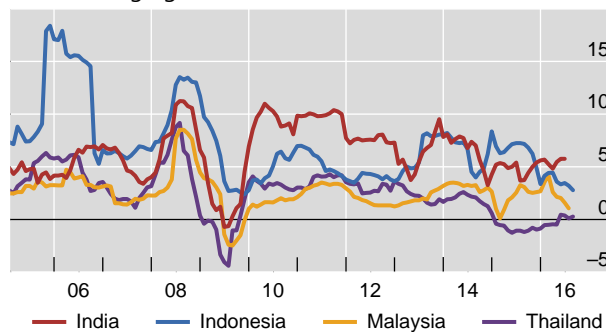
Major advanced economies



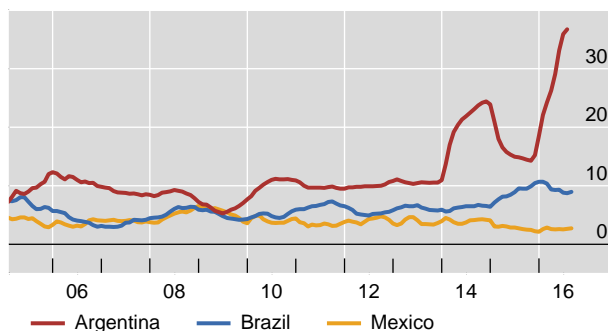
Emerging Asia



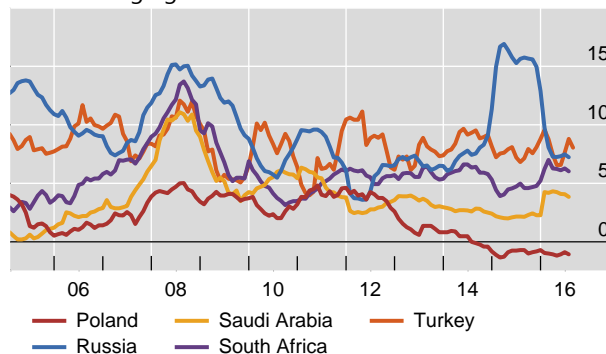
Other emerging Asia



Latin America



Other emerging market economies



Further information on the BIS consumer prices is available at www.bis.org/statistics/cp.htm.

Source: BIS consumer price statistics.

Special features in the BIS Quarterly Review

March 2016	How have central banks implemented negative policy rates?	Morten Bech & Aytel Malkhozov
March 2016	Wealth inequality and monetary policy	Dietrich Domanski, Michela Scatigna & Anna Zabai
March 2016	The resilience of banks' international operations	Patrick McGuire & Goetz Von Peter
March 2016	Hanging up the phone – electronic trading in fixed income markets and its implications	Morten Bech, Anamaria Illes, Ulf Lewrick & Andreas Schrimpf
December 2015	Dollar credit to emerging market economies	Robert Neil McCauley, Patrick McGuire & Vladyslav Sushko
December 2015	Calibrating the leverage ratio	Ingo Fender & Ulf Lewrick
December 2015	Central clearing: trends and current issues	Dietrich Domanski, Leonardo Gambacorta & Cristina Picillo
December 2015	Sovereign ratings of advanced and emerging economies after the crisis	Marlene Amstad & Frank Packer
September 2015	Introduction to BIS statistics	
September 2015	Enhanced data to analyse international banking	Stefan Avdjiev, Patrick McGuire & Philip Wooldridge
September 2015	A new database on general government debt	Christian Dembiermont, Michela Scatigna, Robert Szemere & Bruno Tissot
September 2015	How much income is used for debt payments? A new database for debt service ratios	Mathias Drehmann, Anamaria Illes, Mikael Juselius & Marjorie Santos
September 2015	International monetary spillovers	Boris Hofmann & Előd Takáts
September 2015	The rise of regional banking in Asia and the Pacific	Eli M Remolona & Ilhyock Shim

Recent BIS publications¹

BIS Papers

A spare tire for capital markets: Fostering corporate bond markets in Asia

BIS Papers No 85, June 2016

The eight local currency bond markets in which the Asian Bond Funds 2 (ABF2) invests have continued to develop since 2011. But the development of corporate bonds continues to lag that of government bonds. We focus on areas where we believe there remains work to be done to foster corporate bond markets. In primary markets, we suggest measures to expand the range of credit quality and develop infrastructure bonds as an asset class. In secondary markets, we recommend enhancing liquidity through developing regional mechanisms to increase post-trade transparency as well as through developing hedging markets. In repo markets, there may be room for conducting a survey to fill information gaps and identify where policy actions might have the greatest effect.

Towards a "new normal" in financial markets?

BIS Papers No 84, May 2016

The 14th BIS Annual Conference took place in Lucerne, Switzerland, on 26 June 2015. The event brought together a distinguished group of central bank Governors, leading academics and former public officials to exchange views on the topic "Towards 'a new normal' in financial markets?" The papers presented at the conference and the discussants' comments are released as BIS Working Papers nos 561 to 564.

BIS Working Papers

Regional pull vs global push factors: China and US influence on Asia-Pacific financial markets

Chang Shu, Dong He, Jinyue Dong and Honglin Wang

September 2016, No 579

This paper compares spillovers from the US and Chinese financial markets to the rest of Asia-Pacific. Structural VAR analysis points to the growing influence of Chinese equities and currency movements. In normal times China's influence in the equity market has risen to a level close to that of the United States, although the relative impact of the United States became stronger in crisis periods. Nonetheless, China's bond market remains a negligible player. The influence of China may be interpreted as a "regional pull" factor, while that of the United States remains a key "global push" factor.

Asset managers, eurodollars and unconventional monetary policy

Lawrence L Kreicher and Robert Neil McCauley

August 2016, No 578

An asset manager's rapid liquidation in the weeks around the end of September 2014 of a very large position in eurodollar futures, a huge derivatives market that allows traders to position on the future path of dollar money rates, raises two questions. What is the profile of

¹ Requests for publications should be addressed to Bank for International Settlements, Press & Communications, Centralbahnplatz 2, CH-4002 Basel. These publications are also available on the BIS website (<http://www.bis.org/>).

asset managers in this key market? And how has the Federal Reserve's unconventional monetary policy, including forward guidance about policy rates, affected this market? Asset managers generally hold the largest eurodollar positions among buy-side traders but play a lesser role in day-to-day trading. Second, the Fed's unconventional policy saw the average maturity of eurodollar contracts traded between 2008 and 2014 double and it has remained at an elevated maturity since then. Moreover, from 2012 into 2015 eurodollar turnover responded more strongly to Federal Reserve announcements than to macroeconomic news, a finding analogous to that of Filardo and Hofmann (2014) for yields. In 2015 asset managers took a large short position in eurodollar futures; this unprecedented position would profit if the Federal Reserve's own projections of policy rates ("dots") were realised. Judging from eurodollar futures, asset managers now play an important role in facilitating or hindering the transmission of monetary policy to market rates.

Are star funds really shining? Cross-trading and performance shifting in mutual fund families

Alexander Eisele, Tamara Nefedova and Gianpaolo Parise

August 2016, No 577

The majority of financial trades take place in open and highly regulated markets. As an alternative venue, large asset managers sometimes offset the trades of affiliated funds in an internal market, without relying on external facilities or supervision. In this paper, we employ institutional trade-level data to examine such cross-trades. We find that cross-trades used to display a spread of 46 basis points with respect to open market trades before more restrictive regulation was adopted. The introduction of tighter supervision decreased this spread by 59 basis points, bringing the execution price of cross-trades below that of open market trades. We additionally find that cross-trades presented larger deviations from benchmark prices when the exchanged stocks were illiquid and highly volatile, during high financial uncertainty times, and when the asset manager had weak governance, large internal markets, and a strong incentive for reallocating performance. Finally, we provide evidence suggesting that cross-trades are more likely than open-market trades to be executed exactly at the highest or lowest price of the day, consistent with the ex post setting of the price. Our results are consistent with theoretical models of internal capital markets in which the headquarters actively favors its "stars" at the expense of the least valuable units.

Crises and rescues: liquidity transmission through international banks

Claudia Buch, Catherine Koch and Michael Koetter

August 2016, No 576

This paper studies how global banks transmit liquidity shocks via their internal capital markets. The unexpected access of German banks' affiliates located in the United States (US) to the Federal Reserve's Term Auction Facility (TAF) serves as our liquidity shock. Using microdata on all affiliates abroad, we test whether affiliates located outside the US adjusted their balance sheets during periods, when the US-located affiliate of the same parent received TAF loans. Our analysis has three main findings. First, during periods of active TAF borrowing, foreign affiliates of parent banks with high US dollar funding needs reduced their foreign assets by less. We identify those parents based on their pre-crisis exposure to the US asset-backed commercial paper (ABCP) market. Second, foreign affiliates in financial centers also shrank their assets less. Third, there is no evidence that the ABCP exposure per se is driving the reduction of activity outside the US. In sum, our results show that the TAF program spilled over into foreign markets, while highlighting the importance of actively managed internal capital markets and the increased centralization of global banks' liquidity management at the domestic parent during and after the financial crisis

Housing collateral and small firm activity in Europe

Ryan Niladri Banerjee and Kristian S Blickle

August 2016, No 575

We investigate the importance of the housing-based collateral lending channel on firm borrowing, investment and employment. We focus on small firms in France, Italy, Spain and the United Kingdom. To identify a credit supply effect, as opposed to a home-equity driven demand effect, we compare activity in similar firms that differ by the degree of financial opacity, and therefore the degree of their reliance on collateral to overcome borrowing

constraints. We find that changing house prices have a more pronounced effect on borrowing, investment and employment in financially more opaque firms. This relationship is particularly strong in southern Europe (Italy and Spain), where financial frictions are larger and the use of collateral more important.

Low long-term interest rates as a global phenomenon

Peter Hördahl, Jhuvesh Sobrun and Philip Turner

August 2016, No 574

International linkages between interest rates in different currencies are strong, and ultra-low rates have become a global phenomenon. This paper compares how interest rates in advanced economies and in emerging economies are conditioned by two global benchmarks - the Federal funds rate at the short end and the "world" real interest rate at the long end. Real equilibrium policy rates (the natural rate) have fallen in many countries, and short-term rates worldwide have been further depressed by many years of the US policy rate close to zero. Nevertheless, changes in the Federal funds rate have less effect on longer-term rates, and thus on financing conditions, than is often supposed. The decline in the world long-term rate since 2008 has been driven almost entirely by a fall in the world term premium (negative in nominal terms since mid-2014). The world short-term rate expected over the long run has fallen only modestly over the past seven years or so, and is now just over 2% (compared with around 4% pre-Lehman).

Intraday dynamics of euro area sovereign credit risk contagion

Lubos Komarek, Kristyna Ters and Jörg Urban

July 2016, No 573

We examine the role of the CDS and bond markets during and before the recent euro area sovereign debt crisis as transmission channels for credit risk contagion between sovereign entities. We analyse an intraday dataset for GIIPS countries as well as Germany, France and central European countries. Our findings suggest that, prior to the crisis, the CDS and bond markets were similarly important in the transmission of sovereign risk contagion, but that the importance of the bond market waned during the crisis. We find flight-to-safety effects during the crisis in the German bond market that are not present in the pre-crisis sample. Our estimated sovereign risk contagion was greater during the crisis, with an average timeline of one to two hours in GIIPS countries. By using an exogenous macroeconomic news shock, we can show that, during the crisis period, increased credit risk was not related to economic fundamentals. Further, we find that central European countries were not affected by sovereign credit risk contagion, independent of their debt level and currency.

Housing prices, mortgage interest rates and the rising share of capital income in the United States

Gianni La Cava

July 2016, No 572

One Piketty (2014) documents how the share of aggregate income going to capital in the United States has risen in the post-war era. Rognlie (2015) has since shown that this is largely due to the housing sector. This paper explores the determinants of the secular rise in the share of housing capital income (or 'rental income') in the US economy. I first decompose the aggregate national accounts by geographic region and also by type of housing. I then exploit variation across US states in factors that could explain housing capital income, such as interest rates, housing prices and income growth.

The analysis shows that the long-run increase in the aggregate share of housing capital income is mainly due to higher imputed rental income going to owner-occupiers. I also find evidence that the rise in the share of housing capital income over recent decades reflects a combination of: 1) lower real interest rates; 2) lower consumer price inflation; and 3) constraints on the supply of new housing in some large US cities. In effect, the paper documents that the fall in nominal interest rates over the 1980s and 1990s raised the demand for housing and pushed up housing prices and rents (relative to non-housing prices) in supply-constrained areas. I estimate that the long-term decline in interest rates can explain more than half the increase in the share of nominal income spent on housing since the early 1980s

On the transactions costs of quantitative easing

Francis Breedon and Philip Turner

July 2016, No. 571

Most quantitative easing programmes primarily involve central banks acquiring government liabilities in return for central bank reserves. In all cases this process is undertaken by purchasing these liabilities in the secondary market rather than directly from the government. Yet the only practical difference between secondary market purchases and bilateral central bank/Treasury operations is the transactions costs involved in market operations. This paper quantifies the significant cost of this round-trip transaction - government issuance of liabilities and then central bank purchase of those liabilities in the secondary market.

Unconventional monetary policies: a re-appraisal

Claudio Borio and Anna Zabai

July 2016 No 570

We explore the effectiveness and balance of benefits and costs of so-called "unconventional" monetary policy measures extensively implemented in the wake of the financial crisis: balance sheet policies (commonly termed "quantitative easing"), forward guidance and negative policy rates. Our objective is to provide the reader with a helpful entry point to the burgeoning empirical literature and with a specific perspective on the complex issues involved. We reach three main conclusions: there is ample evidence that, to varying degrees, these measures have succeeded in influencing financial conditions even though their ultimate impact on output and inflation is harder to pin down; the balance of the benefits and costs is likely to deteriorate over time; and the measures are generally best regarded as exceptional, for use in very specific circumstances. Whether this will turn out to be the case, however, is doubtful at best and depends on more fundamental features of monetary policy frameworks. In the paper, we also provide a critique of prevailing analyses of "helicopter money" and explore in more depth the role of negative nominal interest rates in our fundamentally monetary economies, highlighting some risks.

Monetary policy, the financial cycle and ultra-low interest rates

Mikael Juselius, Claudio Borio, Piti Disyatat and Mathias Drehmann

July 2016 No 569

Do the prevailing unusually and persistently low real interest rates reflect a decline in the natural rate of interest as commonly thought? We argue that this is only part of the story. The critical role of financial factors in influencing medium-term economic fluctuations must also be taken into account. Doing so for the United States yields estimates of the natural rate that are higher and, at least since 2000, decline by less. As a result, policy rates have been persistently and systematically below this measure. Moreover, we find that monetary policy, through the financial cycle, has a long-lasting impact on output and, by implication, on real interest rates. Therefore, a narrative that attributes the decline in real rates primarily to an exogenous fall in the natural rate is incomplete. The influence of monetary and financial factors should not be ignored. Exploiting these results, an illustrative counterfactual experiment suggests that a monetary policy rule that takes financial developments systematically into account during both good and bad times could help dampen the financial cycle, leading to higher output even in the long run.

Output gaps and policy stabilisation in Latin America: the effect of commodity and capital flow cycles

Enrique Alberola-Ila, Rocío Gondo, Marco Jacopo Lombardi and Diego Urbina

June 2016 No 568

We provide a measure of the output gap that filters out the impact of the commodity and net capital inflows booms for Latin American countries. These two factors temporarily boost output and so are likely to push up estimates of potential growth in the region to unrealistic levels, thereby resulting in an underestimation of the output gaps during the upswing of the commodity cycle. We also shed light on the interaction between the two components. The results show that commodity prices has been the dominant factor explaining deviation of activity from sustainable levels. The timely consideration of these factors could prevent a procyclical fiscal policy bias in the region.

Understanding the changing equilibrium real interest rates in Asia-Pacific

Feng Zhu

June 2016 No 567

This paper studies the evolution of the equilibrium real interest rate (ie natural or neutral interest rate) in Asia-Pacific. I take an empirical approach to estimate the rate, simple estimates suggest that except for China, and Thailand since 2005, the natural interest rate may have declined substantially in Asian-Pacific economies since the early or mid-1990s, by over 4 percentage points on average. In many economies the rate has turned negative. The tendency has become more accentuated in the 2000s, especially since the onset of the global financial crisis. Yet simple natural interest rate estimates are unreliable, which vary significantly over time and across the economies.

I use frequency-domain techniques to examine the relationship between the long-run component of real interest rate and those of population characteristics, globalisation, and a range of macroeconomic and financial variables (eg credit and asset prices). I estimate spectral and cospectral densities, coherency and the frequency-specific coefficients of correlation and regression proposed by Zhu (2005). the association seems to be broad and strong between the natural interest rate and the low-frequency trend components of demographic and global factors in Asia- Pacific, but weak between the natural interest rate and trends in asset prices, creditto GDP ratio and trend growth in many economies in the region. In most cases, the natural interest rate seems to be correlated with broad measures of long-term financial sector development, and trends in saving rate and investment ratio.

Monetary facts revisited

Pavel Gertler and Boris Hofmann

June 2016 No 566

This paper uses a cross-country database covering 46 economies over the post-war period to revisit two key monetary facts: (i) the long-run link between money growth and inflation and (ii) the link between credit growth and financial crises. The analysis reveals that the former has weakened over time, while the latter has become stronger. Moreover, the money-inflation nexus has been stronger in emerging market economies than in advanced economies, while it is the other way round for the link between credit growth and financial crises. These results suggest that there is an inverse relationship between the two monetary facts. The money-inflation link is weaker in regimes characterised by low inflation and highly liberalised financial systems, while the reverse holds true for the credit-crisis nexus.

The Collateral Trap

Frederic Boissay and Russell Cooper

June 2016 No 565

Active wholesale financial markets help reallocate deposits across heterogeneous banks. Because of incentive problems, these flows are constrained and collateral is needed. Both the volume, the value, and the composition of collateral matter. We make a distinction between "outside collateral" and "inside collateral". The use of inside assets, such as loans, creates a "collateral pyramid", in that cash flows from one loan can be pledged to secure another. Through collateral pyramids the financial sector creates safe assets, but at the cost of exposing the economy to systemic panics. Outside collateral, such as treasuries, serves as foundation of, and stabilises, the pyramid. There is a threshold for the volume of treasuries, below which investors panic, the pyramid collapses, and there is not enough safe assets to support wholesale market activity; a situation that we call "collateral trap".

Moore's Law vs. Murphy's Law in the financial system: who's winning?

Andrew W Lo

May 2016 No 564

Breakthroughs in computing hardware, software, telecommunications and data analytics have transformed the financial industry, enabling a host of new products and services such as automated trading algorithms, crypto-currencies, mobile banking, crowdfunding and robo-advisors . However, the unintended consequences of technology-leveraged finance include firesales, flash crashes, botched initial public offerings, cybersecurity breaches, catastrophic algorithmic trading errors and a technological arms race that has created new winners, losers

and systemic risk in the financial ecosystem. These challenges are an unavoidable aspect of the growing importance of finance in an increasingly digital society. Rather than fighting this trend or forswearing technology, the ultimate solution is to develop more robust technology capable of adapting to the foibles in human behaviour so users can employ these tools safely, effectively and effortlessly. Examples of such technology are provided.

Who supplies liquidity, how and when?

Bruno Biais, Fany Declerck and Sophie Moinas

May 2016 No 563

Who provides liquidity in modern, electronic limit order book, markets? While agency trading can be constrained by conflicts of interest and information asymmetry between customers and traders, prop traders are likely to be less constrained and thus better positioned to carry inventory risk. Moreover, while slow traders' limit orders may be exposed to severe adverse selection, fast trading technology can improve traders' ability to monitor the market and avoid being picked off. To shed light on these points, we rely on unique data from Euronext and the AMF, the French financial markets regulator, enabling us to observe the connectivity of traders to the market, and whether they are proprietary traders. We find that proprietary traders, be they fast or slow, provide liquidity with contrarian marketable orders, thus helping the market absorb shocks, even during a crisis, and they earn profits while doing so. Moreover, fast traders provide liquidity by leaving limit orders in the book. Yet, only prop traders can do so without making losses. This suggests that technology is not enough to overcome adverse selection; monitoring incentives are also needed.

Expectations and investment

Nicola Gennaioli, Yueran Ma and Andrei Shleifer

May 2016 No 562

Using micro data from the Duke University quarterly survey of Chief Financial Officers, we show that corporate investment plans as well as actual investment are well explained by CFOs' expectations of earnings growth. The information in expectations data is not subsumed by traditional variables, such as Tobin's Q or discount rates. We also show that errors in CFO expectations of earnings growth are predictable from past earnings and other data, pointing to the extrapolative structure of expectations and suggesting that expectations may not be rational. This evidence, like earlier findings in finance, points to the usefulness of data on actual expectations for understanding economic behaviour.

Mobile collateral versus immobile collateral

Gary Gorton and Tyler Muir

May 2016 No 561

The pre-crisis financial architecture was a system of mobile collateral. Safe debt, whether government bonds or privately produced bonds, ie asset-backed securities, could be traded, posted as collateral, and rehypothecated, moving to its highest value use. Since the financial crisis, regulatory changes to the financial architecture have aimed to make collateral immobile, most notably with the BIS "liquidity coverage ratio" for banks. In the face of the Lucas critique, how should these policies be evaluated? We evaluate this immobile capital system with reference to a previous regime, which had this feature: the US National Banks Era.

Basel Committee on Banking Supervision

Implementation of Basel standards - A report to G20 Leaders on implementation of the Basel III regulatory reforms

August 2016

Full, timely and consistent implementation of Basel III remains fundamental to building a resilient financial system, maintaining public confidence in regulatory ratios and providing a level playing field for internationally active banks. This report • updates G20 Leaders on

progress and challenges in the implementation of the Basel III regulatory reforms since November 2015, when the Basel Committee last reported to the G20.

The report summarises the steps taken by Basel Committee member jurisdictions to adopt the Basel III standards, banks' progress in bolstering their capital and liquidity positions, the consistency of implementation in jurisdictions assessed since the Committee's last report and the Committee's implementation work plan.

Frequently asked questions on the revised Pillar 3 disclosure requirements August 2016

The Committee has received a number of interpretation questions related to the January 2015 publication of the revised Pillar 3 disclosure requirements. To promote consistent global implementation of the requirements, the Committee has agreed to periodically review FAQs and publish answers along with any technical elaboration of the standard and any interpretative guidance that may be necessary. The FAQs published today correspond to the text set out in the standard.

Committee on the Global Financial Systems

Experiences with the ex ante appraisal of macroprudential instruments July 2016 No 56

This report provides an overview of the experiences central banks have gathered with ex ante appraisals of macroprudential instruments and identifies areas where further analytical development would be particularly useful. It starts with a description of different approaches policymakers have used to produce quantitative and operational objectives for macroprudential policy, and a classification of the analytical methodologies employed in appraisals. The main part of the report discusses how these different methodologies have been used in practice to assess the impact of macroprudential instruments in different stages of practical decision-making such as: the assessment of risks and vulnerabilities as well as the selection of the appropriate instrument, the timing of the activation of the instrument, and the calibration of the intensity of the instrument. In all cases the discussion is illustrated with actual experiences in different jurisdictions.

Committee on Payments and Market Infrastructures

Harmonisation of the Unique Product Identifier - second consultative report August 2016 No 151

G20 Leaders agreed in 2009 that all over-the-counter (OTC) derivatives contracts should be reported to trade repositories (TRs) as part of their commitment to reform OTC derivatives markets in order to improve transparency, mitigate systemic risk and protect against market abuse. Aggregation of the data reported across TRs is necessary to help ensure that authorities are able to obtain a comprehensive view of the OTC derivatives market and activity.

Following the 2014 FSB Feasibility study on approaches to aggregate OTC derivatives data , the FSB asked the CPMI and IOSCO to develop global guidance on the harmonisation of data elements reported to TRs and important for the aggregation of data by authorities, including the Unique Transaction Identifier (UTI) and the Unique Product Identifier (UPI).

This consultative report is one part of the CPMI-IOSCO Harmonisation Group's response to its mandate. It makes proposals for the harmonised global UPI, whose purpose is to uniquely identify OTC derivative products that authorities require to be reported to TRs. The UPI system will assign a code to each OTC derivative product that maps to a set of data elements describing the product in a corresponding reference database. The first consultative report

on the Harmonisation of the UPI was issued in December 2015. The focus of this second consultative report is the format of the UPI code and the content and granularity of the UPI data elements.

**Progress report on the CCP workplan
August 2016 No 150**

The BCBS, CPMI, FSB and IOSCO are implementing a workplan on the resilience, recovery planning, resolvability and interdependencies of CCPs. This is a progress report on that work from the chairs of the committees involved.

**Resilience and recovery of central counterparties (CCPs): Further guidance on the PFMI - consultative report
August 2016 No 149**

CCPs have become increasingly critical components of the financial system in recent years, due in part to the introduction of mandatory central clearing for standardised over-the-counter derivatives in some jurisdictions. It is vital that each CCP is sufficiently resilient to withstand clearing member failures and other stress events, and that it has in place a credible recovery plan.

The proposed guidance outlined in this consultative report provides further clarity and granularity on several key aspects of the PFMI to further improve CCP resilience. These are: governance, credit and liquidity stress testing, margin, a CCP's contribution of its financial resources to losses, and its coverage of credit and liquidity resource requirements. The report also proposes guidance that is intended to facilitate a CCP's development of its recovery plan by building on and reiterating certain aspects of the Recovery report.

The guidance is not intended to create additional standards for CCPs beyond those set out in the Principles for financial market infrastructures • (PFMI), but rather to provide a more granular description of how the CPMI and IOSCO expect the PFMI to be implemented by CCPs.

**Implementation monitoring of PFMI: Level 3 assessment - Report on the financial risk management and recovery practices of 10 derivatives CCPs
August 2016 No 148**

The Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) continue to closely monitor the implementation of the Principles for financial market infrastructures (PFMI). The PFMI are international standards for payment, clearing and settlement systems, and trade repositories. They are designed to ensure that the infrastructure supporting global financial markets is robust and well placed to withstand financial shocks.

This report reviews financial risk management and recovery practices in place at a selected set of derivatives CCPs. The findings show that CCPs have made important and meaningful progress in implementing arrangements consistent with the standards. Some gaps and shortcomings have nevertheless been identified, notably in the areas of recovery planning and credit and liquidity risk management. The report also identifies a number of other differences in the outcomes of implementation across CCPs. They may reveal differences in interpretation or approach that could materially affect resilience.

**Correspondent banking - final report
July 2016 No 147**

The Committee on Payments and Market Infrastructures has issued the final report on Correspondent banking. This builds on an earlier version of the report that underwent public consultation in late 2015 and helps alleviate some of the costs and concerns affecting correspondent banking activities.

The report provides some basic definitions, outlines the main types of correspondent banking arrangement, summarises recent developments and touches on the underlying drivers. The report then develops recommendations on certain measures relating to (i) know-your-customer (KYC) utilities; (ii) use of the Legal Entity Identifier (LEI) in correspondent banking;

(iii) information-sharing initiatives; (iv) payment messages; and (v) use of the LEI as additional information in payment messages.

**Guidance on cyber resilience for financial market infrastructures
June 2016 No 146**

The Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) have published the Guidance on cyber resilience for financial market infrastructures • ("Cyber Guidance"). This builds on an earlier version of the report that underwent a three-month public consultation.

The safe and efficient operation of financial market infrastructures (FMIs) is essential to maintaining and promoting financial stability and economic growth. The Cyber Guidance aims to add momentum to and instil international consistency in the industry's ongoing efforts to enhance its cyber resilience. This includes the ability of FMIs to pre-empt cyber attacks, respond rapidly and effectively to them, and achieve faster and safer target recovery objectives if the attacks succeed. In addition, the Cyber Guidance provides authorities with a set of internationally agreed guidelines to support consistent and effective oversight and supervision of FMIs in the area of cyber risk.

At its core, the Cyber Guidance requires FMIs to instil a culture of cyber risk awareness and to demonstrate ongoing re-evaluation and improvement of their cyber resilience posture at every level within the organisation. Furthermore, while the guidance is directly aimed at FMIs, it is important for them to take on an active role in reaching out to their participants and other relevant stakeholders to promote understanding and support of resilience objectives and their implementation. Effective solutions may require collaboration between FMIs and their stakeholders as they seek to strengthen their own cyber resilience.

The Cyber Guidance does not establish additional standards for FMIs beyond those already set out in the Principles for Financial Market Infrastructures (PFMI). Instead, the document is intended to be supplemental to the PFMI, primarily in the context of governance (Principle 2), the framework for the comprehensive management of risks (Principle 3), settlement finality (Principle 8), operational risk (Principle 17) and FMI links (Principle 20).

**Implementation monitoring of PFMI: Third update to Level 1 assessment report
June 2016 No 145**

The Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) continue to closely monitor the implementation of the Principles for financial market infrastructures (PFMI). The PFMI are international standards for payment, clearing and settlement systems, and trade repositories. They are designed to ensure that the infrastructure supporting global financial markets is robust and well placed to withstand financial shocks.

This report provides jurisdictions' updated self-assessments of their progress towards adopting the legislation, regulations and other policies that will enable them to implement the 24 Principles for FMIs and four of the five Responsibilities for authorities included in the PFMI. It shows that good progress continues to be made by the 28 participating jurisdictions since the previous update in June 2015. The next update of the Level 1 assessment will be conducted in 2017.

Speeches

Helicopter money" - reality bites

Commentary by Mr Claudio Borio, Head of the Monetary and Economic Department of the Bank for International Settlements, and Mr Piti Disyatat, Executive Director of the Puey Ungphakorn Institute for Economic Research, Bank of Thailand, in Nikkei Asian Review, published on 4 September 2016.

Since the Great Financial Crisis, central banks in the major economies have adopted a whole range of new measures to influence monetary and financial conditions. The measures have gone far beyond the typical pre-crisis mode of operation - controlling a short-term policy rate and moving it within a positive range - and have therefore come to be known as "unconventional monetary policies." To be sure, some of these measures had already been pioneered by the Bank of Japan roughly a decade earlier in the wake of that country's banking crisis and uncomfortably low inflation. But no one had anticipated that they would spread to the rest of the world so quickly and become so daring, testing the boundaries of the unthinkable.

As growth has remained disappointing and inflation stubbornly below targets, the range and size of these measures have increased. Hence the growing use of long-term liquidity support, large-scale asset purchases, sizable increases in bank reserves (so-called QE) and, of late, even the introduction of negative policy rates. In the wake of these measures, the central banks' monetary base (cash and bank reserves) has ballooned in step with the overall size of their balance sheets

With central banks delving further down into their box of unconventional tools, calls for them to take a deep breath and pull out "helicopter money" have intensified. What was just a thought experiment designed to shed light on how money affects the economy is now threatening to become a reality. Proponents of this tool - more soberly described as "overt money financing" of government deficits - see it as a sure-fire way to boost nominal spending by harnessing central banks' most primitive power: their unique ability to create money at will. But can helicopter money work in the way its proponents claim? And is the balance of benefits and costs worth it? Our answer to both of these questions is no.

Proponents argue that helicopter money is special because it amounts to a permanent increase in non-interest bearing central bank liabilities ("money") as the counterpart of the deficit. This form of financing is most effective because money is free and debt is not. Permanent monetary financing means less government debt and thus lower interest payments forever. All else equal, this saving should boost nominal demand, as there would be no need to raise additional taxes. Moreover, the argument continues, the central bank is then free to increase interest rates again whenever it wishes while the lower amount of debt outstanding will still yield savings. This is the best of all possible worlds: Demand is boosted without the collateral damage of prolonged exceptionally low interest rates.

Towards financial stability-oriented monetary policy? Some evidence

Presentation on the BIS Annual Report by Mr Claudio Borio, Head of the Monetary and Economic Department, on the occasion of the Bank's Annual General Meeting, Basel, 26 June 2016.

Should monetary policy take financial stability into account? If so, what would such a policy look like? These questions have gained greater prominence recently as tensions between price and financial stability have increased, while new research has found that a leaning-against-the-wind strategy would yield little or no benefits in terms of output and inflation. Drawing on BIS research presented in the Annual Report, this presentation argues that a financial stability-oriented monetary policy can yield significant benefits. For this to be the case, such a policy would need to keep an eye on financial stability all the time, during the whole financial cycle, so that the economy never strays too far away from "financial equilibrium".

Liquidity, leverage and macro risk

Presentation on the BIS Annual Report by Mr Hyun Song Shin, Economic Adviser and Head of Research, on the occasion of the Bank's Annual General Meeting, Basel, 26 June 2016.

The realignment of the global economy has been most evident in the large adjustments of exchange rates. The Annual Report examines how these exchange rate adjustments have been both a symptom of and a catalyst for recent events. Apparently disparate issues, such as market liquidity, currency market anomalies and the risk-taking capacity of financial intermediaries, can be understood better by reference to a few common themes, especially

the role of accumulated stocks in accentuating the impact of shocks. Our findings reinforce the macroeconomic rationale for prudential policy. A better capitalised financial sector is conducive not only to greater resilience of the financial system, but also to greater risk-taking capacity in support of more liquid financial markets and better macro outcomes.

General Manager's speech: Global realignment and policy rebalancing

Speech and presentation of the key messages of the BIS Annual Report delivered by Mr Jaime Caruana, General Manager of the BIS, on the occasion of the Bank's Annual General Meeting, Basel, 26 June 2016.

Drawing on the Annual Report, the speech discusses the realignment taking place in the global economy and the required rebalancing of policies. The large exchange rate and commodity price movements that had played out even before the recent market disturbances can only be fully understood by considering long-term trends in the global economy. Rising debt, lower productivity growth and diminishing room for policy manoeuvre have contributed to a build-up of vulnerabilities that give rise to three threats: macroeconomic instability; the adverse effects of persistently low interest rates; and a loss of confidence in policymaking. Countering these threats requires that prudential, fiscal and structural policies take on a more prominent role. More realism and clarity about what central banks can and cannot achieve would facilitate the rebalancing. Recent shocks make this task more complex, but also more necessary.

The renminbi in the SDR basket and its future role in the international financial system

Remarks by Mr Peter Zöllner, Head of Banking Department of the BIS, at the 2016 MEFMI Governors' Forum, Dar Es Salaam, 20 June 2016.

This debut represents an acknowledgment of China's remarkable success in opening up its markets, and it elevates the renminbi to the ranks of the most important international currencies.

I will approach this talk by first outlining some basic facts about the SDR and its origins. I will then move to an analysis of the major steps in the renminbi's progress towards becoming an international currency worthy of SDR status. Finally, I will discuss what inclusion in the basket means for the renminbi as a reserve currency. Here, I will also touch on how the BIS has been preparing for this change.

Global liquidity and procyclicality

Speech by Mr Hyun Song Shin, Economic Adviser and Head of Research of the BIS, at the World Bank conference "The state of economics, the state of the world", Washington DC, 8 June 2016.

A stronger US dollar is putting strains on global financial markets and the banking system, leading to tensions not only in emerging market economies, but in "safe haven" currencies such as the Japanese yen and the Swiss franc. One intriguing development has been the breakdown of covered interest parity (CIP), which ensures that interest rates implicit in currency markets are consistent with those in money markets. CIP broke down during the financial crisis, and deviations have reappeared in the last 18 months, with the size of the deviations fluctuating in step with a stronger dollar. The breakdown reflects, in part, the tensions created by the divergence of monetary policy among major central banks and the withdrawal of easy dollar credit conditions that prevailed after the financial crisis, all in the context of the dollar's special role in the global financial system. As the dollar has strengthened, investors have found it harder to roll over hedges put in place when the US currency was depreciating and investors were borrowing more in dollars to take advantage of low interest rates. BIS data show that the euro and the yen may be starting to take on the features of an international funding currency, following in the footsteps of the dollar.

How can emerging market economies best cope with the current complex global economic environment?

Remarks by Mr Luiz Awazu Pereira da Silva, Deputy General Manager of the BIS, at the XVIII Annual Inflation Targeting Seminar of the Central Bank of Brazil, Rio de Janeiro, 20 May 2016.

Although it may not be an immediate threat, a bond yield snapback would pose an important challenge to the macro and financial stability of both EMEs and some AEs. EMEs in particular need to be vigilant while the potential exists for such a development. There is a need to put or keep one's house in order to benefit from strong macro fundamentals. Doing so will also create conditions that allow structural reforms to be implemented as needed and in a consensus-building manner, and that promote a stable and sustainable growth horizon for both domestic and foreign investors.